Sustainability and Bank Capital
A Study of Indian Private Banks
Kamal Kishore

Abstract
Banks’ lending business being risk based must be supported by adequate quantum of capital to ensure sustainability, soundness and resilience of the bank. The Basel Committee on Banking Supervision announced in 1988, a set of capital norms for banks to observe in order to reinforce their financial stability and soundness when struck by potential losses from deterioration of asset quality. This was known as Basel I. For the purpose of capital adequacy, capital has been sub divided into Common Equity Tier 1, Additional Tier1 and Tier 2 capital. Capital Adequacy, on this basis, has also been classified based on component of capital. The study reveals that all the new private sector banks are deeply conscious of the sustainability of their capital from the stand point of their operations and risk profile of assets. As a good strategy, they have been gradually building on their capital funds in consonance with their business growth. A sensitivity analysis of capital sustainability shows that even 10% escalation in risk weighted assets will not impair the capital adequacy significantly as the ratio will continue to be well above the benchmark ratio of 9 %. The role of Indian bank regulator is laudable in this regard as it has been studiously inspecting capital ratios of banks both by on site and off site appraisal of banks.

Key words: Capital Adequacy, New private sector banks, Risk weighted assets, Sustainability, Tier 1 capital.

JEL Classification: G28

Introduction
Banks are critical components of economy of a country. They are considered as barometer of the state of the economy. Banks are instrumental in intermediation of national savings into productive investments and in that way contribute significantly to economic development of the country. Banking business extends to diverse products and services which include acceptance of deposits, borrowing of money, lending and investments, treasury function, safe deposit vaults, foreign exchange, guarantees and indemnities, letters of credit, bills, and other
such business as permitted by banking regulation of the country, Banking Regulation Act, India. They also facilitate many customised services to clients.

The main source of funds for banking activities are derived from customer deposits which account for nearly 78% of total liabilities in banks in India (RBI, 2019). Other fund sources are contributed by external borrowings and capital provided by shareholders. While customers’ deposits and borrowings are external liabilities, capital funds constitutes internal funds or shareholders’ equity which remains in business for much longer period and sustains the bank as an entity from the impact of losses. Capital, therefore, is key driver from sustainability point of view in banks and that is the reason the bank regulators and supervisors, as also rating agencies all over the world pay critical attention to it.

It is now well recognized that banks’ lending business being risk based must be supported by adequate quantum of capital to ensure soundness and resilience of the bank. “Capital plays an insurance function. Adequate capital in banking is a confidence booster” (Olalekan and Sokefun, 2013). The regulations dealing with bank supervision all across the world now provide for framework for capital adequacy to ensure sustainability of banks and thereby provide safety insurance to the mass of deposit providers. These regulations were started as Basel norms on bank capital in 1988 and have been upgraded overtime in the light of experience gained. The central banks across the world have adopted these guidelines on capital framework of banks which are considered vital for sustainability of banks in the current environment.

**Evolution of Basel Framework on Bank Capital**

The Basel Committee on Banking Supervision (BCBS), based in picturesque town of Basel in Switzerland in the Bank for International Settlements (BIS), announced in 1988 a set of capital norms for banks to be observed in order to reinforce their sustainability, stability and soundness when struck by potential losses from deterioration of asset quality. This was known as Basel I. The framework prescribed a minimum capital base in relation to risk weighted assets of banks. The risk weighting of assets was initially done for credit risk and later market risk and operation risk were added to it. In 2004, Basel I was upgraded to Basel II to provide more rigorous risk sensitive capital guidelines for banks to observe. “During this period, the Basel Committee consulted extensively with banking sector representatives, supervisory agencies, central banks and outside observers in order to develop significantly more risk-sensitive capital requirements” (BIS, 2019). The supervisory review and market disclosure were two important pillars of new dispensation. Again in the wake of financial crisis faced in 2008-09, it was discovered that capital elements needed to be made more stringent to ensure their real loss absorption capacity in crisis situation. The capital components eligible for reckoning for capital strength were embedded with requisite loss absorption features. This came to be known as Basel III and is currently in vogue. The financial soundness of banks was thus measured by a ratio, known a Capital Adequacy Ratio (CAR) defined as under:

$$CAR = \frac{\text{Capital Funds}}{\text{Risk Weighted Assets}}$$
The capital in numerator comprise Tier 1 and Tier 2 capital, the former being core capital and Tier 2 representing supplementary capital to support the Tier1. In Basel III, Tier 1 capital has been further split into Common Equity Tier 1 (CET 1) and Additional Tier 1(AT 1).

The denominator of ratio, Risk Weighted Assets (RWA) is equally significant as it drives the volume of capital required by a bank. A low level of risk weighted assets leads to higher capital ratio. The assets are assessed for risks arising from credit risk, market risk and operational risk. The major component of RWA draws from credit risk part that constitutes nearly 85% of total RWAs in Indian banks. The Indian banking regulator, Reserve Bank of India (RBI), has been adopting Basel framework quite zealously as evolved from time to time. The CAR equation thus now depicts as given below:

\[
CAR = \frac{\text{Tier 1 Capital} + \text{Tier 2 capital}}{\text{Risk Weighted Assets}}
\]

While denominator RWA is important, the sustainability of banks as a financial institution depends on capital adequacy ratio or capital ratio, as we may call it hereafter, which largely depend on numerator of the equation i.e. capital funds. Higher the capital adequacy ratio, the more the bank is considered sound, stable and safe. “Indeed, banks can increase their capital adequacy ratios in two ways: (i) by increasing the amount of regulatory capital held, which boosts the numerator of the ratio, or (ii) by decreasing risk-weighted assets, which is the denominator of the regulatory ratio”(Das and Sy, 2012).

**Capital as sustainable force in Banks**

RWAs quantum depend upon risk profile of bank assets which are risk prone depending upon the nature of asset. Banks take exposure in a variety of assets and investments in accordance with their business policy and generate income from there. For expanding the business and at the same time to maintain the capital ratio, banks require infusion of capital from time to time.

For the purpose of capital adequacy, capital has been sub divided into three elements viz. Common Equity Tier 1, Additional Tier1 and Tier 2 capital. Capital Adequacy, on this basis, has also been classified as CET1 CAR, AT1 CAR and T2 CAR. Currently minimum CAR required by Indian banks is 9%, composed in different components as under:

**Table 1: Minimum Capital Adequacy required as per RBI norms**

| Sr No | Regulatory Capital                  | %  |
|-------|------------------------------------|----|
| 1     | Minimum Common Equity Tier 1       | 5.5|
| 2     | Additional Tier1(maximum)          | 1.5|
| 3     | Minimum Tier 1 capital             | 7.0|
| 4     | Tier 2 Capital(maximum)            | 2.0|
| 5     | Minimum Total Capital Adequacy ratio | 9.0|

Source: RBI Master circular DBR.No.BP.BC.1/21.06.201/2015-16 dated 1st July, 2015 regarding Basel III (RBI, 2015)
The table shows that minimum Common Equity Tier 1 capital ratio at 5.5% is most critical and banks have to endeavor to maintain it at that or higher levels. The Additional Tier 1 capital, as per Basel norms, can not exceed 1.5% of RWAs and only option remains is to bolster CET1 ratio. Tier 1 capital ratio is individually required at 7% or higher with Tier 2 capital pegged at 2% (RBI, 2019).

Talking of sustainable capital, banks have to conform to minimum capital ratio of 9%. However, RBI requires that “banks are expected to operate at a level well above the minimum requirement” (RBI, 2019). At the same time, bank managements have to make an internal assessment of capital adequacy and ensure that capital held by it is commensurate with its overall risk profile which can come to its rescue in the event of deterioration of asset quality and bank’s solvency is not in peril. This is an onerous responsibility for all bank managements.

Capital requirements are in general used to increase banks' resilience by requiring them to hold more capital, thereby improving loss absorption capacity during financial downturns (Dautivic, 2019). The banks’ capital adequacy and its appropriate level in consonance with the overall risk profile of assets are also supervised by the teams of bank regulator during its annual inspection visits. Before we examine the sustainable capital level of Indian banks, let us see which components are included in the computation of capital funds and constitute the numerator of capital adequacy ratio. A knowledge of components of capital which get into the computation of capital ratio is vital as there are stringent preconditions to qualify for their inclusion. Bank managements have to give serious attention to this requirement before they decide to infuse capital for this purpose. Raising capital that embodies all requisite conditions embedded in qualifying capital is a difficult task as market conditions fluctuate and appetite for requisite category of capital by investors can not be guaranteed.

**Capital Components for Capital Adequacy**

RBI has laid down various capital elements that are included in capital ratio calculation and also prescribed attendant conditions that these items have to satisfy. These are enumerated in following Table:

| Table 2: Components of Capital for Capital Adequacy |
|-----------------------------------------------------|
| Common Equity Tier1 capital (CET 1) | Additional Tier1 capital (AT 1) | Tier 2 capital (T 2) |
| Paid up equity capital of bank | Perpetual Non Cumulative Preference Shares (PNCPS) issued by banks | General Provision and Reserve of bank |
| Share Premium resulting from equity subscription | Premium resulting from issue of PNCPS | Preference Shares other than what is included in AT1 |
| Capital reserve resulting from sale of assets | Perpetual Debt Capital issued by bank | Revaluation reserve (at 55% discount to its value) |
| Statutory Reserve or Reserve Fund | | Debt capital instruments with specified conditions |
| Other disclosed free reserves not ear-marked for meeting any liability | | |
It may be observed that both equity and non-equity instruments are included in capital components. Besides, debt instruments are also qualified for inclusion. CET 1 is core capital with maximum weightage and consists of only equity instruments. This is a superior category of core capital and has significant role in absorption of losses if so arise. Higher the CET1 capital in a bank, better is the quality of its capital and it gets better recognition in the matter of financial soundness and overall sustainability. Additional Tier 1 has preference capital with perpetual maturity and similar category of debt capital. Such perpetual maturity instruments are given special status in capital computation provided they have acceptable loss absorption features as provided in RBI guidelines. These stringent conditions are required to be embedded in their issue documents so that investors who subscribe to them are well aware of same while investing in such securities. The conditions relate to cancellation of dividend and/or interest on pre-specified trigger points aimed at CAR falling at certain given levels. Banks obviously find it hard to find investors for such difficult breed of instruments, but some banks, mostly public sector banks, have been able to mobilize these capital elements.

It is relevant to add that Basel III has been concerned with enhancing sustainability of capital of banks. In that regard, it has enjoined banks to build a buffer, in addition to CET 1, called Capital Conservation Buffer (CCB). This buffer is required to be developed during normal periods to provide cushion to CET 1. The buffer does not get into calculation of capital adequacy ratio but is supplemental to CET 1 and provides a degree of enhanced sustainability to bolster confidence of stakeholders and regulators. The details of buffers under Basel III are as under:

**Table 3: Buffers provided under Basel III**

| Buffer                                    | Details                                                                 |
|-------------------------------------------|-------------------------------------------------------------------------|
| Capital Conservation Buffer (CCB)         | To be built during normal periods by conserving earnings. Banks are required to maintain 2.5% of RWAs as CCB – to be built as 0.625% per year from March, 2016 |
| Countercyclical Capital Buffer (CCCB)     | CCCB of 0 – 2.5% of RWAs to be built in the form of Common Equity has also to be implemented as per national circumstances |

Source: RBI Master circular No. DBOD.BP.BC.15/21.06.001/2010-11 dated July 1, 2019 (RBI, 2019)
Non Risk Based Capital Ratio

Realising that banks are prone to “adjust” risk weights to suit individual needs of balance sheet, Basel III introduced a risk independent capital ratio to supplement the risk based ratio, as a back stop measure. This ratio has been called as Leverage ratio and measures as:

\[
\text{Leverage Ratio (LR)} = \frac{\text{Tier 1 Capital}}{\text{Total Assets}}
\]

“Leverage ratios, on the other hand, measure the extent to which a bank has financed its assets with equity. It does not matter what those assets are, or what their risk characteristics. Leverage ratios effectively place a cap on borrowings as a multiple of a bank’s equity” (Ingves, 2014). Both the ratios are simultaneously examined to understand true nature of risk profile of bank and sustainability of its capital funds.

It has emerged from above that bank capital drives its sustainability and bank regulators all over the world are deeply concerned about it. They have issued regulatory norms for banks to shore up their capital and make all disclosures in their annual reports. Bank regulators seriously examine the capital ratios of banks during their inspections. Managements are equally made responsible to do internal assessment of adequacy of capital commensurate with the overall risk profile of each bank.

Literature Review

Sustainability spawns sustainable finance and sustainable banking. Sustainable finance refers to any form of financial service integrating environmental, social and governance criteria into the business or investment decisions for the lasting benefit of both clients and society at large (UNEP, 2016). Sustainable banking is decision by banks to provide products and services only to customers who take into consideration the environmental and social impact of their activities” (Bouma et al, 2001).

Basel Committee on Banking Supervision (BCBS) introduced the concept of capital adequacy in about 1988 which gradually based on evolutionary experience is now in its present format of Basel III. “Not only has Basel III introduced additional capital requirements, a new and stricter definition of capital has been established as well as apart from quantity, quality of available capital was an issue as well.” (Majcher, 2015).

The issue of relationship between bank capital and its risk capital has been debated for long now as capital is a vital component of its stability, sustainability and resilience in the face of asset deterioration. “There exists scientific and statistical evidence that higher capital requirements alone will not make banks safer and they will neither ruin them nor have a significant negative impact on bank lending hence on the economic growth” (Majcher, 2015).

Cohen, (2013) commented in his paper that “Banks in aggregate do not appear to have cut back sharply on asset or lending growth as a consequence of stronger capital standards”.

Alkadamani (2015) analysed the data of 46 Middle East banks to conclude “a positive effect of regulatory pressure on bank capital and bank risk taking”. He further observed that “banks close to the minimum regulatory capital requirements improve their capital adequacy by increasing their capital and decreasing their risk taking”.

An interesting study of German Savings banks by Heid et al (2004) revealed that “Banks with low capital buffers try to rebuild an appropriate capital buffer by raising capital while simultaneously lowering risk. Further, banks with high capital buffers try to maintain their capital buffer by increasing risk when capital increases”. 
Ghosh (2014) investigated capital and risk inter linkage of GCC banks and his findings were that “banks generally increase capital in response to an increase in risk, and not vice versa”.

Similar results were found by Das et al (2004) saying that “The positive effect of efficiency on capital is attributable to regulatory pressure, especially for banks which fall short of the prescribed minimum capital adequacy standards”.

The results of study by (Dautivic, 2019) indicate that “there is a risk-capital trade off: if banks consider that higher regulatory capital requirements can hinder further their profitability prospects, they will invest in potentially more profitable but riskier assets”.

The above narrative shows that capital sustainability of banks in the Indian context need to be examined as literature lacks in this regard.

**Indian Banking Scenario**

Indian banking landscape is quite diversified. There were 21 public sector banks in 2019 which were majority owned by Central Government who also take responsibility for capital needs of these banks. Some of these banks have been amalgamated from April 2020 and now their number has shrunk to 12. Then there are 21 private sector banks in two categories. One those were in existence before the onset of economic reforms in 1990s and others who came in post reform era. The focus of this study is on later category (nine banks) which has come to be known as new private sector banks and have been able to generate high volume of business and is much larger in their operations compared to old private sector banks. These new private sector banks have been fiercely competing with Government supported public sector banks and rank high in the hierarchy of Indian banking system.

**Objective of Study**

Two main objectives are in focus in the study:

(i) Capital being the most sustainable force in banks, do private sector banks in India have adequacy of capital as measured over last five year capital funds base,

(ii) Carry out sensitivity analysis of capital ratios of such banks with specified fluctuations in risk weighted assets and assess their sustainability in support of their resilience power.

**Methodology**

The study analyses the capital sustainability and its sensitivity arising from fluctuations in risk weighted assets. The sensitivity analysis using excel and trend analysis have been applied on data of private sector banks in India to assess the results. The data is captured from RBI Statistical Tables relating to Banks (RBI, 2020) and bank Annual Reports available on web sites of respective banks.

Private sector banks have been selected for the study who have sizable share in Indian banking operations and which emerged after the onset of financial reforms in the country. There are nine such private sector banks, viz. Axis Bank, Bandhan Bank, DCB Bank, HDFC bank, ICICI Bank, IDFC Bank, Indusind Bank, Kotak Mahindra Bank and Yes Bank. While public sector banks get the support of Central Government, for capital infusion in times of need, private banks largely have to depend on market forces to maintain their capital levels for their sustainability and their sustainability becomes important and hence this study. Their sustainability is, therefore, more relevant and needs closer analysis.
Analysis of sustainability of capital of Indian private sector banks

In the light of theoretical formulation given above, we proceed to examine to what extent new private sector banks in India have conserved their capital so that banks’ sustainability, stability and resilience power is not threatened. The data on capital adequacy for these banks has been examined for previous five year period March 2017 to March 2021. On this analysis, the average capital ratios for last five years are found as under:

**Table 4: Average CAR of Private Banks in %**

| Sr No | Bank                  | Tier 1 CAR | Tier 2 CAR | Total CAR |
|-------|-----------------------|------------|------------|-----------|
| 1     | AXIS BANK             | 14.00      | 3.06       | 17.06     |
| 2     | BANDHAN BANK          | 25.69      | 1.50       | 27.19     |
| 3     | DCB BANK              | 13.50      | 3.42       | 16.91     |
| 4     | HDFC BANK             | 15.15      | 1.45       | 16.60     |
| 5     | ICICI BANK            | 15.70      | 2.00       | 17.70     |
| 6     | IDFC BANK             | 15.69      | 0.31       | 16.00     |
| 7     | INDUSIND BANK         | 15.18      | 0.52       | 15.69     |
| 8     | KOTAK MAHINDRA BANK   | 18.33      | 0.74       | 19.07     |
| 9     | YES BANK.             | 11.08      | 4.27       | 15.35     |

Source: Compiled from RBI Statistical Tables relating to Banks (RBI, 2021)

The capital position is graphically represented below:

**Fig. 1: Capital Adequacy Ratio of new private sector banks**

Source: Data in Table 4 above

The chart reveals that all new private sector banks are well capitalized and show a capital adequacy ratio much above the prescribed norm of 9%.
The distribution chart is shown below:

**Table 5: CAR chart of banks**

| CAR %  | No of banks |
|--------|-------------|
| 9-11   | 0           |
| 11-15  | 0           |
| 15-20  | 8           |
| >20    | 1           |

Source: Data in Table 4 above

If we see the capital adequacy position of these banks for the current year 2021, which reflects its capital sustainability in the most proximate year, the same is reflected in the following table:

**Table 6: CAR of Private Banks in % for March, 2021**

| Sr No | Bank               | Total CAR |
|-------|--------------------|-----------|
| 1     | AXIS BANK          | 19.18     |
| 2     | BANDHAN BANK       | 23.47     |
| 3     | DCB BANK           | 19.67     |
| 4     | HDFC BANK          | 18.51     |
| 5     | ICICI BANK         | 18.87     |
| 6     | IDFC BANK          | 13.72     |
| 7     | INDUSIND BANK      | 17.38     |
| 8     | KOTAK MAHINDRA BANK| 23.4      |
| 9     | YES BANK.          | 17.51     |

Source: web sites of respective banks

Thus, even the current capital ratio of all new private sector banks is well above the benchmark of 9% by good margin, showing a rather satisfactory position.

It emerges that all the above banks are deeply conscious of the sustainability of their capital from the stand point of their operations and risk profile of assets. The capital adequacy ratio in all banks is more than 13.7%, much above the benchmark of 9%, leaving good cushion for future contingencies. As a good strategy, they have been gradually building on their capital funds in consonance with their business growth.

**Sensitivity Analysis of Capital Sustainability**

Going further, we subjected the capital adequacy ratio of banks for March 2021 to a 5% and 10% increase in their RWAs and recomputed the resulting capital adequacy. The results are as under:
Table 7: Sensitivity Analysis of Bank Capital

| Sr No | Bank                | CAR 2021 | CAR with +5% RWAs | Decrease in CAR % | CAR with +10% RWAs | Decrease in CAR % |
|-------|---------------------|----------|-------------------|-------------------|-------------------|-------------------|
| 1     | AXIS BANK           | 19.18    | 18.26             | 0.92              | 17.43             | 1.74              |
| 2     | BANDHAN BANK        | 23.47    | 22.35             | 1.12              | 21.33             | 2.13              |
| 3     | DCB BANK            | 19.67    | 18.73             | 0.94              | 17.88             | 1.79              |
| 4     | HDFC BANK           | 18.51    | 17.63             | 0.88              | 16.83             | 1.68              |
| 5     | ICICI BANK          | 18.87    | 17.97             | 0.90              | 17.15             | 1.72              |
| 6     | IDFC BANK           | 13.72    | 13.07             | 0.65              | 12.48             | 1.24              |
| 7     | INDUSIND BANK       | 17.38    | 16.55             | 0.83              | 15.80             | 1.58              |
| 8     | KOTAK MAHINDRA BANK | 23.4     | 22.26             | 1.14              | 21.25             | 2.15              |
| 9     | YES BANK            | 17.51    | 16.68             | 0.83              | 15.92             | 1.59              |

Source: Author’s computations

Discussion of Results

Capital requirements are in general used to increase banks' resilience by requiring them to hold more capital, thereby improving loss absorption capacity during financial downturns (Dautivic, 2019).

The above table reflects that Indian private banks are already sufficiently resilient to fluctuations in risk assets. Their capital base is well founded. Even 10% escalation in RWAs will not impair the capital adequacy significantly as the ratio will continue to be well above the benchmark ratio of 9%. The deterioration in ratio will be less than 1.15% on 5% increase in RWA, and 2.16% on 10% increase scenario. The average CAR in both scenario will still be 18.16% and 17.34%, well above the benchmark set by regulator. This spells a satisfactory position of capital sustainability of private sector banks. Banks with such robust capital will obviously continue to further shore up their capital with expansion in business and changes in risk profile of assets. Hogan’s study (2015) has also highlighted that “Capitalization, which comes in the form of capital adequacy, has been an integral part of the instrument used by bank regulators worldwide to regulate banking activities”. This equally well applies in Indian banks.

Similar results have emerged from a paper by Mathuva (2009) in relation to Kenyan banks showing “significant positive relationship between regulated and risk-based capital adequacy measures and the ratio of Tier 1 capital to total RWA as well as profitability measures of Return on Assets and Return on Equity.

The sensitivity of bank capital to financial condition of banks has been further stressed by Mayes and Stremmel (2014) stating that regulatory capital measure explains best a bank’s financial condition with considerable accuracy.

That bank capital has resilient power has been demonstrated by Berger, Herring, and Szegö (1995) by showing that “a decline in the capital ratios of a bank leads to an increase in the expected costs of financial distress”.

Thus, the study of Indian private banks is in line with other studies which also highlight the importance of CAR as a strong measure of banks’ sustainability.

How Banks can enhance Capital for Sustainable Capital Adequacy

Capital expansion is critical for sustainability of banks. Bank managements have to give focused attention to it all the time through dedicated management attention. Banks can adopt
Sustainability and Bank Capital A Study of Indian Private Banks

various strategies to shore up their capital in such a way that banks’ sustainability and resilience is not questioned at any time. Regulations require that banks must operate at much higher level of capital adequacy over the prescribed benchmark and same must also be compatible with the risk profile assessment in a professional manner.

Banks have got several options to increase their capital funds. Some are mentioned below:

(i) Retained earnings are a common strategy. Banks can either improve their profits or curtail dividend payout to conserve earnings and use them to shore up capital base. Managements have to work out strategies to increase profits by increasing margins, expand services or cut down fund costs.

(ii) Other strategy is issue of fresh equity capital. This option again hinges on state of capital market and attractiveness of balance sheet of bank concerned. However, the bank has to keep in mind the effect of new shares on the market value of existing stock. In India, public sector banks primarily depend on fresh capital infusion by Central Government which is their promoter. Government makes budgetary provisions from time to time to inject fresh equity in these banks. The private sector banks, on the other hand, largely rely on public offerings which is not always a sound or feasible option.

(iii) Other option would be review of the asset portfolio of bank. Either liquidate some high risk assets or slow down business expansion to conserve more retained earnings. Possibly, asset sale can generate capital reserve also to be reckoned as capital in CET 1.

(iv) Another choice could be to rejig asset portfolio so as to replace risky assets with low risk loans or sovereign securities.

Bank management can decide on a mix of these strategies taking all aspects in view and converge on the right amount of capital it should have. This has to be dovetailed with a competent internal review of risk assessment of assets portfolio.

Conclusion

Capital is critical to sustainability of banks. It bolsters sustainability, safety and resilience power of banks in the face of losses faced by them. The regulators have also prescribed capital adequacy framework for banks all over the world which includes availability of requisite quality of capital to sustain its operations and build cushion for sustainability in future. Bank managements in India are deeply conscious of capital infusion as a mark of sustainability and regularly monitor their financial parameters at various levels to benchmark them not only to prescribed standards but much above the same. They carry out risk management of their asset portfolios and conduct internal capital adequacy assessment including stress tests for this purpose. The disclosures of capital ratios and all details of capital components with reconciliation are made in annual statements. This also forms an important parameter of bank ratings by national and international rating agencies. Banks’ capital raising programs through various equity and non equity instruments are carefully planned after due considerations of infusion of those capital elements which are compliant with capital benchmarks.

The regulators and international banks and other financial agencies dealing with Indian banks do look for adequate level of capital in banks. Conscious of this aspect, most Indian banks earnestly plan their capital in relation to their risk based assets, both on and off balance.
sheet, which earn them sound and robust financial strength. The business plans are devised with this aspect in mind.

It is a good sign that all new private sector banks in India, which have a reasonably good share of banking business in the country, have shown a sustainable degree of capital much above the regulatory norms reflecting on their excellent planning and decision making. The sensitivity analysis and its examination has revealed that these Private sector banks have adequately maintained their capital funds in a way that their robustness and resilience is not effected. This is a confidence booster for depositors and other stakeholders. Private Banks have to depend on market raising of capital for their sustainability. This puts pressure on these banks as market dynamics are changing from time to time. The role of Indian bank regulator is laudable in this regard as it has been studiously monitoring capital ratios of banks both by on site and off site appraisal of banks. Ultimately, it rests with bank managements themselves and their shareholders to pay due attention to this task and give all assurance of bank sustainability for all time through capital adequacy and other financial parameters.

References

Alkadamani, K. (2015). Capital Adequacy, Bank Behavior and Crisis: Evidence from Emergent Economies. European Journal of Sustainable Development, 4(2): 329-338.

Berger, A. N., Herring, R. J., & Szegö, G. P. (1995). The role of capital in financial institutions. Journal of Banking and Finance, 19: 393–430.

BIS. (2019). Bank for International Settlement. History of Basel committee. https://www.bis.org/bcbs/history.htm

Bouma, J., Jeucken, J., & Killers, L. (2001). Sustainable Banking: The Greening of Finance. Sheffield, UK: Greenleaf Publishing.

Cohen, B., H. (2013). How have banks adjusted to higher capital requirements? BIS Quarterly Review. https://www.bis.org/publ/qtrpdf/r_qt1309e.pdf

Das, A., & Ghosh, S. (2004). Risk, capital and operating efficiency: Evidence from Indian public sector banks. MPRA Paper No. 17399. Indian Journal of Economics and Business, 3(1): 147-164.

Das, S., & Sy, Amadou, N. R. (2012). IMF Working Paper No. 12/36 “How Risky Are Banks’ Risk Weighted Assets? Evidence from the Financial Crisis”. Accessed from https://www.imf.org/external/pubs/ft/wp/2012/wp1236.pdf.

Dautovic, E. (2019). Has regulatory capital made banks safer? Skin in the game vs moral hazard. Working Paper Series No 91 / April 2019 (https://ssrn.com/abstract=3332501)

Ghosh, S. (2014). Risk, capital and financial crisis: Evidence for GCC banks. Borsa Istanbul Review 14(3): 145-157.

Heid, F., Porath, D., & Stolz, S. (2004). Does capital regulation matter for bank behaviour? Evidence for German Savings Banks. Discussion paper series 2, 03/2004, Deutsche Bundesbank.

Hogan, T. L. (2015). Capital and risk in commercial banking: A comparison of capital and risk-based capital ratios. The Quarterly Review of Economics and Finance, 57: 32–45.

Ingves, S. (2014). Banking on Leverage. Keynote address by Chairman, BCBS to the 10th Asia-Pacific High-Level Meeting on Banking Supervision, jointly organised by the Basel
Committee on Banking Supervision (BCBS), the Financial Stability Institute (FSI), February, 2014.

Majcher, P. (2015). Increased Bank Capital Requirements: Neither Panacea nor Poison: *Procedia Economics and Finance*, 25: 249 – 255. [www.sciencedirect.com](http://www.sciencedirect.com)

Mathuva, D. M. (2009). Capital adequacy, cost income ratio and the performance of commercial banks: The Kenyan scenario. *Int. J. Applied Econ. Finance*, 3(2): 35–47.

Mayes, D. G., & Stremmel, H. (2014). The effectiveness of capital adequacy measures in predicting bank distress. SUERF – The European Money and Finance Forum. Retrieved on: November 30, 2016, from: http://www.suerf.org/docx/s_dfbd282c18300fa0ecceeaa6c5fac41f_3991_suerf.pdf.

Olalekan, A., & Adeyinka, S. (2013). Capital Adequacy and Bank’s Profitability : An Empirical Evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10):87-93.

RBI. (2015). RBI Master circular DBR.No.BP.BC.1/21.06.201/2015-16 dated 1st July, 2015 regarding Basel III. Available on www.rbi.org.in

RBI. (2019). Master Circular No.DBOD.BP.BC.15/21.06.001/2010-11 dated July 1, 2019. Available on www.rbi.org.in

RBI. (2021). RBI Statistical Tables relating to Banks. Available on https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications#!4

UNEP. 2016. Green Finance for Developing Countries: Needs, Concerns and Innovations. United Nations Environment Programme. Retrieved from http://www.sustainablefinance.ch/upload/cms/user/201607_Green_Finance_for_Developing_Countries_UNEP.pdf