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Capital requirement is the most important for a bank, at any point in time, to stay solvent in the long run and be able to meet cash requirements of the depositors from time to time. Bank failures have not been uncommon in the past. The Herstatt Bank (1974) crisis was one of the catalysts to awaken central banks and take steps towards banks' financial health. It was by the end of 1974 that a group of ten central bank governors across Europe came together to form a committee on banking regulations and supervisory, commonly known as the Basel Committee. The Basel Committee was a consequence of the numerous bank failures that caused a catastrophic effect on the world economy. Basel Accord I was the first in the series,

Transition of Basel III as an approach towards Improving Risk Management in the Banking Sector

The Global Financial Crisis compelled the Basel Committee to come up with an improved Basel III regulation in 2010. It aimed at introducing changes to existing regulations, the addition of new regulations, and constraining overly optimistic internal models used by banks. Most of the changes have been made in the credit risk section which include introduction of capital conservation buffers and countercyclical cover. In terms of liquidity measures, Basel III introduced liquidity standards to ensure short-term and medium-term funding stability of the banks. Since implementation, the Committee has always consistently focused on transition and enhancement, leading to a move from Basel III to Basel 3.1 in 2017 (which the industry refers to as Basel IV). The study aims to examine the status of major banks with respect to enhanced risk management practices.

primarily addressing Credit Risk and related Capital Adequacy for the banks to always stay solvent. Later, it was realised that banks are not involved in just basic banking functions of lending and borrowing but have extended to taking market risk. Subsequently, to address this, Basel Accord II was introduced, in the form of three pillars, focusing on various kinds of risks. The addition of Market Risk, Operation Risk and increment in Capital Adequacy Ratio were the major focus of the Basel Committee. In the late 2000s, with the Great Financial Crisis of 2008, bank liquidity played a pivotal role in amplifying the impacts of the economic downturn. Basel III was introduced in 2013 through 2019 with an initial implementation deadline of March 2020. The said framework focused on strengthening the core capital for a bank, and at the same time adding a cushion for globally and systemically important financial institutions to cope with bad times. With time, the Basel Committee has been coming up with

recommendations and frameworks to cope with newly arising risks. Since 2017, the committee has published numerous new frameworks as a part of Basel III post-crisis reforms, which the industry generally also refers to as Basel 3.1 or Basel IV.

Background Study: Transition from Basel I to Basel III

The Basel Committee on Banking Supervision (BCBS) is a committee of banking supervisory authorities that was established by the central bank governors of the Group Ten (G10) in 1974. The committee expanded its membership in 2009, and then again in 2014. Now, the BCBS has 45 members from 28 jurisdictions, consisting of central banks and authorities responsible for banking regulations.

BASEL I was the first international banking regulatory framework, introduced in 1988, that aimed to promote the stability of the international

banking system by establishing a minimum capital requirement for banks. The focus of Basel I was to ensure that banks maintained a minimum level of capital to absorb unexpected losses. The capital requirement was set at 8% of risk-weighted assets (RWAs). Risk weightings ranged from 0% for government bonds to 100% for unrated or poorly rated corporate bonds and other high-risk assets. Later, in the mid-1990s, BCBS introduced netting and market risk & trading book adjustments in 1995 and 1996 respectively. Basel II was introduced in 2004. It aimed to improve the measurement and management of credit risk, operational risk, and market risk. The accord accompanied three pillar approaches consisting of:

1. Capital Requirement,
2. Supervisory Review &
3. Market Discipline (leading to Information Transparency)

Basel III was introduced in 2010. Basel III increased capital for credit risk and tightened the definition of capital in response to the 2007–2009 financial crisis. Basel III increased capital requirements for credit risk and tightened capital definition for Tier 1 and Tier 2 capital. Core Tier 1 equity capital must be at least 4.5% of risk-weighted assets, total Tier 1 capital must be 6% of risk-weighted assets, and total capital (Tier 1 plus Tier 2) must be at least 8% of risk-weighted assets.

The Capital Conservation Buffer (CCB) is a component of Basel III capital requirements that requires banks to hold an additional buffer of common equity Tier 1 capital to ensure that banks have an extra layer of protection to absorb losses during periods of financial stress. The CCB is

set at 2.5% of a bank's risk-weighted assets (RWAs) and is in addition to the minimum common equity Tier 1 capital requirement of 4.5%. This means that banks are required to hold a total of 7% of common equity Tier 1 capital. Total Tier 1 capital must be 8.5% of risk-weighted assets and Tier 1 plus Tier 2 capital must be 10.5% of risk-weighted assets in normal periods. If a bank's capital level falls below the CCB requirement, it will face restrictions on its ability to pay dividends, buy back shares, or pay discretionary bonuses to its executives.

The Bank for International Settlement came up with regulatory frameworks in 2013, and since then, there have been significant changes in the originally proposed "Basel III framework". The Basel Committee came up with Basel III reforms in 2017. The committee says:

"It complements the initial phase of Basel III reforms previously finalised by the Committee. The Basel III framework is a central element of the Basel Committee's response to the global financial crisis. It addresses a number of shortcomings with the pre-crisis regulatory framework and provides a regulatory foundation for a resilient banking system that supports the real economy." - BCBS, Dec 2017

Generally, in the banking industry, Basel III (2017) significantly reduced reliance on internal models by enhancing standardized approaches and introducing capital output floors, and many more changes have come from time to time in order to immunize banks against financial crisis.

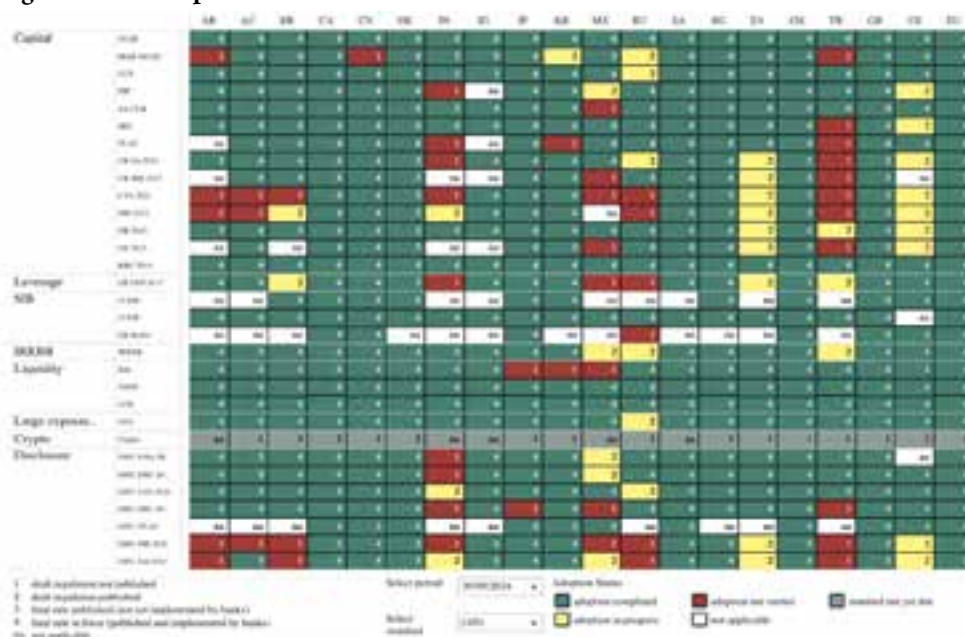
Transition to Basel 3.1 or Basel IV

Major reasons for continuous improvement to Basel III by the Basel Committee on Banking Supervision (BCBS) have been made to accommodate newly emerging risks within the banking industry. The aim is to make banks more resilient and less prone to economic downturn and ultimately avoid the deepening of an economic crisis.

As far as the central banks across the world are concerned, active participation has been seen in the implementation of the Basel framework, and the implementation stages are presented in Figure 1.

The definition of capital is an important aspect while classifying different equity classes into capital buckets. The Capital "definition" for G-SIBs and Non-G-SIBs

Figure 1: Basel Implementation Worldwide



Source: https://www.bis.org/bcbs/implementation/rcap_reports.htm

are comprehensive and widely available on public platforms. Post 2017, there have not been any major changes in the capital definition, but a few new guidelines have been introduced for implementation and better risk management practices around the world.

Basel III Reforms: Capital Efficiency, Liquidity Standards, and Systemic Risk Control

- **Introduction of a leverage ratio:** Basel III introduced a non-risk-based leverage ratio to prevent excessive lending and off-balance-sheet leverage, ensuring banks do not depend solely on risk-weighted assets to determine capital adequacy.
- **Enhanced liquidity standards:** Two major liquidity ratios were added: (i) the Liquidity Coverage Ratio (LCR), requiring banks to hold high-quality liquid assets to withstand a 30-day stress period; and (ii) the Net Stable Funding Ratio (NSFR), designed to promote stable, long-term funding structures.
- **Improved risk coverage:** Basel III strengthened the measurement of risks associated with complex products like derivatives and expanded the calculation of counterparty credit risk, reducing interconnected exposure in the system.
- **Focus on systemically important institutions:** Additional capital surcharges and intensified supervision were introduced for Global Systemically Important Banks (G-SIBs) to address their higher systemic impact.
- **Strengthening risk governance and transparency:** Basel III encourages improved disclosure, enhanced risk culture, and robust internal risk management frameworks to support better financial decision making.
- **Impact on the banking sector:** Although higher capital requirements may create short-

term pressure on profitability, the reforms significantly enhance stability, resilience, and long-term confidence in the banking sector.

Effect of Basel Guidelines on JP Morgan Chase's Capital Adequacy & Return on Equity

JP Morgan Chase (JPM) is one of the oldest banks in the world, the largest in terms of assets under management, and one of the most well recognized banks worldwide. Most major countries that hold reserves in terms of dollars generally have country accounts with JPM or similar large banks. The bank faced trying times during the 2008 crisis, and its solvency was also questioned by the critics. Both the regulators and the bank realised that they cannot afford to declare JPM bankrupt or insolvent. Therefore, to address this, adequate capital must be maintained to sustain bad times.

As presented by BCBS, the Basel regulations suggest proper capital requirements that are to be met by all globally active banks, and an additional safety tier for Globally Systemically Important Financial Institution (G-SIFIs). The domestic regulators also ensure that proper supervision

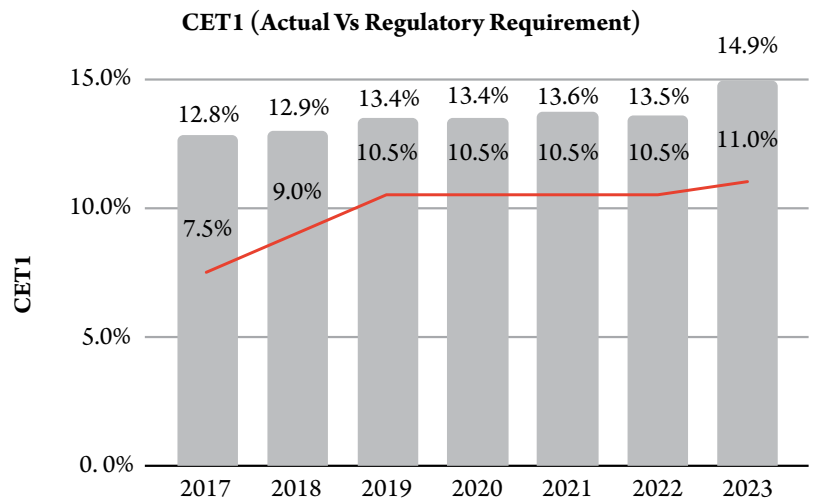
is done, and sometimes, even an additional buffer is added to banks' capital requirement. BIS has closely monitored banks such as JPM in order to avoid financial crises arising due to poor risk management practices.

Basel III introduced the Capital Conservation Buffer and the Countercyclical Buffer. It also introduced an institution-specific buffer in order to add an extra layer of safety to the entire financial system. Regulators have constantly been working towards increasing core capital requirements and making capital definitions stricter.

The trend in Common Equity Tier-1 capital over the years, as can be seen in Figure 2, showcases how requirements have gone up, and banks have been consistently increasing capital to cope with these changes. *(Regulatory requirement are shown by the red line, while the bank's actual capital is represented by grey bars.)*

Similarly, the Total Capital Trend over the years, shown in Figure 3, represents how total capital requirements have increased and how JPM has perfectly worked on the capital side to not only stay above regulatory limits but also to maintain a good buffer in case of any further regulatory requirements.

Figure 2: CET1 Comparison

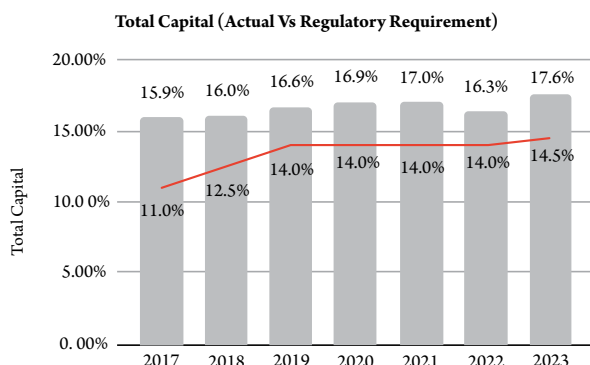


Source: Compiled by Authors from JP Morgan Chase Annual Reports

(From 2017 to 2019, JP Morgan followed the Basel III (transitional) approach for calculating CET1. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

(Regulatory requirement are shown by the red line, while the bank's actual capital is represented by grey bars.)

Figure 3: Total Capital Comparison



Source: Compiled by Authors from JP Morgan Chase Annual Reports

(From 2017 to 2019, JP Morgan followed the Basel III (transitional) approach for calculating Total Capital. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

The liquidity position, as shown in Table 1, is another important part of the company.

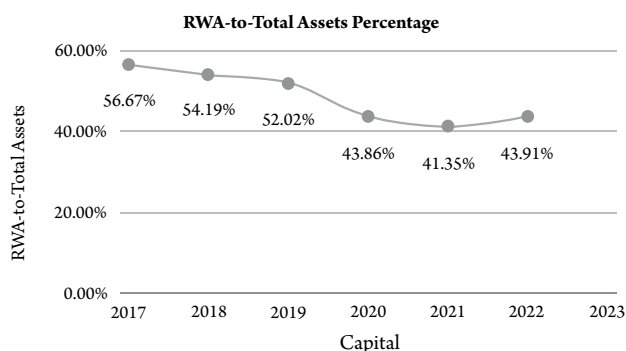
Table 1: Liquidity Profile of JP Morgan Chase

Year	Eligible High-Quality Liquid Assets	Net Cash Outflow	Liquidity Coverage Ratio	Excess Eligible High-Quality Liquid Assets
2017	\$560.08	\$472.08	119%	\$88.00
2018	\$529.27	\$467.70	113%	\$61.57
2019	\$545.28	\$469.40	116%	\$75.88
2020	\$697.06	\$634.04	110%	\$63.02
2021	\$738.12	\$664.80	111%	\$73.32
2022	\$733.05	\$652.58	112%	\$80.47
2023	\$798.63	\$704.86	113%	\$93.77

Source: Compiled by Authors from JP Morgan Chase Annual Reports

(From 2017 to 2019, JP Morgan followed the Basel III (transitional) approach for calculating Liquidity Profile. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

Figure 4: RWA-to-Total Asset Percentage



Source: Compiled by Authors from JP Morgan Chase Annual Reports

(From 2017 to 2019, JP Morgan followed the Basel III (transitional) approach for calculating RWA-to-Total Assets Percentage. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)



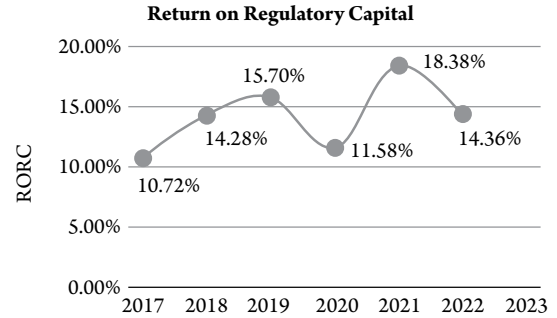
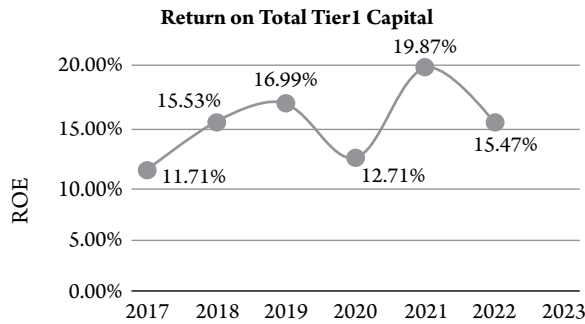
The RWA-to-asset ratio can be seen to be declining over the years, indicating a reduction in RWA over the year. Figure 4 shows a decline in RWA post the introduction of new Risk-Weighted Assets (RWA) calculation methods and techniques.

As a result of the decrease in RWA over time, the capital requirements for banks have decreased, ultimately leading to a healthy Return on Equity and Return on Regulatory Capital, as shown in Figures 5A & B.

In conclusion, we can say that the bank has benefited from the introduction of the new Basel Regulations, leading to no negative impact on ROE and a sharp reduction in RWA.

Effect of Basel Guidelines on HSBC's Capital Adequacy & Return on Equity

HSBC, an acronym from its founding member, The Hongkong and Shanghai Banking Corporation, is a British universal bank and financial services group headquartered in London, England, with historical and business links to East Asia and a strong multinational footprint. Many major officials gave inputs during the preparation of the Basel framework for banks' capital adequacy. Detailed data has been gathered and analysis has been done in order to make meaningful interpretation and comment on how Basel has impacted

Figures 5A & B: Return on Capital Comparison

Source: Compiled by Authors from JP Morgan Chase Annual Reports

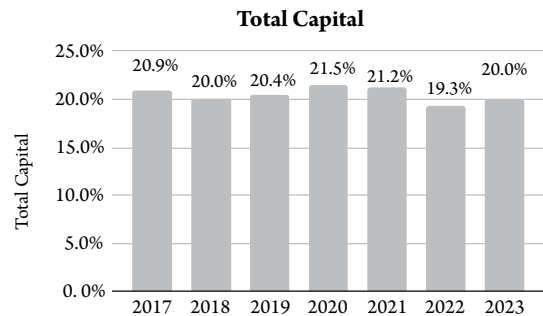
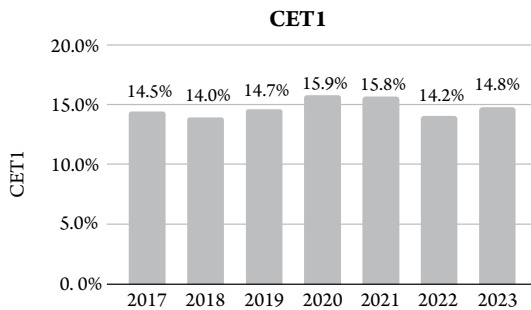
(From 2017 to 2019, JP Morgan followed the Basel III (transitional) approach for calculating Return on Capital Comparison. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

HSBC in a European context. Banks in Europe are governed by the Prudential Regulation Authority of the Bank of England.

While checking for different capital ratios for HSBC, it was noted that the bank has consistently worked on improving and maintaining adequate

ratios as per the Basel framework. Figures 6A & B showcase the difference between Total Capital as per Basel and Common Equity Tier 1 Capital (between the years 2017 to 2023). They also reflect the growth in capital over the years. There has not been a significant increase, but the ratio has always been above regulatory requirements.

Coming to the liquidity position, as shown in Table 2, the Liquidity Coverage Ratios have been significantly above the regulatory requirements. High-Quality Liquid Assets are almost 1.5 times the Net Cash Outflow. We can say that HSBC has a good liquidity position to cope with stressed times.

Figures 6A & B: CET1 & Total Capital

Source: Compiled by Authors from HSBC Annual Reports

(From 2017 to 2019, HSBC followed the Basel III (transitional) approach for calculating CET1 and Total Capital. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

Table 2: Liquidity Profile of HSBC

Year	Eligible High-Quality Liquid Assets	Net Cash Outflow	Liquidity Coverage Ratio	Excess eligible High-Quality Liquid Assets
2017	\$512.60	\$359.90	142%	\$217.49
2018	\$567.20	\$368.70	154%	\$305.37
2019	\$601.40	\$400.50	150%	\$301.68
2020	\$677.90	\$487.30	139%	\$265.15
2021	\$717.00	\$518.00	138%	\$275.45
2022	\$647.00	\$490.80	132%	\$205.91
2023	\$647.50	\$477.10	136%	\$231.26

Source: Compiled by Authors from HSBC Annual Reports (2017 - 2023)

(From 2017 to 2019, HSBC followed the Basel III (transitional) approach for calculating Liquidity Profile. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

Now, the focus comes to Risk-Weighted Assets (RWA), and their movement, increase, and decrease over time. The following interpretations can be made from Table 3. RWA has been relatively constant over the research period. This raises the question of whether the bank's total assets were also stagnant. This can be seen in the next segment of the RWA-to-Total Asset ratio:

Table 3: RWA Change year-over-year

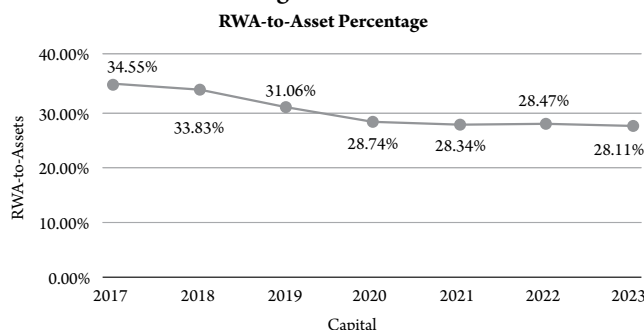
RWA	2017	2018	2019	2020	2021	2022	2023
Total RWA	\$871.30	\$865.30	\$843.40	\$857.50	\$838.23	\$839.70	\$854.10
\$ Change		-\$6.00	-\$21.90	\$14.10	-\$19.24	\$1.43	\$14.40
% Change		-0.69%	-2.60%	1.64%	-2.29%	0.17%	1.69%

Source: Compiled by Authors from HSBC Annual Reports

(From 2017 to 2019, HSBC followed the Basel III (transitional) approach for calculating RWA. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

The RWA-to-Asset has been decreasing over the years, meaning that, with stagnant RWAs, the total assets have been increasing through the years, leading to a declining trend in Figure 7.

Figure 7: RWA-to-Asset Percentage

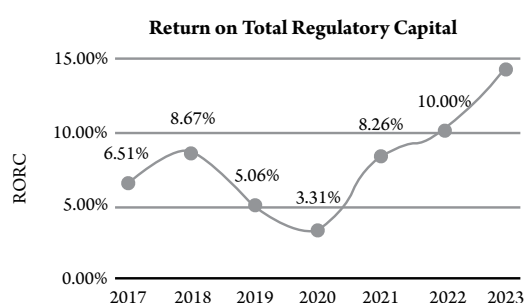
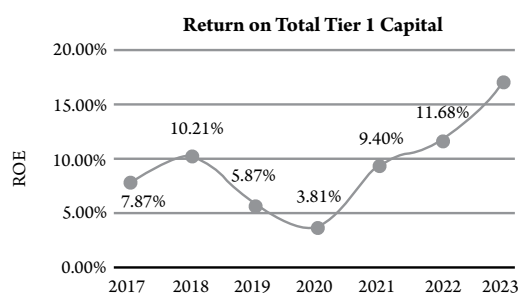


Source: Compiled by Authors from HSBC Annual Reports

(From 2017 to 2019, HSBC followed the Basel III (transitional) approach for calculating RWA-to-Asset Percentage. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

One of the major performance metrics for any bank is Return on Equity (ROE). After the implementation and new amendments of Basel, ROE and RORC have shown significant improvements, as can be seen in Figures 8A & B. Hence, HSBC has benefited partly from the introduction of the new Basel guidelines as well.

Figures 8A & B: Return on Capital Comparison



Source: Compiled by Authors from HSBC Annual Reports

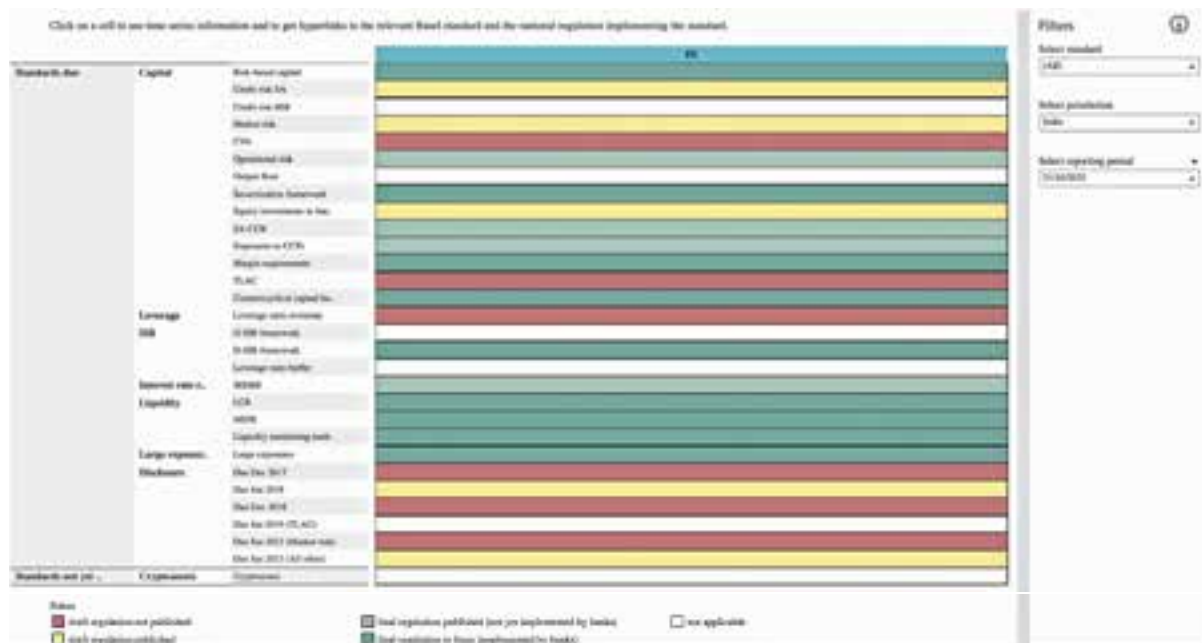
(From 2017 to 2019, HSBC followed the Basel III (transitional) approach for calculating Return on Capital Comparison. From 2020 onwards, there was a change in the computation methodology to Basel III (fully phased-in). The authors have maintained uniformity in the calculations.)

In conclusion, we can say that HSBC has benefited from the introduction of the new Basel regulations, ultimately leading to improvement in ROE and a sharp reduction in the RWA-to-Asset ratio.

India's Status on the Implementation of Basel III

The RBI started the implementation of Basel III capital regulations on April 1, 2013, with a transition period for full compliance completed by March 31, 2019. It has continued to update and add to the Basel III norms as and when newer reforms are introduced. The Basel III capital framework was also extended to All India Financial Institutions (AIFIs) and came into effect from April 2024. The Reserve Bank of India issues the norms and guidelines for Basel III in India, which are sometimes stricter than the international Basel norms, further strengthening the Indian Banking System.

Figure 9: Basel Implementation in India



Source: https://www.bis.org/bcbs/implementation/rcap_reports.htm

Findings

A summary of the findings from the above analysis is as follows:

- For many types of exposures, there is a significant and much needed reduction in risk weights. The unnecessarily high risk weights for various reasons has been matched to industry expectations.
- Banks have been given lesser options to use internal model approaches that are designed by the banks themselves; the shift is toward using more standardized approaches to ensure reliability and comparability among banks.
- Exposure calculation for securitisation portfolios and additional liquidity measures have been included. It will be vital to see how bank performance evolves after implementation.
- Bank performance has responded positively since the implementation of Basel IV. More practical risk weights have led to a reduction in RWAs, which has

“BASEL I was the first international banking regulatory framework, introduced in 1988 that aimed to promote the stability of the international banking system by establishing a minimum capital requirement for banks.”

further led to a decrease in the minimum required regulatory capital.

- Return on Equity (ROE), being a function of profit and capital, has increased as a result of the above facts. Net Interest Margins have almost remained flat which is directly related to profits. So, it can be said that ROE has increased on account of reduction in capital requirements.

Recommendations

Major recommendations from the above analysis are as follows:

- One of the major insights is the reduction in risk weights for assets held by banks by the Basel Committee for Banking Supervision (BCBS). While this is a step taken toward more practical and realistic risk weights, some areas still remain unaddressed. The BCBS should take up all such areas to ensure even better risk management practices.
- Although the new approaches are undoubtedly more practical, they have increased the complexity of modeling and assessing all kinds of risks that a bank faces. Bankers should wisely take decisions while implementing Basel IV, balancing practicality with complexity.
- Banks with high-quality collateral and loans get lower risk weights. This framework is devised in a way which promotes banks

to give higher-quality loans to reduce capital requirements. However, risk and profitability should be kept in mind because it's one of the core aspects of banking.

- From the case study, it is also seen that by adopting a new rule for the calculation of RWAs, there is a significant reduction in banks' RWA-to-Assets ratios. It can be due to improved asset quality or better calculation techniques developed by Basel. A proper in-depth analysis is required to come to a conclusion.
- The increase in Return on Equity due to the reduction in the required CET1 capital may be one of the reasons, apart from other internal reasons. Further research can be conducted to support such findings.

Conclusion

In the above study, the objectives and motivations of the Basel Committee on Banking Supervision (BCBS) for introducing Basel IV reforms were discussed in the beginning, and concerns related to the misuse of internal model flexibility by bank and the strategies used in order to reduce capital requirements and

“The RBI started the implementation of Basel III capital regulations on April 1, 2013, with a transition period for full compliance completed by March 31, 2019. It has continued to update and add to the Basel III norms as and when newer reforms are introduced.”

thereby increase Return on Equity were also raised.

Furthermore, comparison with the previous framework has also been made wherever possible, highlighting the major differences in risk weights and their potential impact on the banks' risk-weighted assets calculations.

Additionally, key guidelines as framed by the Bank for International Settlements have been discussed by elaborating on major risk assessment areas like credit risk, market risk, and operational risk, along with other factors like liquidity ratios and capital floors.

Lastly, case studies on JP Morgan Chase and HSBC have been taken up to understand the impact of Basel IV on banking operations, leading to meaningful insights.

In conclusion, it can be said that all objectives of the research have been fulfilled, and results have been obtained and mentioned in this study.

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