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A Study on Risk Management and Performance Analysis of Commercial Banks in India: Application of Camel Model

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ABSTRACT:
There are various financial tools and techniques to measure the performance of the banks, one of the most important one being the CAMEL model which lays emphasis on all the aspects of the performance measurement. The present study analyses the performance of selected nationalized banks in India.

INTRODUCTION

One of the sectors in India that is expanding the fastest is banking. The banking industry supports monetization, creativity, and growth of capital as well as the ease with which monetary policy can be implemented. Sound financial standing of a bank is crucial for shareholders and depositors alike. Furthermore, it is critical for the economy as a whole as well as for workers and employees.

MEANING OF BANK

The business of banking is safeguarding other people's money. These funds are lent by banks, which earn interest and profit for both the bank and its clients. A bank is a type of financial organization that is authorized to take deposits and issue loans. However, they might also offer additional financial services.

HISTORY OF BANK IN INDIA

The establishment of banking in India dates back to the final ten years of the 18th century. The English business community in India in the 17th century was unable to use native banking or bankers because of language barriers and other problems. The General BOI, India's first bank, was established in 1786. In Calcutta, the Bank of Bengal was established in 1809 by the East India Company. India's banking history dates back as far as the mountains, according to the Central Banking Enquiry Committee (1931). In India, the history of lending money dates back to the Vedic era. Deposits of money were accepted, and advances were given out. The Hindu jurist Manu focused some of his writings on deposits and advancements in the second or third d century A.D., and established the same guidelines regarding the interest rates that must be paid or charged. In India, professional banking has existed since 500 BC. 400 BC is the earliest known reference to lenders, borrowers, and lending rates in Kautilaya's Arthashatra. There were many different types of banks in the nation, serving the credit needs of individuals, businesses, trade, and agriculture. Mr. W.E. Preston, a member of the 1926-established Royal Commission on Indian currency and finance, stated, "It can be agreed that a method of banking that was

eminently adapted to India then requirement was in place in that country many centuries before the science of banking became an accomplished reality in England."

DEVELOPMENT OF BANKING SYSTEM IN INDIA

"India's banking system has several outstanding achievements to its credit, the most striking of which is its reach," said Dr. Jalan, a former governor of the Reserve Bank of India. India's banking system is no longer limited to big cities and towns, but rather has expanded over the past thirty years to include a vast banking network that reaches even the most remote areas of our nation.

The history of the banking sector can be categorized into the following stages:

1. Phase of Evolution (before 1947)
2. The Foundation Period, 1947–1968
3. Phase of Expansion (1968–1984)
4. Phase of Consolidation (1984-1990) 5) Phase of Reform (After 1990)

The evolutionary stage (before 1947) Established in 1881, Oudh Commercial Bank was the pioneer bank to be owned and operated by Indians. PNB, established in 1894, came after Ayodhya Bank, established in 1884.

With the help of European management, which was also very popular at the time, Allahabad Bank was founded in 1865. Twelve more scheduled banks were established in the 20th century, the most prominent being the Central BOI (1909), Canara Bank (1906), The Indian Bank (1907), BOB (1906), and The BOI (1908). (1911).

In 1935, the Reserve Bank of India was established. The purpose of the Banking Companies Act of 1949 was to oversee and control commercial banks. The SBI replaced the Imperial BOI. By 1921, it was evident that a state bank with complete government funding and resources was necessary.

Phase 1: Establishment (1948–1968) In order to oversee and control commercial banks during this time of reorganization and restructuring, the Banking Companies Act was passed in 1949. The banking industry opened its doors to serve the needs of traders, the government, and the wealthy before independence. After the Imperial BOI was reorganized as the SBI, credit was made available to small-scale consumers as well as the agricultural industry. defining SBI's role in the Indian economy and enhancing the cooperative credit system to create a mechanism for long-term funding of industry and agriculture.

Phase2: Growth (1968–1984) In 1969, there was the "First Banking Revolution" of banking socialization. Nationalization of fourteen banks to increase public accessibility to financial facilities (July 19, 1969). Priorities include deposit mobilization, credit growth, and rapid branch expansion. bank penetration in rural areas through financing all significant government initiatives and programs. Six additional banks were nationalized in April 1980, signaling the start of the second phase of the banking movement. NABARD was founded in 1982, and Regional Rural Bank was founded in 1975. The number of commercial banks fell from 281 in 1968 to 268 in 1984.

Phase3: Consolidation phase (1984–1990) The level of bank competition was extremely low. A lack of power and inefficiency afflicted many offices. The least emphasis was placed on customer service by banks. Deposit growth was used as the primary metric for evaluating bank performance, with advances and efficiency 6 coming in second.

measures made during the restructuring process, such as a relaxation of the strict rules that banks had to operate under before. Serious consideration was given to the banks' profitability, staff morale, credit ma-

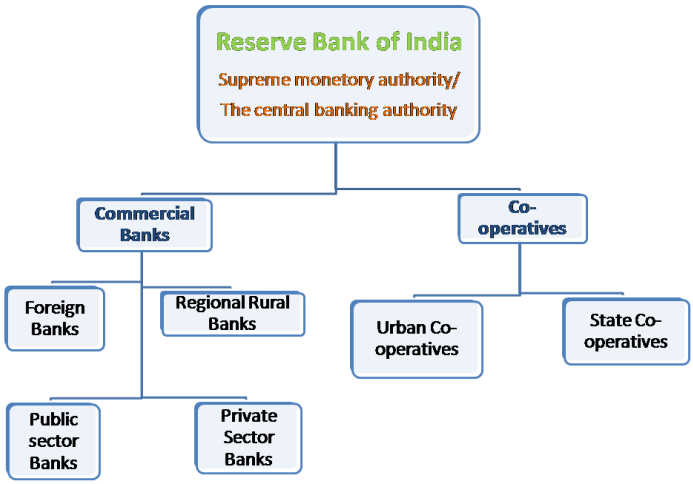
nagement, housekeeping, and customer service.

Concrete steps were taken to rationalize bank deposit and lending rates. Sixty-five percent of the assets were bank funds in the form of SLR and CRR. The pay scale was negotiated by IBA and subsequently authorized by the government.

Phase4: Reorganizing (Following 1990) Early in 1991, during the height of a "current account" crisis, the reforms were put into effect.Weak macroeconomic outcomes, such as a 10% GDP public deficit, a 3% GDP current account deficit, and a 10% inflation rate, were the catalyst for the crisis. growing levels of both foreign and domestic debt, along with a brief surge in oil prices after Iraq invaded Kuwait in 1990.

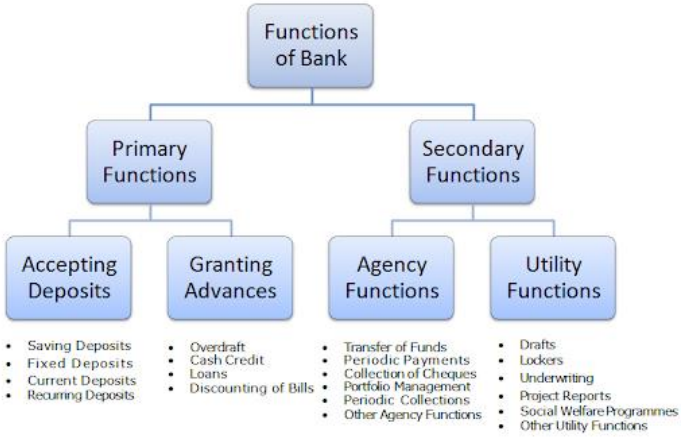
Classification of Banks

Banks that have been added to the Reserve BOI Act 1934's Second Schedule are referred to as scheduled banks; banks that have been taken off the list are referred to as non-scheduled banks.



Commercial Banks

A commercial bank is a type of financial institution that offers its clients services like overdraft protection, savings accounts, certificates of deposit, loans, and so on. Lending money to individuals and collecting interest on those loans is how these institutions generate revenue.



Main Purposes of Banks The explanations of these central bank functions follow. Public deposits are received by the bank. These deposits may be in a variety of forms, including Savings accounts, fixed accounts, current accounts, and recurring accounts are the available options.

A. Bank Accounts These kinds of deposits encourage saving behaviors. The interest rate is not very high. Right now, it is roughly 4% annually. Deposit withdrawals are allowed, but only in specific situations. Employees on salaries and wages would profit from this account. You can open this account with a single name or a joint name.
B. Fixed-Term Investments For a certain amount of time, a lump sum amount is deposited. Depending on how long the deposit is made, a higher interest rate is assessed. No withdrawals are permitted before the end of the period. Many people who have extra money choose fixed deposits.
C. Quick-Pay Deposits It is businessmen who manage this kind of account. It is possible to withdraw at any moment. Interest is not paid. In actuality, there are fees for services. Account holders can access a facility for overdrafts.
D. Monthly Payments Small business owners and salaried individuals use this kind of account. Regularly, a set amount of money is deposited into the bank. Withdrawals are only permitted following a predetermined period of time. There is a higher interest rate applied.

b. Credits for Cash

Cash credit is available to the client up to a predefined limit. It may be made available to people without a bank account as well as those with active accounts. A distinct cash credit account exists. There is interest charged on the amount withdrawn over the cap. Guarantees and/or tangible assets are exchanged for cash credit. Compared to an overdraft, an advance is given out for a larger loan amount and over a longer time frame.

c. Credit

Usually, it's for a short time, like a year, or a long time, like five years. These days, bank loans are made for extended lengths of time. Repayment of funds can be made in one lump sum payment or in installments over time. Whether or not the sanction is revoked, interest is paid on the approved amount. It's possible that the interest rate will be slightly less than that of cash credits and overdrafts. Most loans are secured by the physical assets of the business.

a. Annual Instalments In accordance with the client's ongoing instructions, the bank pays energy bills, rent, and other bills on a regular basis.

b. Handling the Portfolio

In addition, the banks consent to buy and sell debentures and shares on behalf of their clients, debiting or crediting their accounts as appropriate. This function is known as portfolio management. Collections that happen every day

The bank gets salary, pensions, dividends, and other yearly payments on behalf of the client.

1. GENERAL UTILITY FUNCTIONS

Project reports; underwriting of securities; trading with foreign exchange; issuance of drafts, letters of credit, and other utility functions; locker facility; social service services; and other utility functions Obstacles in the banking sector:

The breadth and depth of the Indian financial system have increased dramatically in recent years. The banking industry's growing significance in the Indian economy as well as increased The demands that deregulation and competition have placed on our banks are manifold. Failure of the banking system could have more detrimental effects than in the past. Because of this, the RBI, which oversees and regulates the Indian banking sector, is concentrated on guaranteeing increased financial stability. Operating in this extremely demanding environment exposes the banking system to a number of risks and difficulties. Below is a discussion of a few of them:

IMPROVING RISK MANAGEMENT SYSTEM

In addition to guidance notes on credit risk management and market risk management from October 2002 to 2005, the RBI also released guidelines on asset liability management and risk management systems in banks in 1999.

Although Basel II places a great deal of emphasis on risks, its implementation cannot be viewed as a goal unto itself. A comprehensive approach to risk management is required by the modern business environment. The days of managing each risk independently are long gone.

In India, banks are switching from segment-specific systems to enterprise-wide risk management systems. As a result, banks are under more pressure to have skilled risk managers, which has highlighted the need for capacity building. Although risk integration throughout the bank should be the top priority, risk aggregation throughout the Group will also require attention. It would be necessary for banks to devote a substantial amount of resources to this goal during the ensuing years.

COVERAGE IN RURAL AREAS

In India, local banks—particularly state bank groups—are widely distributed and have a sizable number of branches in rural areas. Still, there's a lot of space for technological advancement. Rural branches, which are necessary if banks are to compete in the current market, do not have access to the services provided in cities.

PROBLEMS WITH TECHNOLOGY

Indeed, Indian banks have advanced technologically and started computerized operations, but is this sufficient? In metropolitan areas, Indian local banks have robust, comparable technology; however, this is not supported or comparable throughout the network of branches in other cities and villages.

CUSTOMER SUPPORT

Banking practices that seem to exclude significant portions of the population are a source of concern, particularly for retirees, independent contractors, and those employed in the unorganized sector. All facets of the public must receive equal access to banking services from banks. Furthermore, banks don't always adequately handle complaints from customers and don't always fully protect their interests. It is mandatory for banks to promote greater financial inclusion in the nation by creating a structure that guarantees equitable customer treatment and effective resolution of customer grievances.

Branch Banking

Traditionally, banks have looked to grow their branch network in order to grow their business. International banks and new private sector banks have been able to grow their operations through alternative means. Banks are investigating the potential benefits of outsourcing and agency arrangements.

Banks need to consider the additional risks they may be taking on when they proceed in this direction. The process of having to put in place efficient procedures and policies to handle these new risks is known as outsourcing.

The Competitive Climate

As the rate and extent of the Indian economy's globalization increase and the Indian banking system becomes more systemically open to international competition, banks need to get ready to operate in a

more competitive environment. Consequently, banks will have to strengthen their financial positions and enhance their processes and procedures to comply with international standards.

OBSERVE THE KNOW YOUR CUSTOMER (KYC) PROTOCOLS.

The guidelines were revised in response to the recommendations made by the Financial Action Task Force regarding combating terrorist financing and anti-money laundering standards. Countries and banks/financial institutions can now comply with these regulations thanks to international financial ties. Ensuring compliance with this requirement poses a significant challenge to the banking sector as a whole, both in terms of safeguarding itself against anti-social individuals and organizations and portraying to the global community the cohesiveness and financial credibility of the Indian banking system. The following lists the nine main problems that India's nationalized banks are dealing with.

DECREASES IN REMOTE DIVISIONS MOST OF THE RURAL BRANCHES in India are losing money due to high overhead and the widespread use of the barter system.

OVERLY LONG OVERDUE

A significant amount of past-due advances to farmers is the new issue small branches of commercial banks are having to deal with. The situation for these banks has been made worse by the former National Front government's decision to waive all loans to farmers up to Rs. 10,000 crores.

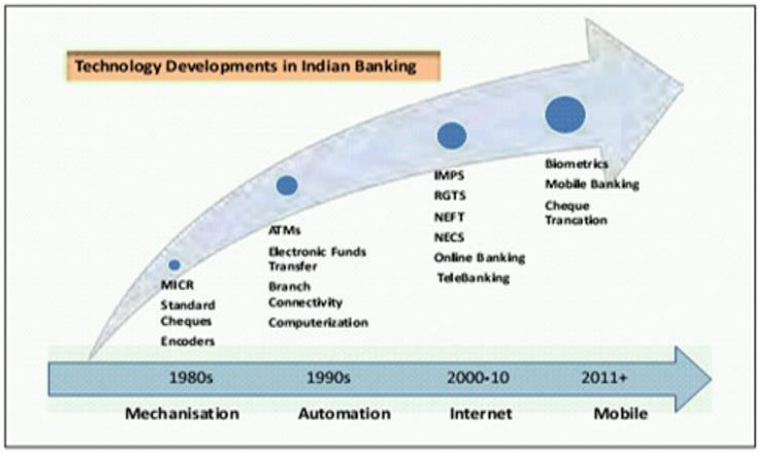
NON-OPERATING RESOURCES

At the moment, commercial banks do not have the necessary resources to guarantee that the loans and advances they make are used wisely and in the greater good of society. Due to a sizable percentage of non-performing assets or unpaid debts owed to them by borrowers, banks are experiencing enormous losses.

POLITICAL TENSIONS

The smooth functioning of nationalized banks has also been hampered by growing political pressure from the federal government and the states. Due to different political pressures, nationalized banks frequently encounter a multitude of challenges. These kinds of tensions arise from hiring employees and from lending money to particular people without checking their creditworthiness.

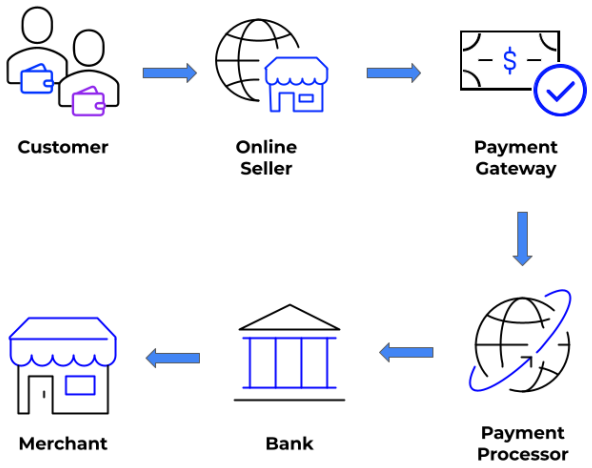
Snapshot of Technology Developments in the Indian Banking Sector:



INDIAN BANKS' TECHNICAL MILESTONES:

The current situation in the digital sphere:

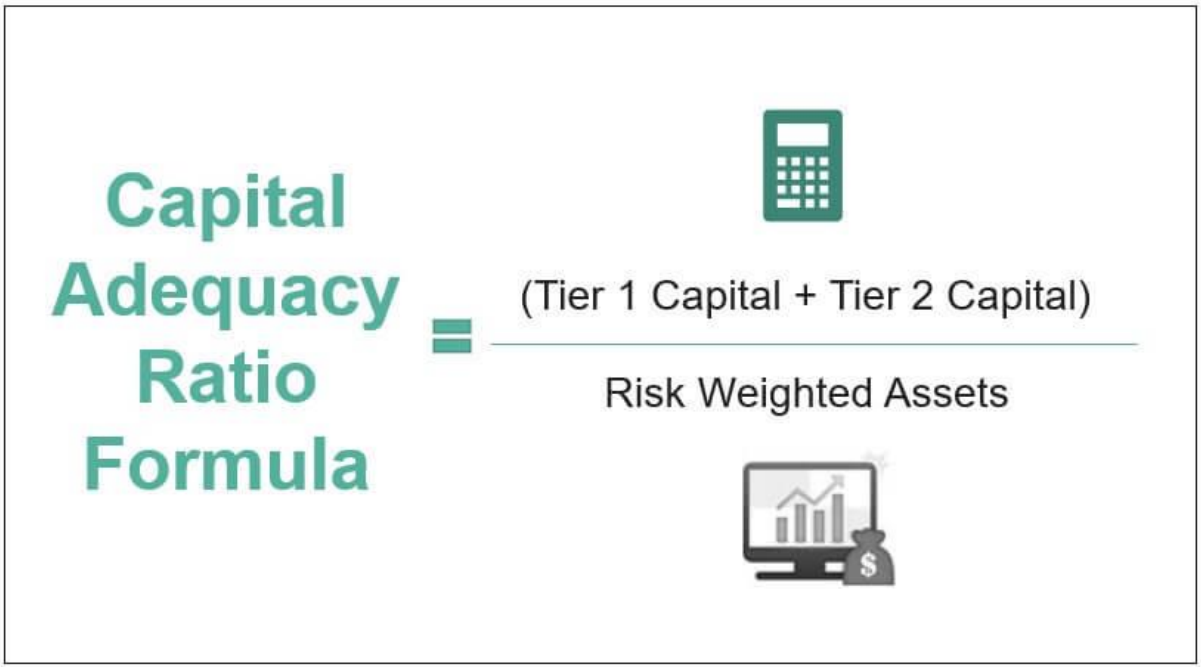
The Indian government is actively promoting online shopping. United Payments Interface (UPI) and Bharat Interface for Money (BHIM), recently introduced by the National Payments Corporation of India (NPCI), represent important advancements in the Payment Systems field. With UPI, users can transfer money between accounts in different banks instantly by using a virtual address instead of having to mention the bank account. Modern banks work hard to give their clients a quick, dependable, and excellent banking experience. For all Indian banks, digitization is currently the top priority.



CAMELS RATING SYSTEM

Bank supervisory authorities use the internationally recognized CAMELS rating system to assign a rating to financial institutions based on six factors, which are represented by the acronym: capital adequacy, asset quality, management, earnings, liquidity, and sensitivity.

COMPONENTS OF CAPITAL ADEQUACY



Examiners use capital trend analysis to determine an institution's level of capital adequacy. Examiners also make sure that institutions follow rules about the requirements for risk-based net worth.In addition to adhering to interest and dividend regulations and practices, institutions need to have a high capital adequacy rating. The rating and assessment of an institution's capital adequacy also takes into account the growth plans, economic climate, risk management capabilities, and loan and investment concentrations of the institution.

ASSET QUALITY

The quality of an institutional loan is determined by its asset quality, which is a reflection of the institution's earnings. Rating potential investment risk factors and weighing them against the bank's capital earnings are necessary steps in assessing the quality of an asset.

Federal Reserve Board of Governors. "Asset Quality."

This demonstrates the bank's stability in the face of specific risks. Examiners also look at the impact on businesses of the difference between the bank's book value of investments and the fair market value of those investments. Finally, the effectiveness of an institution's investment policies and practices reflects the quality of its assets.

MANAGEMENT

Supervisory

Management evaluation establishes an institution's capacity to respond appropriately to financial strain. The management's ability to identify, quantify, monitor, and control risks in the institution's day-to-day operations is reflected in this component rating. It addresses management's capacity to guarantee the institution operates safely while adhering to relevant internal and external regulations.

EARNINGS

A bank's ability to generate enough revenue to support operations, grow, and maintain its competitivene-

ss is a critical component in determining how viable it will remain in the long run.
St. Louis Federal Reserve Bank, "CAMELS Ratings: Earnings."
In order to ascertain this, examiners evaluate the bank's profitability, growth, stability, valuation allowances, net margins, net worth level, and the caliber of its current asset base. A bank generates revenue from both non-interest sources such as fees and interest-earning assets like loans.

LIQUIDITY

Examiners consider sensitivity to interest rate fluctuations, the presence of easily convertible assets, reliance on short-term volatile financial resources, and technical proficiency in asset and liability management when evaluating a bank's liquidity.

SENSITIVITY

Sensitivity is the study of how specific risk exposures can impact organizations. Examiners keep an eye on how credit concentrations are managed in order to determine how sensitive an institution is to market risk. Examiners can thus see how lending to particular industries impacts an organization. These loans cover a variety of industries, such as credit card, medical, agricultural, and energy. When evaluating a company's sensitivity to market risk, exposure to derivatives, foreign exchange, commodities, and stocks is also taken into account.

CAMEL COMPOSITE RATINGS

Rating 1: Credit unions in this category, with most of their components ranked 1 and 2, are in every manner financially stable. The board of directors and management have the ability to regularly address minor flaws. The credit unions listed here are the 42 most resilient to external pressures, such as economic volatility in their trade region, and unpredictable changes in the market. These credit unions follow all rules and laws that are relevant. They therefore exhibit good performance and risk management techniques in light of the size, scope, and risk profile of the credit union, and they don't represent a threat to supervisors.

Rating 2: The credit union community is solid on a fundamental level. For a credit union to receive this rating, no part rating can be higher than a 3. There are only a few minor issues, which the management and board of directors are more than capable of handling. These credit unions can withstand ups and downs in the business world and are trustworthy. These credit unions follow all applicable rules and laws. The credit union's risk management initiatives are adequate in terms of scope, complexity, and risk

profile. Given the lack of noteworthy supervisory concerns, the supervisory response is restrained and informal.

Rating 3: Credit unions in this category receive a three because they have supervisory issues in one or more of the component regions. These credit unions have a variety of faults, from minor to serious; most of the time, the severity of the flaws prevents a part from receiving a grade lower than 4. It's possible that management lacks the ability or motivation to quickly and effectively fix vulnerabilities. Compared to credit unions in the composite 1 or 2 categories, those in this category are less likely to be able to withstand market volatility and are more vulnerable to external pressures. These credit unions might also be blatantly breaking laws and regulations. In light of the size, complexity, and risk of the credit union profile, risk management procedures might not be sufficient. More supervision is required for these credit unions, possibly in the form of compliance measures. Nonetheless, given the credit unions' general robustness and financial capacity, failure seems unlikely.

Rating 4: Credit unions in this group have a reputation for having unstable and risky policies. Severe financial or administrative deficiencies lead to subpar performance. The problems range in severity from mild deficiencies to major ones. The inadequacies and issues are not being sufficiently addressed or resolved by the management and board of directors. Credit unions in this category typically cannot withstand fluctuations in the market. It's possible that many people don't follow the guidelines. Risk management procedures are usually out of proportion to the size, sophistication, and risk profile of the credit union. In order to address the problems, enforcement action is typically necessary and close supervision is necessary. Credit unions put the National Credit Union Share Insurance Fund in jeopardy.

Rating 5: Credit unions in this category are the most supervisory concern due to their extremely risky and unsound policies and conditions, critically poor performance, and frequently inadequate risk management procedures compared to their size, sophistication, and risk profile. There is little ability or willingness on the part of management to keep an eye on or address the volume and gravity of issues. For the credit union to continue operating, it urgently needs outside funding or support. Continuous supervision is required. The NCUSIF is exposed to a significant risk by this community of credit unions, and failure is very likely.

Component	Ratio	Rank				
		1	2	3	4	5
Capital Adequacy	$\frac{Equity\ Capital}{Total\ Assets}$	Above 11%	8%-11%	4%-8%	1%-4%	Below 1%
Asset Quality	$\frac{Non-Performing\ Loans}{Total\ Loans}$	Below 1.5%	1.5%-3.5%	3.5%-7%	7%-9.5%	Above 9.5%
Management Quality	$\frac{Personnel\ Expenses}{Average\ Assets}$	Below 25%	30%-26%	38%-31%	45%-39%	Above 46%
Earnings Quality	*Return on Assets*	Above 1.50%	1.25%-1.50%	1.01%-1.25%	0.75%-1.00%	Below 0.75%
	Return on Equity	Above 22%	17%-21.99%	10%-16.99%	7%-9.99%	Below 6.99%
Liquidity	$\frac{Net\ Loans}{Deposit\ and\ Short\ Term\ Funding}$	Below 60%	60%-65%	65%-70%	70%-80%	Above 80%
	$\frac{Liquid\ Assets}{Deposit\ and\ Short\ Term\ Funding}$	Below 60%	60%-65%	65%-70%	70%-80%	Above 80%
Shariah Compliance	*Shariah Compliance Score Sheet*	Above 80%	70%-80%	65%-70%	60%-65%	Below 60%

Source: Majithiya & Pattani (2010); Babar & Zeb (2011); Sarwar & Asif (2011); Masngut & Abdul Rahman (2012)

REVIEW OF LITERATURE

It is crucial to consider the breadth and significance of research related to the chosen subject matter after selecting the research topic. Therefore, the analysis of related writing is essential reading, and writing has been found below. According to Desai and Desai (1989), reviewing related studies is essential to identifying different issues and problems and to look into research planning. Studying related literature is beneficial when it comes to data, research findings, issues resolved, various techniques for analysis, applications of the research findings, etc. A useful strategy for implementing the implementation of unknown issue resolution is the study of related literature. The current study included a review of previous research on job satisfaction. A person is capable of growth and development.

LITERATURE REVIEW

The researcher should have considered the following aspects before determining the scope and direction of his work.

1. The researcher evaluates the caliber of his work across all domains.
2. The researcher recognizes that his research should be more tedious than other research.
3. The researcher highlights the unique aspects of this study in comparison to earlier research.

The pre-research analysis reviews serve as a roadmap for resolving drawbacks and aid in identifying the issue for the current researcher.

By looking at previous analyses, one's knowledge base grows. The study is one cohesive unit. Analyzing related research is required to determine the unique topics of this investigation.

Sloan Swindle, Sloan Swindle, Sloan S (1995)1. This study uses the capital adequacy component of the CAMEL rating system to examine whether regulators in the 1980s had an impact on undercapitalized banks to raise their capital. Based on data that was available to the public, I discovered that undercapitalized banks used a gauge of regulatory pressure to react to regulators' requests for additional capital.

According to Kwan and Eisenbeis (1997)2, asset quality is primarily used by financial institutions to measure risk and assess the dependability of capital ratios.

Their investigation revealed that capitalization affects how financial institutions function. Greater wealth equates to greater efficiency. An investigation into consumer awareness and preferences for banking services was undertaken by Using a stratified random sampling technique, a sample of approximately 140 customers is chosen, and they are given a structured questionnaire to ensure that they are representative of all demographic groups.

The study only included respondents who were Hyderabad residents between 1997 and 1998. The study's conclusions indicate that banks offer their clients a range of deposit, credit, ancillary, and diversified services to satisfy their various needs.

On the other hand, many of these schemes go unnoticed by customers. He added that customers would be drawn to a plan that offers high security, growth, return, flexibility, promptness, care, attention, simplicity, convenience, and low cost. In this study, he suggested that in order to better serve customers and advance through innovations, a constant effort should be made to analyze customer preferences and awareness.

The effectiveness of bank branch licencing was evaluated by Kohli (1999)4 in the context of financial sector reforms. Developments in India's banking perspective have resulted in modifications to the

performance appraisal criteria. Newer performance metrics, like productivity and profitability, have supplanted older ones, like deposits, branch expansion, and Priority Sector lending.

Cole is a couple with Gunther (2000)5. The researchers benchmarked the accuracy of CAMELS ratings in failure prediction against an off-site tracking system that was built on publicly available accounting data.

According to their findings, off-site surveillance systems are usually a better indicator of survival than CAMELS scores if a bank hasn't been checked in more than two quarters. Owing to their increased predictive accuracy, off-site control systems may still be crucial to the supervisory process. Data Envelopment Analysis was used by Saha et al. (2000)6 to score 25 PSBs between 1991–1992 and 1994–1995. They found that, with a few notable exceptions, PSBs have generally increased their efficiency over the study period. UBI, UCO Bank, Syndicate Bank, and Central BOI were found to be at the lower end of the relative efficiency scale, while Corporation Bank, OBC, SBI, Canara Bank, SBH, BOB, and Dena Bank were found to be consistently productive banks.

Six public sector banks were compared for performance in Subrahmani et al. (2001)7. There were three foreign banks and four private sector banks operating in the 1996–1997 fiscal year. Operational productivity is calculated using the wage cost per employee and the company as a whole. The analysis showed that inefficiency need not always be associated with higher per-employee wages. In 1999, Shanmugam et al. (2001)8 evaluated the robustness of the efficiency measures using data from domestic Indian banks. They did this by using three different approaches to quantify efficiency: a nonparametric approach, a stochastic frontier function approach, and a random coefficient approach. Depending on the approach, it was discovered that the overall mean technical efficiency varied between 52 and 80 percent.

The findings demonstrated that, across all models, deposits remained the most significant determinant of bank production, with a high rank correlation between efficiency values calculated using various methods.

Das M R (2001)9 looked at how private sector banks performed in 1999–2000 compared to the year before. For this project, the RBI Report on the Trend and Progress of Banking in India, 1999-2000 was the main source of data. The report states that overall private bank performance improved in 1999–2000 compared to the prior year. With their state-of-the-art technology, the majority of the newly constructed private banks lagged behind their older counterparts.

Ramachandra Reddy et al. (2001)10 emphasized the significance of NPAs in PSBs. One of the main issues facing PSBs, according to them, is the implementation of international income identification, asset classification, provisioning norms, and managing nonperforming assets (NPAs) in the banking sector. Additionally, they think that while total NPA elimination in the banking sector is not possible due to various externalities, the incidence of NPAs can be decreased.

Kumar (2001)11 The expansion of the Indian economy has been significantly aided by private sector banks. Following liberalization, there were substantial changes in the banking industry. The economic reforms brought about a complete transformation of the banking industry. In accordance with the Narasimham committee's recommendations, the RBI has made it possible for new private sector banks to be established. The primary goal of this article was to evaluate the Indian private sector banks' financial performance.

After deregulation, Rammohan (2002)12 made an effort to evaluate the PSBs' performance both absolutely and relatively, as well as to take into account the elements that led to their improved

performance. In absolute and relative terms, PSBs' efficiency has increased. In light of recent banking reforms, Das Uday (2002)13 conducted a study that offered an important evaluation of the Lead Bank Scheme. High levels of nonperforming assets (NPAs), a sizable number of unprofitable branches, low efficiency, overstaffing, and antiquated operational procedures have all negatively impacted Public Sector Bank performance, according to Das. Ballabh (2002)14 looked into various approaches to increase worker productivity. The shifting economic landscape required numerous changes in the banking industry. The report strategies for the employee productivity emphasized the significance of elements like technology support for enhancing customer care, evolving e-contact and eye-contact, redeployment strategies, and so forth. It was also recommended that the parameters be expanded to take into consideration the contribution of non-fund related activities. Bisht et al. looked at how liberalization affected the Indian banking industry.

(2002): 15. They are based on the idea that a protracted process of expansion, reorganization, and consolidation produced the current banking structure. The three main stages the nation underwent were pre-nationalization, post-nationalization, and post-liberalization. It is evident that the fourth step was introduced with the advent of the internet, and this led to in significant systemic changes to the banking industry by substituting electronic distribution networks for physical branches in order to give customers more choices. Because of technology, traditional banking is no longer an option, and the rules of the game have changed. The work that Bhinde et al.

(2002)16 viewed the ongoing reforms in the banking sector critically. They found that the traditional perception of banking has changed from that of a middleman to that of a supplier of quick, affordable, and efficient 55 services. They also found that the Indian banking industry is currently dealing with problems like recapitalization, restructuring, the application of prudential standards, the legal system, corporate governance, and Basel II regulations, among other things. Barr et al. state that the "CAMEL ranking criterion has become a succinct and indispensable method for examiners and regulators."

(2002)17. By analyzing several aspects of the bank using data sources like final statements (balance sheet & P&L Account), macroeconomic data, budget, and cash flow, this rating criterion makes sure that a bank is in good health. According to Mukherjee Avinandan et al.'s research (2002)18 related bank performance to the strategic issue of resource management in order to be cost-effective, rather than calculating marketing success directly. Using an output-oriented CCR model, the researchers employed an updated DEA methodology over a four-year period to comprehend issues related to strategic homogeneity and performance benchmarking in the banking industry. It was also found that foreign banks are the most susceptible, and publicly owned banks have greater success rates. Additionally, business strategies were found to be inadequately prepared to withstand the competitive nature of the market. The report states that PSBs received uniform scores in both peer group and self-appraisal assessments.

Comparing the financial performance of private sector banks in 1994 and 1995, Pathak (2003)19 claimed that private sector banks offered a novel banking experience. As their services become more and more successful, their counterparts in the public sector are starting to copy them. He examined the banks' profitability in terms of loans, deposits, profits, return on assets, and productivity. In light of banking reforms, Sheeba Kapil et al.'s (2003)20 paper set out to assess and evaluate the present financial well-being of Indian public sector banks while also projecting their future and extent. Utilizing the CAMEL off-site supervisory model, the 27 PSBs' viability was evaluated.

Veni (2004)21 looked into capital adequacy requirements and interventions for banks. It helped them increase their capital ratios. The significance of the ranking was stressed by the author. Governmental organizations pay close attention to capital adequacy. To evaluate a bank's creditworthiness, use bank ratios. Bonds, certificates of deposit, and other financial securities To rate banks, they usually employ the CAMEL Model. The main factor that determines a bank's ranking is capital sufficiency. The profitability of PSBs was examined by Sooden et al. (2004)22 both before and after reform periods. Regression analysis and a correlation matrix were employed in their study. The study Following the changes, the profitability of many PSBs increased, but at the expense of others.

Padwal (2004)23 increased the emphasis on technology in banks. Throughout the transition phase, technology has been a major enabler. Developing novel products and services and offering them to customers in the way, at the location, at the time, and for the price they choose are all part of implementing new technology. New techniques and strategies for delivering services and facilities are becoming more and more accepted by banks and customers. The analysis came to the conclusion that technology is essential to banking's future. Prasuna (2004)24 examined the performance of Indian banks using the CAMEL model. Between 2003 and 2004, the output of 65 banks was investigated. The source said there was intense competition, which benefited customers. Indian customers can expect better quality services, innovative products, and better deals.

Sathy 25 years ago On some paper, I drew a rough draft. The purpose of this work was to calculate the productivity quality (DIA) using data envelope analysis. To show how efficiency scores vary with changes in inputs and outputs, two models were developed. Three different bank types' efficiency scores were determined: publicly owned, privately owned, and foreign owned. The study claims that the average efficiency score and overall efficiency of private sector commercial banks in India are surprisingly lower than those of public sector banks and foreign banks. Satish and associates.

(2005)26 assessed Indian bank performance using the CAMEL Model. The authors examined the output of 55 banks between 2004 and 2005 using the CAMEL Model. They concluded that information technology would support the banking system's future expansion and that the Indian banking system seemed to be stable. Arora and colleagues (2005)27 investigated PSB performance evaluations during the post-reform era. Four parameters were used to assess the performance of PSBs: productivity, profitability, operational, and financial parameters. It was very satisfying to me during the study period.

Bodla and Verma (2006)28 state that these ratings will help the Reserve BOI identify banks whose output needs more oversight. The CAMEL method's primary objectives are to list the difficulties that banks encounter and to create a comparative summary of different banks' performance. He examined SBI and ICICI's performance from 2000–01 to 2004–05 using the CAMEL model. It was found that SBI has a competitive advantage over ICICI in terms of capital adequacy. Thus, it can be said that when it comes to asset quality, earnings quality, and management quality, Bank ICICI outperforms SBI Bank.

Research on "Banking Sector Reforms and Their Effect on Banking Services" was done by Dr. Benson (2006)29. According to this study, the strategies used by Indian banks are still insufficient and have not yielded the expected outcomes. If Indian banks get ready and offer individualized, customer-focused products and services, they will have a greater chance of competing in and thriving in the fast-paced banking industry of today. To retain and grow their customer base in a cutthroat market, banks should take steps to enhance direct communication with their clients. Banks have to concentrate on enhancing employee productivity and make ongoing efforts to do so.

As per Srivastava (2006)30, the banking sector in India experienced an unparalleled growth during the post-nationalization era. However, since 1991, a number of technocratic measures have been implemented to improve bank efficiency while also addressing issues with inefficiency and poor financial health. Consequently, the banks have become more profitable, efficient, and financially stable than those in developed countries. Biswas (2006, 31) In this paper, the author evaluated the performance of newly established private sector banks using the CAMELS model. Data for the CAMELS analysis was gathered between 2000–2001 and 2004–2005, a span of five years. The study's findings indicated that UTI bank and IDBI bank performed the best overall among all the banks.

Rengasamy and Kumar (2007) 32 The study's main focus was on customer satisfaction and service standards in foreign, public, and private banks operating in India. A study was carried out to ascertain the level of customer knowledge and identify the industry that offers the best opportunity for first-rate customer service.

In a UK study, Kimball and James (2007)33 looked into the connection between bank ownership patterns and their CAMELS ranking. Two sections of the research were conducted in order to ascertain the relationship between various

The CAMELS parameters and the kind of bank (public or private). It was found that maintaining sufficient resources was less difficult for public sector banks than for private sector banks. Compared to public sector banks, private sector banks were significantly more skilled at managing nonperforming assets (NPAs) and the risk profiles of bank assets.

An econometric analysis of the performance of India's public sector banks was carried out by Brinda J et al. (2007)34. They concluded that international banks and private sector banks are not seen as being similar to public sector banks. They did this by using two profitability metrics to assess a bank's performance: Return on Assets (ROA) and Operating Profit Ratio (OPR). Banks (PSBs) surpassed standards in the domains of ROA, NPAs, and liquidity in every performance indicator. The fraction of total assets devoted to operating expenses prerequisites for adequate capital, etc.

Studying the shifting paradigm in Indian banking, Gupta S et al. (2008)35 found that the industry has continued to meet society's essential demands even after undergoing a number of reforms. Technology, international competition, consumers (people), policies (politics), governance, and economic conditions are the six primary forces behind a paradigm shift in Indian banking, according to the authors. They concluded that one of the strongest cornerstones of the Indian economy is the banking sector.

Yalapati, Kannungo, and Sadavarti (2008)36. This research examines the relationship between specific organizational culture elements and IT strategy in public sector units (PSUs). The influence of IT strategies on company culture, defined as a shared set of standards and principles. A nationwide survey of 72 Indian public sector entities provided the study's data. Using Model CAMEL, Suresh.V. (2008)37 methodically examined the financial outcomes, partial assets, and essential profitability measure components of nationalized banks, SBI, and their affiliated banks during a ten-year span from 1997–1998 to 2006–2007. Accounting ratios and statistical procedures and techniques, including the variance coefficient, the basic arithmetic mean, and one-way ANOVA, multiple correlations, and multiple regression, were employed in the study.

Wrinker, Iraker, and Tanko (2008)38 examined 11 commercial banks in Nigeria during a nine-year period. Consequently, the Camel Model is unable to present a complete view of a bank's financial performance. They also found the ideal ratio among the different acronyms for CAMEL. It is said that the new abbreviation for CAMEL is CLEAM. Ketkar Kusum (2008)39 examined the performance of

Indian banks following the onset of structural changes in the 1990s using the DEA approach and bank-specific data from 1997 to 2004. The results showed that the relative efficiency of banks by ownership (production method) is independent of whether deposits are considered an input (intermediation approach) or an output (output approach). Worldwide

The survey states that banks are the most successful, followed by recently established private sector institutions. The study also demonstrates how bank efficiency varies, showing that while regulations on bank branch development have not affected the efficiency of state-owned and nationalized banks, rules on priority sector lending have. Roman, Alina, and Angela Camelia's disagreement The Romanian banking sector has changed significantly during the past ten years, and attaining steady and sustainable economic growth depends on financial performance and soundness. The study compares the commercial banks in Romania in terms of their financial stability. We achieved this by applying the CAMELS framework, one of the most used techniques for evaluating the financial soundness of a bank. Annyesha Das and Mihir Dash (2009)40 The banking industry has experienced a significant transformation since 1991 as a result of a massive, intricate, and comprehensive endeavor to establish a reliable and effective organization and to forge strong ties with the real sector to support savings, investment, and growth. Following the reforms, the Indian banking industry has achieved some strides. A logical framework for examining this shift is the CAMELS structure, which mandates that banks boost asset quality, increase earnings, decrease exposure to different financial risks, and increase capital adequacy. This study compares and contrasts public and private/foreign banks using the CAMELS approach. The study's data came from five Indian banks' financial statements that had been audited for the five years prior. During the study period, it was discovered that foreign and private banks performed better than state-owned banks on the bulk of CAMELS variables.

The two primary drivers of the improved performance of private and international banks were profitability and earnings growth as well as effective management. Mihir Dash and Annyesha Das (2009) looked into foreign and private/public banks using camel analysis. In terms of management, profits, and profitability, privaT.

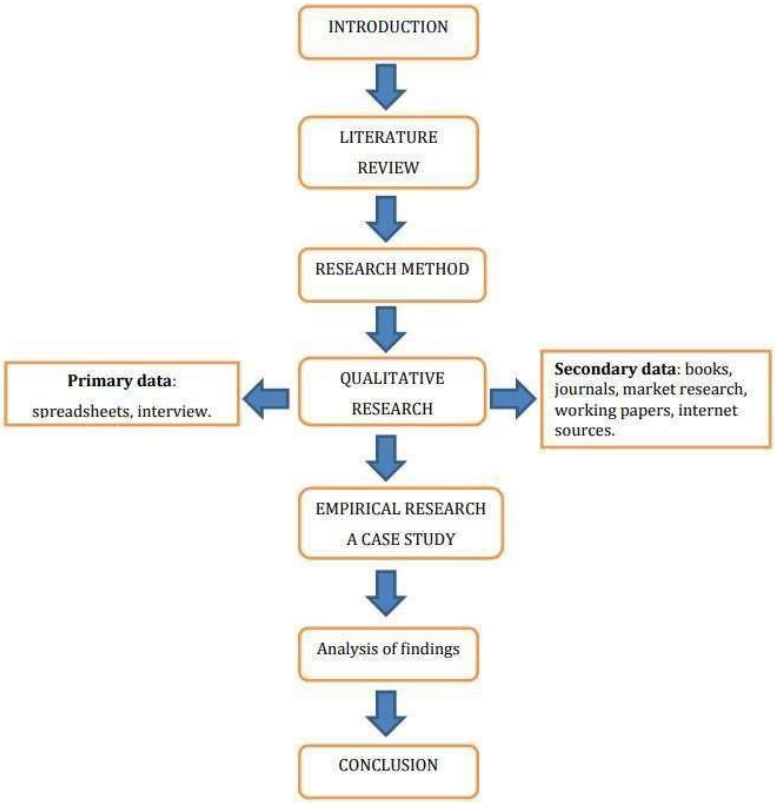
RESEARCH METHODOLOGY

The purpose of this systematic and well-coordinated study is to gain further insights into the CAMEL approach to risk management in the banking sector. The observations and data used in this observational analysis were collected straight from the organizations. To gain a deeper understanding of the CAMEL grading method and its efficacy in assessing banking organization expertise, data was collected from primary and secondary sources.

The CAMEL model, which evaluates all the crucial factors including capital adequacy, asset quality, managerial effectiveness, earning quality, and liquidity, has been selected by the RBI to evaluate the performance of the banking industry. Once we reached a consensus on the model, we chose nationalized banks. Based on the sample's relevance, equal weights are assigned to each parameter.

It's a descriptive form of research. In this empirical study, a few carefully chosen banks are the subject of a CAMELS analysis.

Research process;



Research Deficit and Study Justification As can be seen from the prior talks of earlier banking studies, the main research needs are as follows.

(i) There are essentially no studies that examine how well Indian banks perform in the post-reform era based on the CAMELS concept; all of the prior research either focuses on all private sector banks (old and new) or just the new private sector banks. (ii) There have been no studies done on risk management in banks in relation to the requirement that Indian banks adhere to the most recent Basel- II standards. There are likewise none in the way of empirical research on the effects of technology on bank risk management and operational efficiency.

Even though the RBI has a robust regulatory framework in place to ensure the wellbeing of the Indian banking sector, a number of issues still need to be examined to identify areas where banks are falling short and where non-performing assets (NPAs) are occurring. Thus, this research is being done to examine the different data points and the actual banking system in use.

The current study is to highlight the comparative analysis on financial performance of a subset of India's leading public and private sector banks using the CAMEL Analysis Model. The financial situation of the 13 largest banks operating in India as a result of the research will be better understood by bankers thanks to the examination of the various ratios.

OBJECTIVE OF THE STUDY

The study's primary goal is to use the CAMEL model to evaluate the performance and financial standing of India's public sector banks. In addition, the following goals have been evaluated through research: research on the connection between market, operational, and credit risk. The methods used by Indian commercial banks to manage credit risk and the guidelines provided under the New Basel Capital Accord examination of diversification patterns in credit portfolios. examining the connection between

public sector banks' non-performing assets and their diverse portfolios in comparison to private sector banks.
study and profile of the risk of concentration in public sector banks compared to private sector banks. comparing and contrasting public and private sector banks' approaches to credit risk management. examining the New Basel Capital Accord guidelines and how they might affect Indian commercial banks' credit risk management procedures. evaluating how risk-based supervision helps Indian commercial banks improve their credit risk management procedures. offering a general plan of action for enhancing Indian commercial banks' credit risk management procedures. to address the elements that contributed to the current state of the financial performance. to make recommendations for actions to further enhance the financial

COLLECTION OF DATA

PRIMARY DATA:

To gather information from banking personnel, a questionnaire was created. In Rajasthan, banks employ around fifty thousand people. There were 400 people in the sample. Data gathered from Rajasthani banks by basic random sampling. Additionally, utilizing a meticulously prepared Interview Schedule, in-depth interviews with the key officers of the individual banks were used to gather primary data. To gather information about the risk management system, officers responsible for managing credit risk and other risks in accordance with the Reserve Bank of India's (RBI) risk management architecture are contacted. The officials responsible for technology management are also contacted to gather data regarding the degree of the use of technology, financial investments made in it, and its evolution over time.

SECONDARY DATA:

These have been gathered from reliable secondary sources, including RBI publications, bank websites, and other online resources like moneycontrol.com, the Indian Banks' Association (IBA), the Indian Institute of Banking & Finance (IIBF), and so forth. In addition, international publications like The Banker and The Economist, as well as national publications like Bank Quest and IBA Bulleting, are used. Additionally, information is gathered from several correspondents and the websites of significant commercial banks like RBI.

RESEARCH DESIGN:

To comprehend the banking business position, a selection of banks from both the public and private sectors are made, and various ratios are computed and analyzed. According to RBI standards, banks analyze their operations using the CAMELS model. In this study, capital adequacy, asset quality, management quality, earnings, and liquidity are all assessed using the CAMELS model, which is ratio-based. In this study, which is descriptive in nature, the bank is analyzed and described using a variety of ratios.

RESEARCH

The following hypothesis seeks to explain banks management style and performance.
first Hypothesis Negative Hypothesis Ho: There is no appreciable variation in the performance of Public Sector Banks in India according to the CAMEL model.

First hypothesis: A notable difference in the performance of Public Sector Banks in India is indicated by the CAMEL model.
Second Null Hypothesis Ho: The handling of credit, market, and operational risk by banks is unrelated. Hypothesis H1: Risk management and the handling of credit, market, and operational risks in banks are related.
Third Null Hypothesis Ho: There is little variation in the risk management practices of banks.

Data analsis

Based on six criteria, a standard composite grade is given to each bank. It is a structured process that offers an evaluation of the bank's quality using predetermined standards.Depending on the circumstances at the bank, certain factors may be given more weight than others when determining a composite grade. Composite ratings may contain elements that significantly impact overall soundness and condition. Each of the five heads has its ratios calculated and rated. The group rank is then determined using the computed ranks. The following is a list of the statistical tools that were employed along with their objectives:

1. Bar charts have been used for graphic analysis.
2. The use of the arithmetic mean and retios to compute values for assessment
3. For analysis and interpretation, use the one-way ANOVA and the F-test. Additionally, the following banks have been highlighted: "Banks in the public and private sectors.

LIMITATIONS

Since this study must be finished within the allotted time for the doctoral dissertation, just a small sample of banks and subjects have been included in the analysis. As such, it inherits the sampling constraints. A small number of banks are chosen to examine the status of all public and private banks. In certain instances, the conclusions' generalizability may differ based on the banking circumstances. The RBI's records have no precise definition of how to evaluate banks using the CAMELS rating process. Therefore, we have solely taken into account the notable ratios for the CAMELS assessment of the banking performance rating . The research's conclusions are constrained by the CAMELS grading system's and financial statements' limitations, so

FUTURE SCOPE

Using the CAMELS model, the study can be carried out by incorporating a few other banks to comprehend their total performance. To determine the true position of the banks on various criteria, the CAMELS model analysis can be conducted by taking into account a few more ratios. As a result, the study can be used as an example or as guidance to help the researcher comprehend the CAMELS model for assessing bank performance. The management of the banks or the RBI may take appropriate action based on the findings of this study report by using the CAMELS model to determine the absolute and relative position of the bank in the current economic environment.

DATAANALYSIS

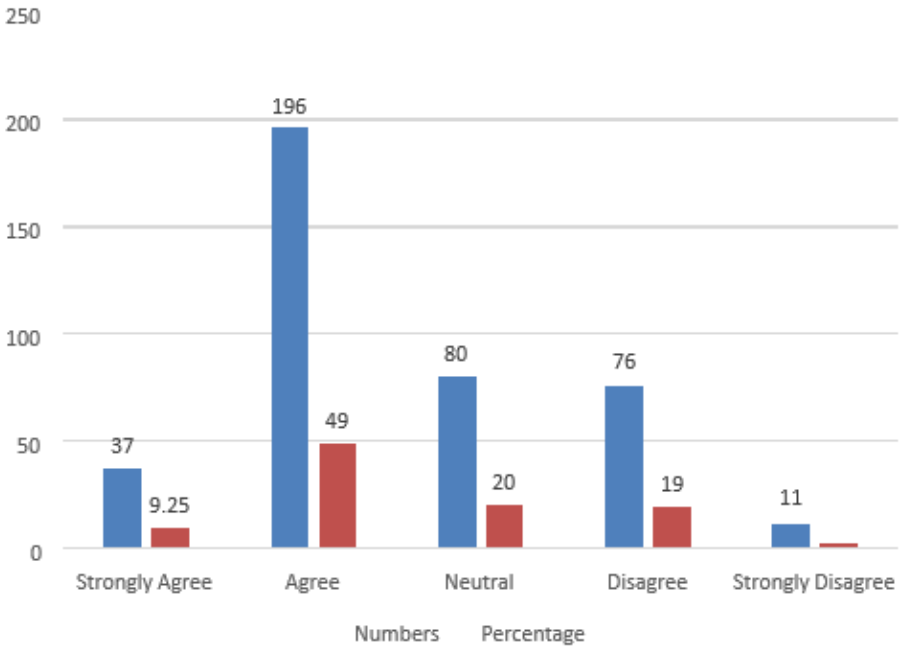
This chapter presents the tabulated data that was gathered using a questionnaire to learn about the overall performance and workings of the bank. The data gathered on the various aspects of the banks under study has been analyzed using bar charts. The employee inquiries regarding CAMEL are divided into five categories: C, A, M, E, and L.

This chapter also describes and analyzes the data that was obtained from the P&L and balance sheet to calculate the CAMEL Model and determine the banking performance. The camel model has a rating system of 1 to 5, with 1 being the best and 5 being the worst. Bank regulators gauge the overall state of the bank prior to the CAMELS rating system components. A score of one indicates is a good performance that meets expectations. A rating of 3 is awarded for performance and risk management procedures that are somewhat flawed, which leads to supervision. A score of four indicates subpar performance, and a score of five indicates really subpar performance that necessitates quick correction. By evaluating the bank's entire financial status in order to determine the need for corrective action, the CAMEL grading system is unquestionably a crucial instrument for determining a bank's strengths and weaknesses in terms of finance. By managing the affected banks, regulators can use the CAMELS test results to directly enhance their financial performance through the development of policies and strategic initiatives.

CAPITAL ADEQUACY

1. Bank is having sufficient shareholder capital (Tier-I capital) to run its business.

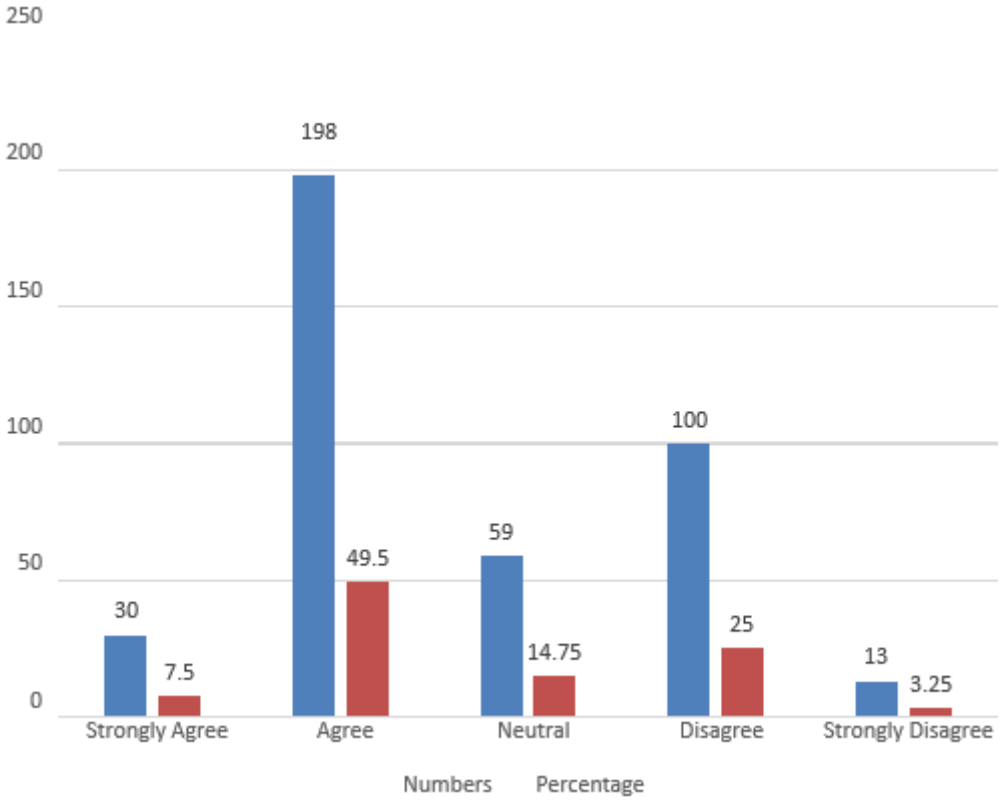
Response	Numbers	Percentage
Strongly Agree	37	9.25
Agree	196	49
Neutral	80	20
Disagree	76	19
Strongly Disagree	11	2.75
Total	400	100



Interpretation: Regarding whether banks maintain an eye on the quality of credit portfolios, 6.5% of respondents overall strongly agreed, 38.75% agreed, 14.5% disagreed, and 2.25% severely disagreed. This demonstrates how the bank monitors the caliber of its credit portfolio.

2. Bank takes steps to improve its asset quality.

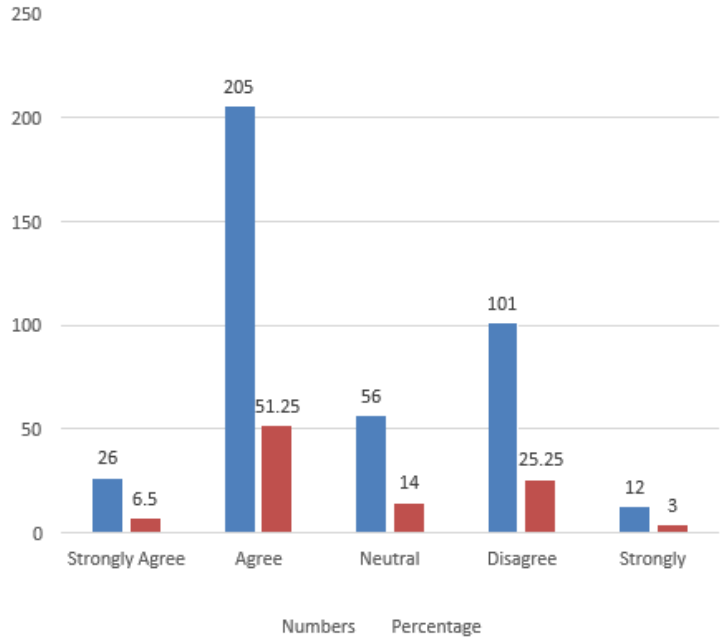
Response	Numbers	Percentage
Strongly Agree	13	3.25
Agree	168	42
Neutral	62	15.5
Disagree	151	37.75
Strongly Disagree	6	1.5
Total	400	100



Interpretation: Regarding banks having enough borrowings (Tier2 capital) to operate their operations, out of the total respondents, 7.5% strongly agreed, 49.5% agreed, 14.75% neutral, 25% disagreed, and 3. 25% severely disagreed.
This demonstrates that banks have enough Tier 2 capital, or borrowings, to operate their businesses.

3. Bank is having assets (loans and advances) which are less risky.

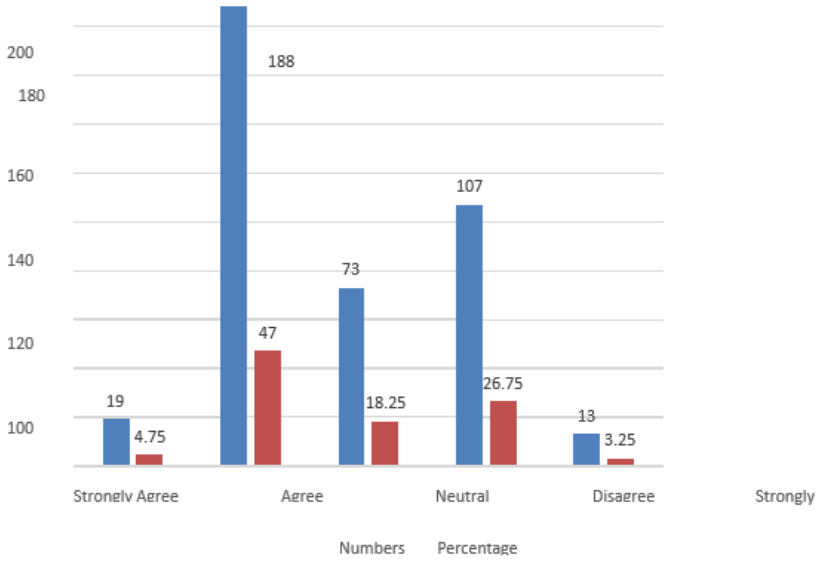
Response	Numbers	Percentage
Strongly Agree	26	6.5
Agree	205	51.25
Neutral	56	14
Disagree	101	25.25
Strongly Disagree	12	3
Total	400	100



Interpretation: Among all respondents, 6.5% highly agreed, 51.25% agreed, 14% agreed, 25.25% disagreed, and 3% strongly disagreed that banks have less hazardous assets (loans and advances). This demonstrates that banks are holding less hazardous assets, such as loans and advances.

4. Bank has maintained a balance composition of capital.

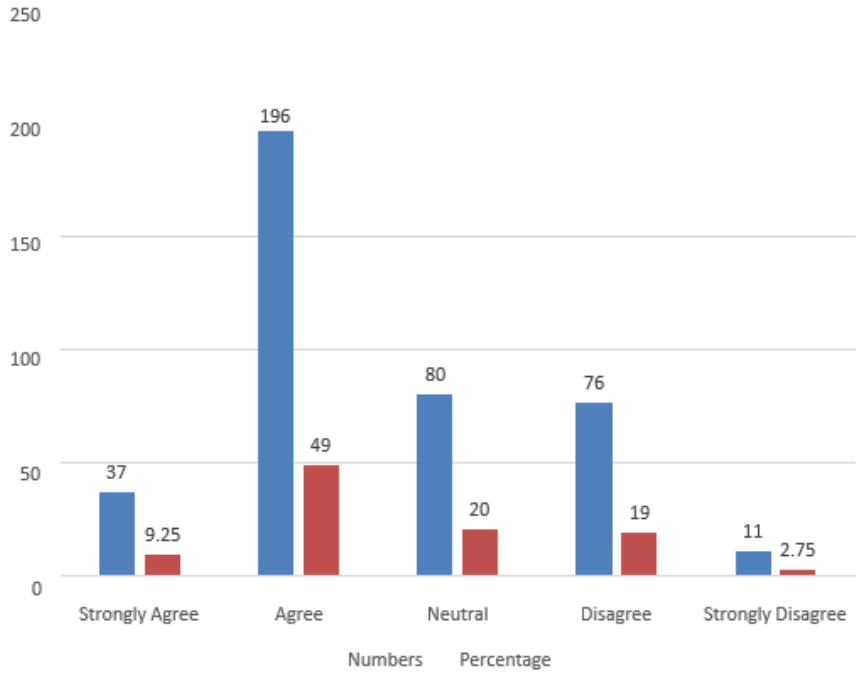
Response	Numbers	Percentage
Strongly Agree	19	4.75
Agree	188	47
Neutral	73	18.25
Disagree	107	26.75
Strongly Disagree	13	3.25
Total	400	100



Interpretation: Regarding whether banks have kept a balanced composition of capital, 4.75% of respondents highly agreed, 47% agreed, 18.25% neutral, 26.75% disagreed, and 3.25% strongly disagreed. This demonstrates that banks have kept their capital composition in balance.

5. Bank always have a minimum capital reserve amount.

Response	Numbers	Percentage
Strongly Agree	37	9.25
Agree	196	49
Neutral	80	20
Disagree	76	19
Strongly Disagree	11	2.75
Total	400	100

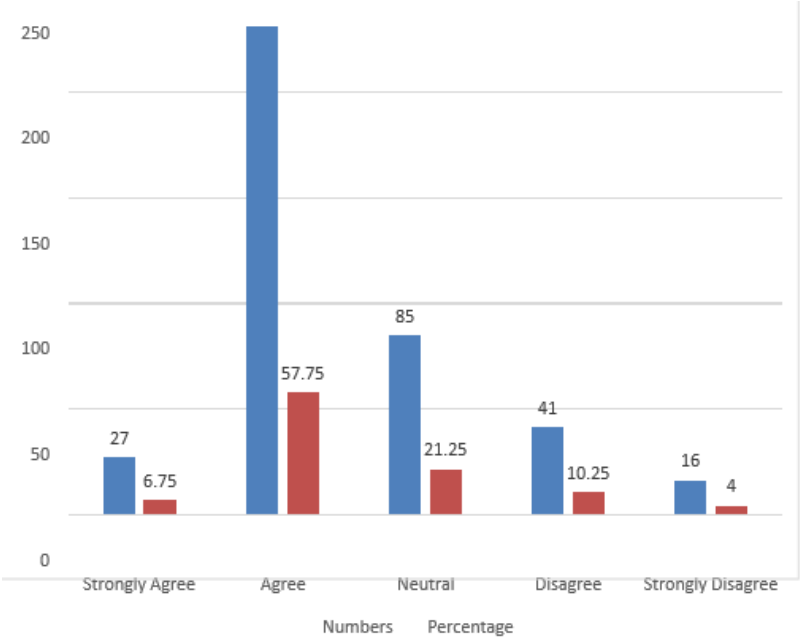


Interpretation: Regarding the statement that banks should always maintain a minimum capital reserve amount, out of all respondents, 9.25% strongly agreed, 49% agreed, 20% disagreed, and 2.75% severely disagreed. This proves that banks maintain a minimum level of capital reserves at all times.

A-ASSET QUALITY

6-Banks have made loans and advances and very low NPA has been recorded.

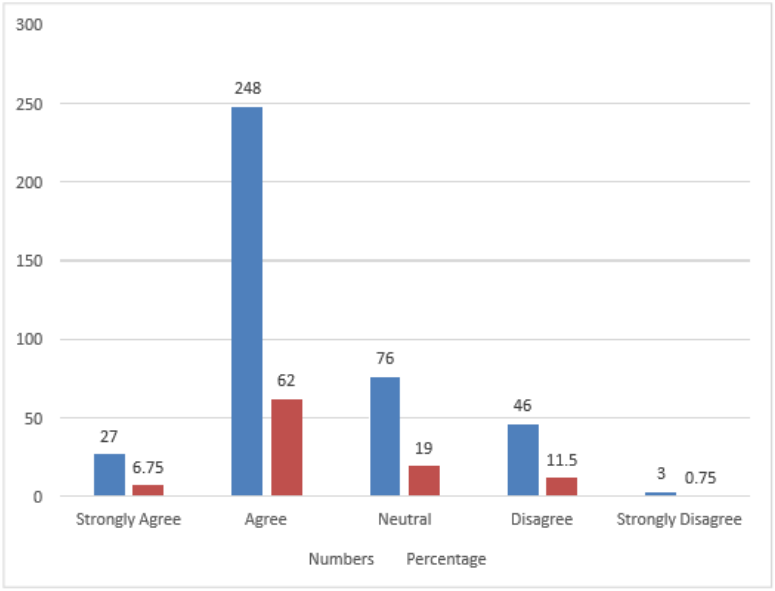
Response	Numbers	Percentage
Strongly Agree	27	6.75
Agree	231	57.75
Neutral	85	21.25
Disagree	41	10.25
Strongly Disagree	16	4
Total	400	100



Interpretation: Out of the total respondents 6.75% strongly agreed, 57.75% agreed, 21.25%neutral, 10.25% disagreed and 4% strongly disagreed about Banks have made loans and advances and very low NPA has been recorded.

7. Loans and advances are made by following a proper procedure.

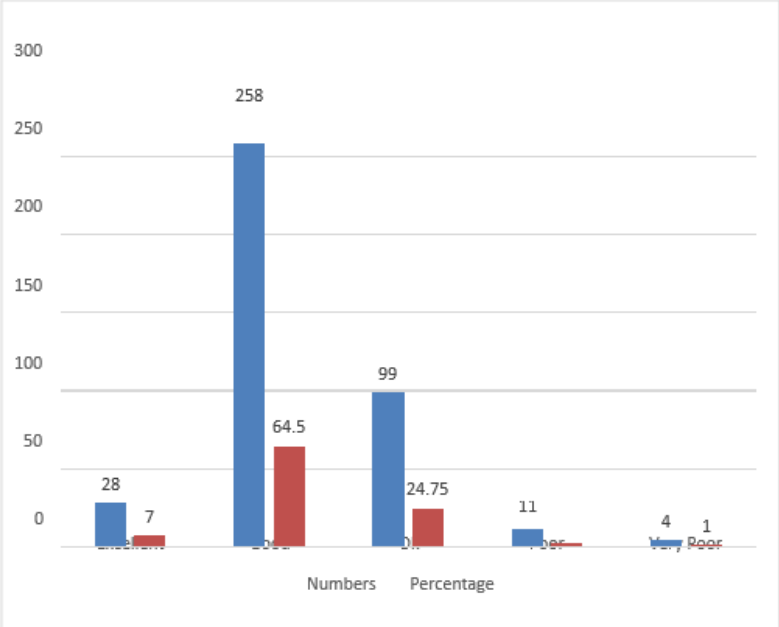
Response	Numbers	Percentage
Strongly Agree	27	6.75
Agree	248	62
Neutral	76	19
Disagree	46	11.5
Strongly Disagree	3	0.75
Total	400	100



Interpretation: Regarding the statement that loans and advances are made by according to the correct procedure, 62% of respondents agreed, 11% disagreed, 6.75% strongly disagreed, and 19% were neutral. This demonstrates that banks follow proper procedures when making loans and advances.

8. Large number of loans and assets are reliable and less risky.

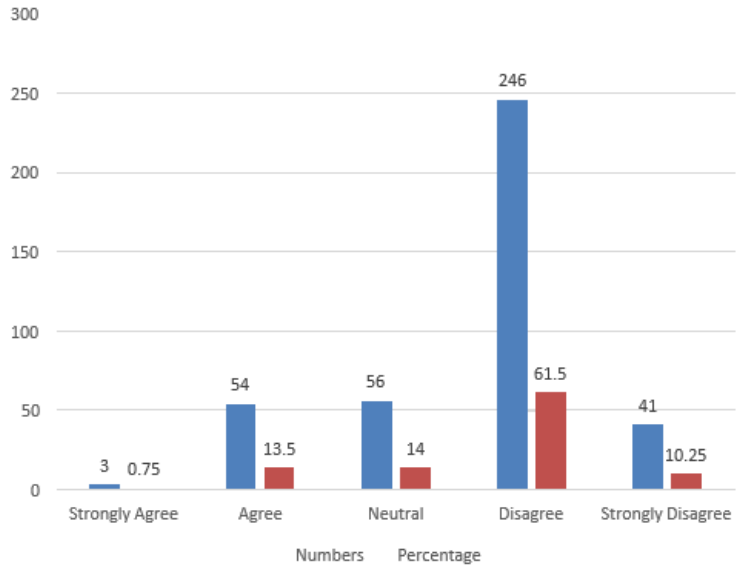
Response	Numbers	Percentage
Excellent	28	7
Good	258	64.5
Ok	99	24.75
Poor	11	2.75
Very Poor	4	1
Total	400	100



Interpretation: Regarding the huge number of loans and assets being dependable and less hazardous, out of all responses, 7% highly agreed, 64.5% agreed, 24.75% neutral, 2.75% disagreed, and 1% severely disagreed. This demonstrates that a big percentage of assets and loans are dependable and low risk.

M-Management Management is efficient to comply with the banking norms and regulations.

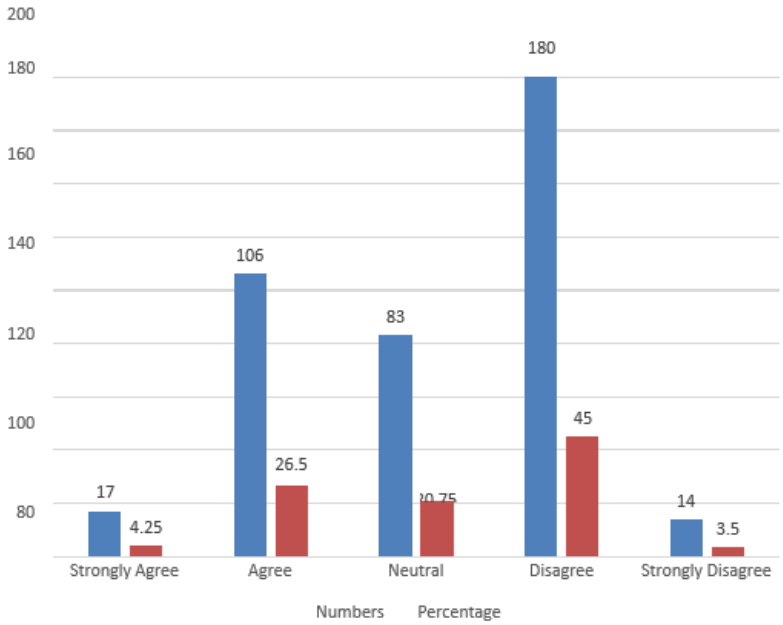
Response	Numbers	Percentage
Strongly Agree	3	0.75
Agree	54	13.5
Neutral	56	14
Disagree	246	61.5
Strongly Disagree	41	10.25
Total	400	100



Interpretation: Regarding whether management is effective in adhering to banking standards and regulations, 0.75 percent of respondents strongly agreed, 13.5% agreed, 14% agreed, 61.5% disagreed, and 10.25 percent strongly disagreed. This demonstrates how effectively banks manage their operations to adhere to banking standards and laws.

Management is having good internal control.

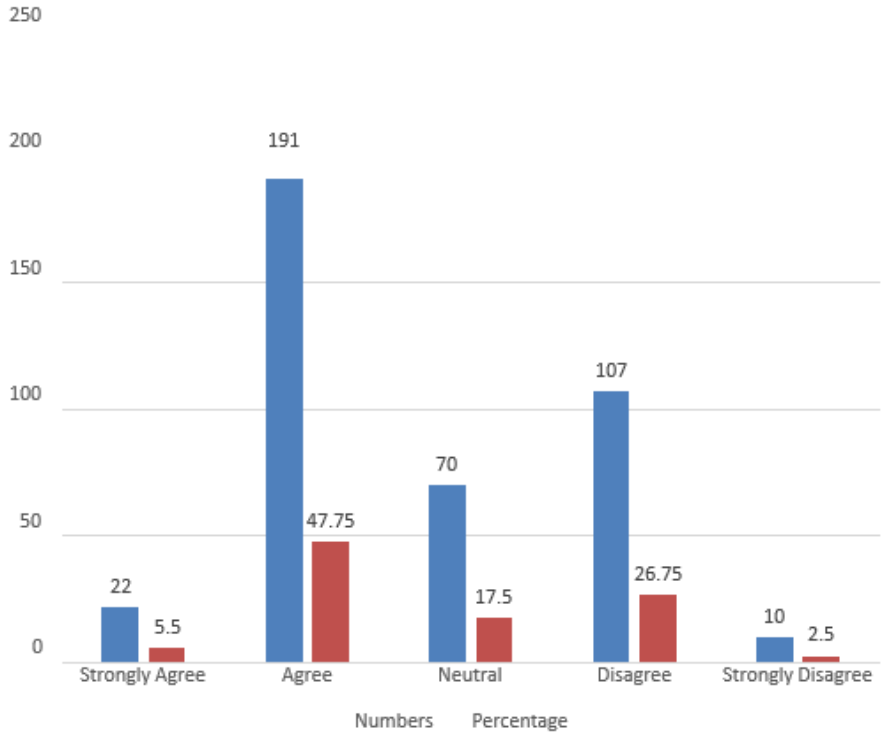
Response	Numbers	Percentage
Strongly Agree	17	4.25
Agree	106	26.5
Neutral	83	20.75
Disagree	180	45
Strongly Disagree	14	3.5
Total	400	100



Interpretation: Regarding whether management has effective internal control, 4.25 percent of respondents strongly agreed, 26.5% agreed, 20.75% agreed, 20% disagreed, and 2% strongly disagreed. This demonstrates the effective internal control that the bank management has.

Management is focused on profit making.

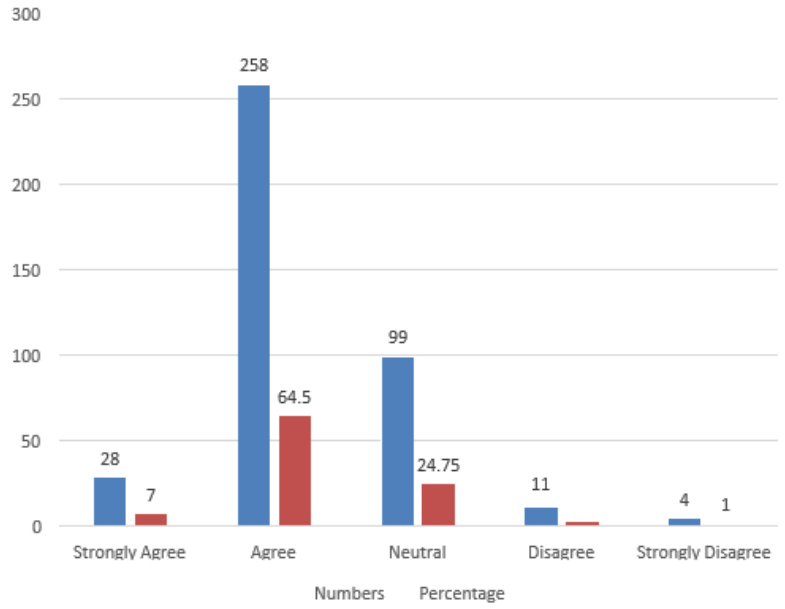
Response	Numbers	Percentage
Strongly Agree	22	5.5
Agree	191	47.75
Neutral	70	17.5
Disagree	107	26.75
Strongly Disagree	10	2.5
Total	400	100



Interpretation: Of those surveyed, 5.5% highly agreed, 47.75% agreed, 17.5% were neutral, 26.75% disagreed, and 2.5% strongly disagreed that management is primarily concerned with maximizing profits. This demonstrates that management is driven by financial gain.

Management is takes measures to minimize the risk.

Response	Numbers	Percentage
Strongly Agree	28	7
Agree	258	64.5
Neutral	99	24.75
Disagree	11	2.75
Strongly Disagree	4	1
Total	400	100

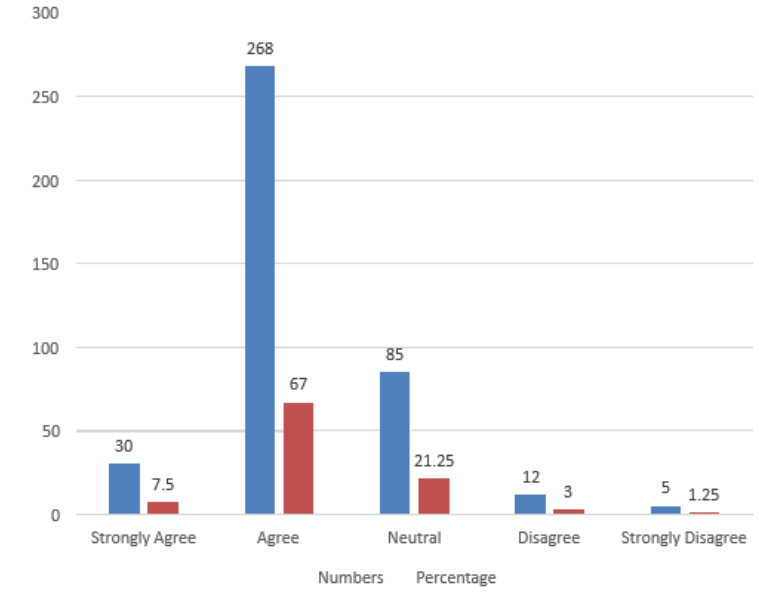


Interpretation: Of the total responses, 64.5% agreed, 2.75% disagreed, 1% strongly disagreed, 7% highly agreed, and 24.75% agreed about management taking steps to reduce risk. This demonstrates that bank management takes precautions to reduce risk.

E- Earnings

Bank has appropriate return to grow its operations.

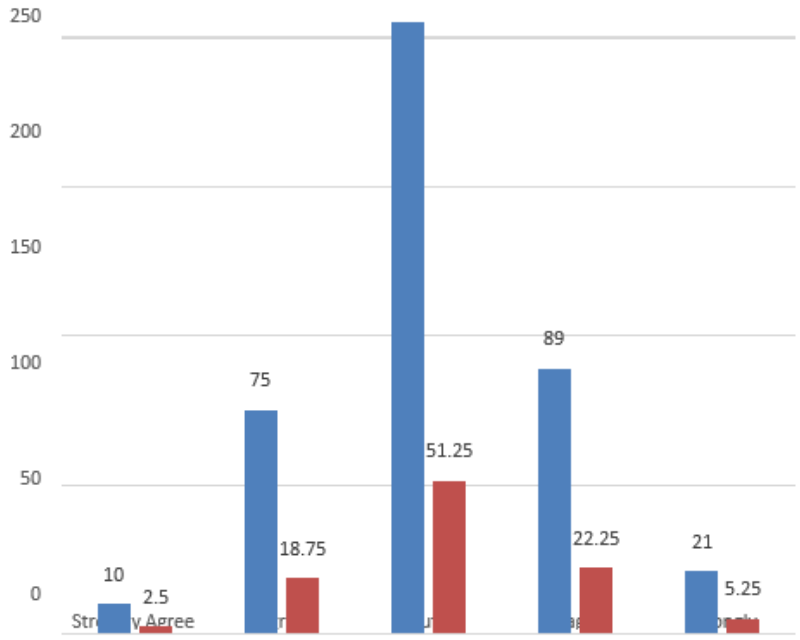
Response	Numbers	Percentage
Strongly Agree	30	7.5
Agree	268	67
Neutral	85	21.25
Disagree	12	3
Strongly Disagree	5	1.25
Total	400	100



Interpretation: Regarding whether the bank has the right return to expand its activities, 7.5% of respondents overall highly agreed, 67% agreed, 21.25% neutral, 3% disagreed, and 1.25% severely disagreed. This demonstrates that banks have the right kind of return to expand their business.

Bank can sustain its competitiveness in long term.

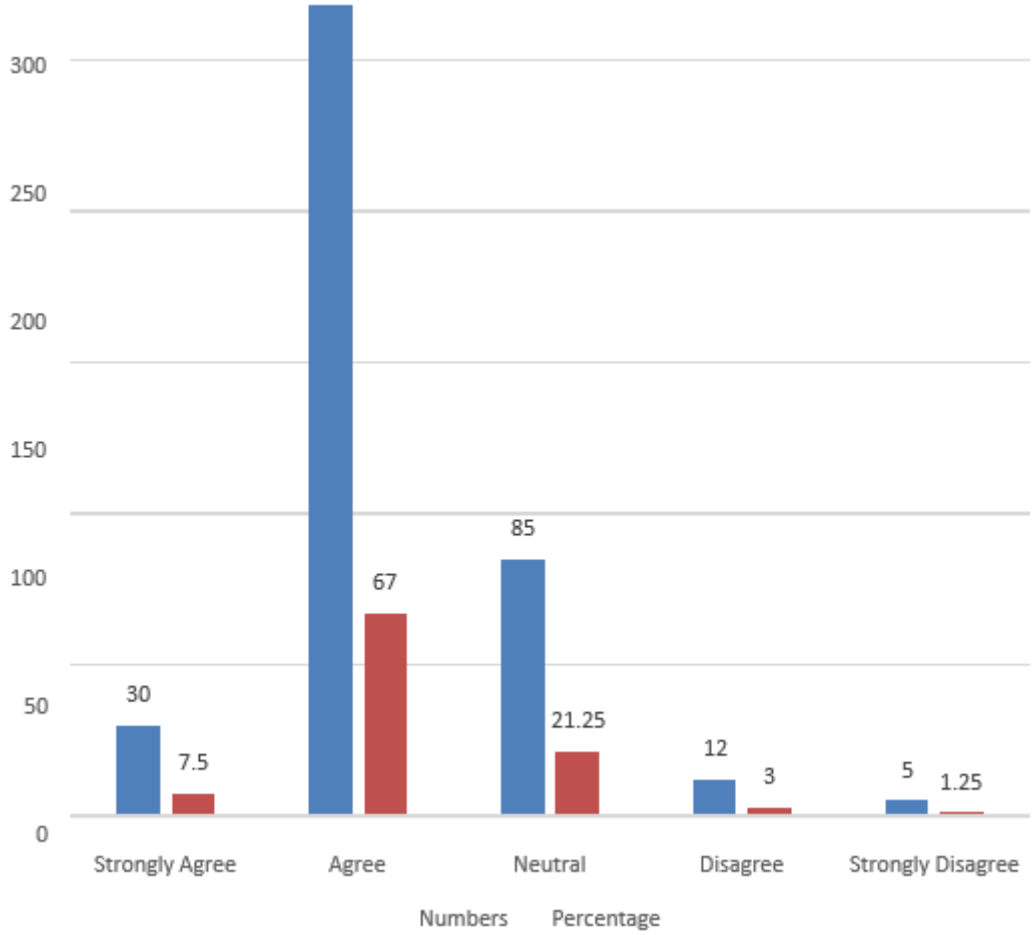
Response	Numbers	Percentage
Strongly Agree	10	2.5
Agree	75	18.75
Neutral	205	51.25
Disagree	89	22.25
Strongly Disagree	21	5.25
Total	400	100



competitiveness over the long run, 2.5% highly agreed, 18.75% agreed, 51.25% neutral, 22.25% disagreed, and 5.25% strongly disagreed. This demonstrates that the bank can maintain its competitiveness over time.

Bank has sufficient core earnings.

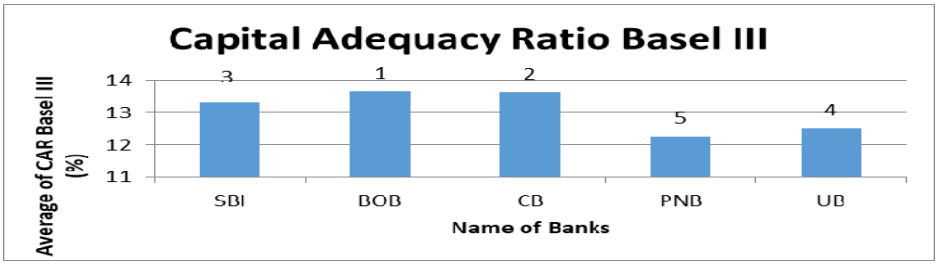
Response	Numbers	Percentage
Strongly Agree	30	7.5
Agree	268	67
Neutral	85	21.25
Disagree	12	3
Strongly Disagree	5	1.25
Total	400	100



Interpretation: Regarding the bank's ability to generate sufficient core earnings, 7.5% of respondents highly agreed, 67% agreed, 21.25% agreed, 3% disagreed, and 1.25% strongly disagreed.This demonstrates that banks have adequate core earnings.

Capital Adequacy Ratio (CAR)

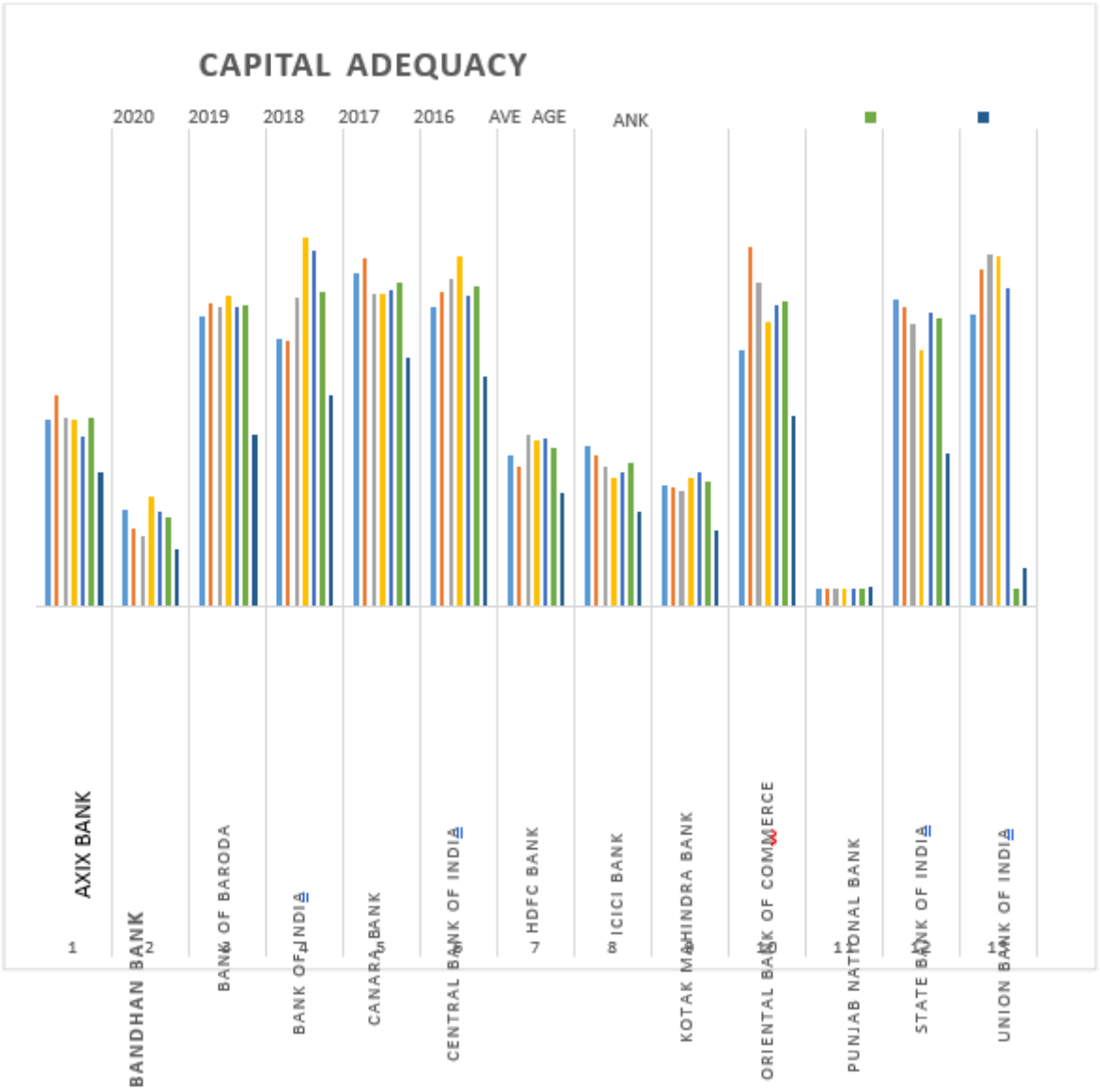
S.No.	Bank	Capital Adequacy Ratio Basel III (%)							
		2017	2018	2019	2020	2021	2022	Average	Rank
1	SBI	12.74	12.85	13.13	13.82	13.85	13.5	13.315	3
2	BOB	12.24	12.13	13.42	13.3	14.99	15.84	13.6533	1
3	CB	13.22	11.9	13.65	13.18	14.9	14.9	13.625	2
4	PNB	11.66	9.2	9.73	14.14	14.32	14.5	12.2583	5
5	UB	11.79	11.5	11.78	12.81	12.56	14.52	12.4933	4



Graphical Representation of Capital Adequacy Ratio

The Capital Adequacy Ratios of the five banks—SBI, Bank of Baroda, Canara Bank, PNB, and Union Bank—are shown in Table 1.2. It demonstrates that all banks have a CAR of greater than 9%, indicating their ability to pay contingent liabilities. The capital adequacy ratios of SBI, Bank of Baroda, Canara Bank, PNB, and Union Bank are shown graphically in Figure 2.1. The average value computed in table 1.2 is used to plot the graph. It displays the banks' rankings. With 13.6533% CAR, Bank of Baroda is leading the field, followed by Canara Bank, SBI, and Union Bank, at 13.625%, 13.315%, and 12.4933%, respectively. Out of the four banks, Punjab National Bank has the lowest Capital Adequacy.

S.No.	Name of Bank	**2020**	**2019**	**2018**	**2017**	**2016**	**AVERAGE**	**Rank**
1	Axis Bank	9.7733	11.013	9.89647	9.78623	8.8837301	9.870580553	7
2	Bandhan Bank	5.0359	4.0387	3.72291	5.80004	4.9248763	4.704467968	3
3	Bank of Baroda	15.114	15.89	15.5919	16.2412	15.701327	15.70774065	9
4	Bank of India	13.994	13.889	16.1515	19.3018	18.623999	16.39208561	11
5	Canara Bank	17.423	18.205	16.3259	16.3225	16.496987	16.95449537	13
6	Central Bank of India	15.633	16.455	17.1382	18.2678	16.248073	16.74837981	12
7	HDFC Bank	7.9511	7.3411	9.00926	8.65591	8.7532663	8.342118902	6
8	ICICI Bank	8.4277	7.8998	7.36057	6.7216	7.0313195	7.488221087	5
9	Kotak Mahinda Bank	6.3493	6.2767	6.06794	6.76995	7.0233711	6.497454234	4
10	OBC	13.386	18.797	16.9207	14.8784	15.728916	15.942194	10
11	PNB	0.9249	0.9422	0.94637	0.94191	0.9425971	0.939601277	1
12	State Bank of India	16.031	15.662	14.7659	13.3716	15.3412	15.03443634	8
13	UBI	15.299	17.652	18.4211	18.2942	16.679096	0.944803588	2



Interpretation: Capital Adequacy Ratio (CAR) is the ratio of a bank's capital in relation toits risk weighted assets and current liabilities. It is decided by central banks and bank regulators to prevent commercial banks from taking excess leverage and becoming insolvent in the process. The banks are ranked as per their decreasing Capital Adequacy ratio in the order Bandhan Bank, Kotak Mahindra Bank, ICICI Bank, HDFC Bank, Axis Bank, State Bank of India, Bank of Baroda, Bank of India, Canara Bank, Union Bank of India, Oriental Bank of Commerce. Punjab National Bank, Central Bank of India. All banks are having goodcapital adequacy ratio and the Bandhan Bank is ranking first in them.

DEBT-EQUITY RATIO

S.No.	Name of Bank	**2020**	**2019**	**2018**	**2017**	**2016**	**AVERAGE**	**Rank**
1	Axis Bank	9.7733	11.013	9.89647	9.78623	8.8837301	9.870580553	7
2	Bandhan Bank	5.0359	4.0387	3.72291	5.80004	4.9248763	4.704467968	3

3	Bank of Baroda	15.114	15.89	15.5919	16.2412	15.701327	15.70774065	9
4	Bank of India	13.994	13.889	16.1515	19.3018	18.623999	16.39208561	11
5	Canara Bank	17.423	18.205	16.3259	16.3225	16.496987	16.95449537	13
6	Central Bank of India	15.633	16.455	17.1382	18.2678	16.248073	16.74837981	12
7	HDFC Bank	7.9511	7.3411	9.00926	8.65591	8.7532663	8.342118902	6
8	ICICI Bank	8.4277	7.8998	7.36057	6.7216	7.0313195	7.488221087	5
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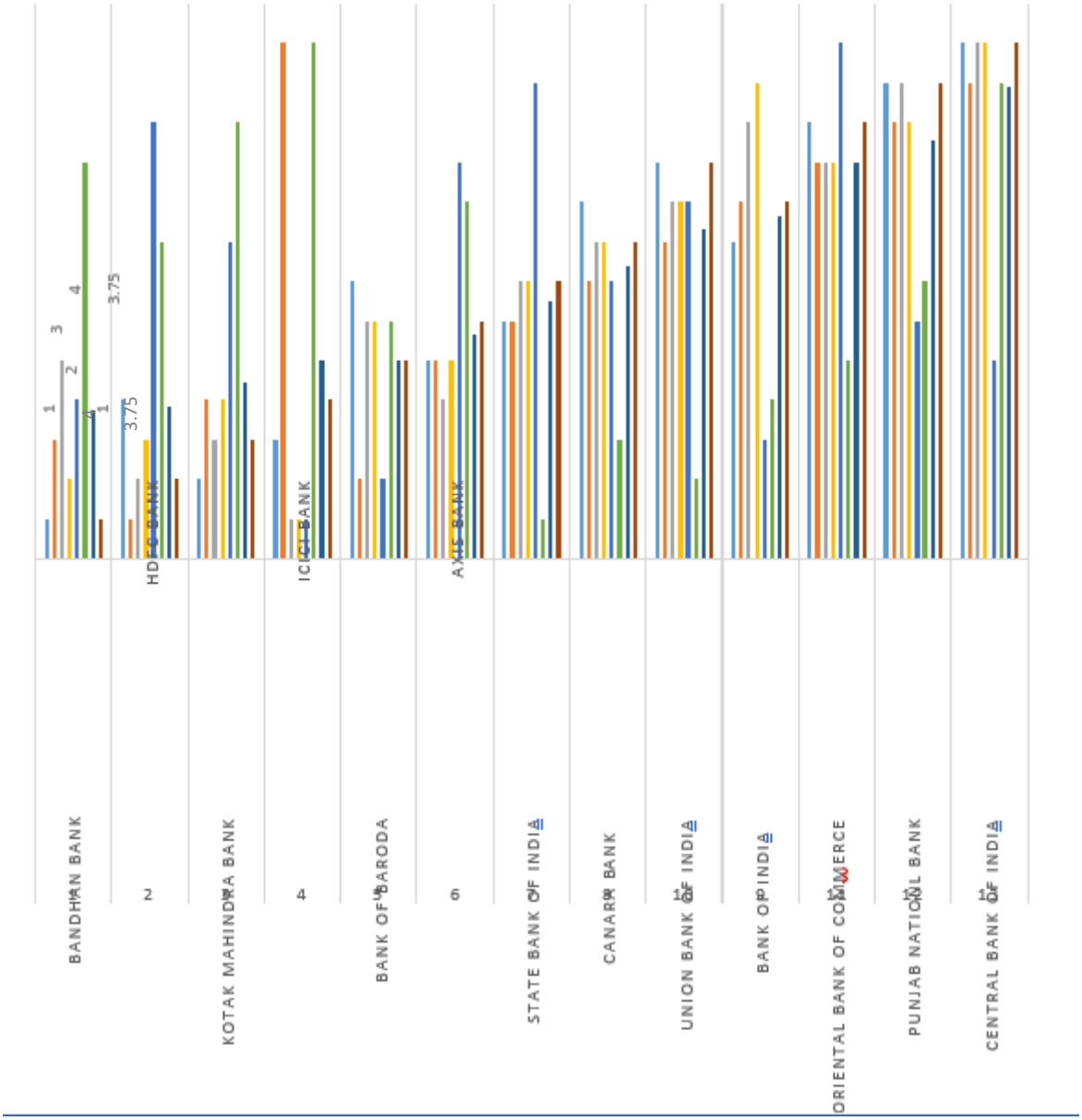
10	OBC	13.386	18.797	16.9207	14.8784	15.728916	15.942194	10
11	PNB	0.9249	0.9422	0.94637	0.94191	0.9425971	0.939601277	1
12	State Bank of India	16.031	15.662	14.7659	13.3716	15.3412	15.03443634	8
13	UBI	15.299	17.652	18.4211	18.2942	16.679096	0.944803588	2

In summary, this ratio expresses the total amount of outstanding loans as a percentage of total assets. The greater this ratio, the more leveraged and less liquid a bank is.
A bank may be more vulnerable to greater default rates the higher the ratio.
HDFC Bank, Bank of Baroda, Bandhan Bank, Kotak Mahindra Bank, Axis Bank, State Bank of India, C anara Bank, Union Bank of India, Bank of India, Oriental Bank of Commerce, Punjab National Bank, C entral Bank of India, and ICICI Bank are the banks in order of loans to assets.
As a result, it can be said that although government sector banks also have strong liquidity positions, pri vate sector banks are ranked first. The proportion India's Central Bank, Axis Bank, Kotak Mahindra Bank, HDFC Bank, BandhanBank, ICICI Bank, Bank of India, Bank of Baroda, Punjab National Bank, State Bank of India, Canara Bank, Oriental Bank of Commerce, Union Bank of India.

BANK NAME	**C**	**A**	**M**	**E**	**L**	**S**	**WEIGHTED AVEARGE CAMEL SCORE**	**COMPOSITE RANKING**
Bandhan Bank	1	3	5	2	4	10	3.75	1
HDFC Bank	4	1	2	3	11	8	3.85	2
Kotak Mahindra Bank	2	4	3	4	8	11	4.45	3
ICICI Bank	3	13	1	1	1	13	5	4
Bank of Baroda	7	2	6	6	2	6	5	5
Axis Bank	5	5	4	5	10	9	5.65	6
State Bank of India	6	6	7	7	12	1	6.5	7
Canara Bank	9	7	8	8	7	3	7.4	8
Bank of India	8	9	11	12	3	2	8.3	9
Union Bank of India	10	8	9	9	9	4	8.65	10
Oriental Bank of Commerce	11	10	10	10	13	5	10	11
Punjab National	12	11	12	11	6	7	10.55	12

Bank								
Central Bank of India	13	12	13	13	5	12	11.9	13



CAMEL RANKING

Conclusion: The above table shows the ranking of the banks Bandhan Bank, HDFC Bank, Kotak Mahindra Bank, ICICI Bank, Bank of Baroda, Axis Bank, State Bank of India, Canara Bank, Bank of India, Union Bank of India, Oriental Bank of Commerce, Punjab National Bank, Central Bank of India CAMELS. This above CAMELS ranking shows that the private sector banks are performing better than the governmentsector bank.

Research hypothesis The current study is attempting to determine the answers to the following questions in accordance with its objectives:

First Hypothesis Null Hypothesis Ho: The CAMEL model does not show any discernible variation in the performance of Public Sector Banks in India.

Hypothesis 1: The CAMEL model indicates a noteworthy distinction in the performance of Public Sector Banks in India.

Solution

Table No.5.66

BANK NAME	C	A	M	E	L	S	WEIGHTED AVEARGE CAMEL SCORE	COMPOSITE RANKING
Bank of Baroda	7	2	6	6	2	6	**5**	1
State Bank of India	6	6	7	7	12	1	**6.5**	2
Canara Bank	9	7	8	8	7	3	**7.4**	3
Bank of India	8	9	11	12	3	4	**8.65**	4
Union Bank of India	10	8	9	9	9	2	**8.3**	5
Oriental Bank of Commerce	11	10	10	10	13	5	**10**	6
Punjab NationalBank	12	11	12	11	6	7	**10.55**	7
Central Bank ofIndia	13	12	13	13	5	12	**11.9**	8

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Bank of Baroda	6	29	4.833333	4.966667
State Bank of India	6	39	6.5	12.3
Canara Bank	6	42	7	4.4
Bank of India	6	47	7.833333	13.36667
Union Bank of India	6	47	7.833333	8.566667
Oriental Bank of Commerce	6	59	9.833333	6.966667
Punjab National Bank	6	59	9.833333	6.966667
Central Bank of India	6	68	11.33333	9.866667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	186.25	7	26.60714	3.158118	0.009395	2.249024
Within Groups	337	40	8.425			
Total	523.25	47				

Conclusion: P is less than .05 so Ho is rejected. Therefore, it is concluded that thereis a significant difference in performance of Public Sector Banks in India assessed by CAMEL model.

Second Null Hypothesis Ho: There is no connection between the banks' operational, market, and credit risk management.

Hypothesis H1: There exists a correlation between the management of credit, market, and operational risks in banks and risk management.

Solution

Table No.5.68

S.No.	Name of the Bank	NPA/Advances	Earning per Employee	Debt-Equity Ratio	Liquidity to total Assets	Total Security to debt	Returnon Equity
1	**Axis Bank**	2.2	662180.67	9.87	0.08	0.12	29.158
2	**Bandhan Bank**	0.6	368385.36	4.70	0.14	0.18	16.98
3	**Bank of Baroda**	0.04	262421.62	15.71	0.15	0.06	15.818
4	**Bank India of**	6.6	-659701.72	16.39	0.15	0.06	11.136
5	**Canara Bank**	5.6	-271738.72	16.95	0.09	0.06	6.28
6	**Central Bank of Bank**	8.8	-867323.45	16.75	0.12	0.90	3.51
7	**HDFC Bank**	0	1901104.26	8.34	0.07	0.11	2.882
8	**ICICI Bank**	14.6	3458083.18	7.49	0.24	2.77	-5.384
9	**Kotak Mahindra Bank**	1	922283.44	6.50	0.09	0.73	-6.7
10	**Oriental Bank of Commerce**	7	-567064.96	15.94	0.06	0.06	- 11.988
11	**Punjab National Bank**	8.2	-676395.03	0.94	0.11	0.06	-12.84
12	**State Bank of India**	3.8	262421.62	15.03	0.06	0.00	- 13.676
13	**Union Bank of India**	6.4	-486398.80	0.94	0.09	0.05	- 17.474

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
NPA/Advances	13	64.84	4.987692	18.32997
Debt-Equity Ratio	13	135.55	10.42692	36.59134
Liquidity to total Assets	13	1.45	0.111538	0.002481
Total Security to debt	13	5.16	0.396923	0.587256
Return on Equity	13	17.702	1.361692	201.9598

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	986.3015	4	246.5754	4.788413	0.002029	2.525215
Within Groups	3089.65	60	51.49417			
Total	4075.952	64				

Conclusion: P is less than .05 so Ho is rejected. Therefore, it is concluded that thereis relation between risk management of credit, market and operational risks of the banks.

FINDINGS & CONCLUSION

Because it considers every facet of the bank's performance, the CAMELS score provides a reliable framework for assessing the actual standing of the institution. In an effort to enhance bank performance, Indian banks—both public and private—adhere to the RBI's standards. When the CAMELS model parameter was calculated for this study, it was found that the majority of the ratios for the well-known banks were favorable. The majority of bank employees gave favorable answers when asked about their organizations, but they were also constrained by a lot of rules and regulations and felt uncomfortable answering certain questions or providing the necessary details.

For better banking performance, every CAMELS model component can be enhanced. It is possible to enhance capital sufficiency, asset quality, earning potential, management effectiveness, liquidity, and sensitivity. Not a single bank has the perfect banking system. Despite having a high debt to equity ratio, certain private sector banks, like ICICI, HDFC, and Kotak Mahindra, among others, have excellent earnings. Therefore, for a better and safer banking business, all the components need to be taken care of. To make the study more comprehensible, a variety of statistical tools such as charts, graphs, diagrams, bars, and so on were employed, along with ratio analysis and ANOVA.

The capital adequacy exceeds the minimal percentage that a bank is required by RBI requirements to maintain, which is 8%. Bandhan Bank, Kotak Mahindra Bank, ICICI Bank, HDFC Bank, Axis Bank, State Bank of India, Bank of Baroda, Bank of India, Canara Bank, Union Bank of India, Oriental Bank of Commerce, Punjab National Bank, and Central Bank of India are the banks listed in decreasing order of capital adequacy. This demonstrates that the banks' capital adequacy ratio is appropriate.

Ratio of debt to equity: A ratio of 1 to 1.5 is considered good. Still, since different industries use debt financing more than others, the optimal debt-to-equity ratio will vary depending on the industry. In terms of debt to equity ratio, the following banks are ranked in decreasing order: Punjab National Bank, Union Bank of India, Bandhan Bank, Kotak Mahindra Bank, ICICI Bank, HDFC Bank, Axis Bank, State Bank of India, Bank of Baroda, Oriental Bank of Commerce, Bank of India Central Bank of India, and Canara Bank. All banks—aside from Punjab National Bank—have debt to equity ratios greater than 1.5, indicating that most public and private sector banks lack adequate debt equity.

Advances to Total Assets: As a proportion of total assets, the loans to assets ratio calculates the total amount of outstanding loans. The greater this ratio, the more leveraged and less liquid a bank is. A bank may be more vulnerable to greater default rates the higher the ratio. The Central Bank of India, Bank of India, Bank of Baroda, Punjab National Bank, State Bank of India, Canara Bank, Oriental Bank of Commerce, Union Bank of India, Axis Bank, Kotak Mahindra Bank, HDFC Bank, BandhanBank, and ICICI Bank are the banks listed in decreasing order of loans to asset ratio. The banks handle the advance to total assets efficiently.

Net NPA to Advances: Net NPAs are computed by deducting the gross NPAs from the cumulative balance of outstanding provisions at the end of the quarter. Higher ratio indicates an increase in loans with poor quality. The banks are HDFC Bank, Bank of Baroda, Bandhan Bank, Kotak Mahindra Bank, Axis Bank, State Bank of India, Canara Bank, Union Bank of India, Bank of India, Oriental Bank of Commerce, Punjab National Bank, Central Bank of India, and ICICI Bank, in decreasing order of net NPA to Advances ratio. This demonstrates that HDFC is the only bank managing its loans effectively. The high Net NPA to Advance ratio of the other banks must be lowered since it is negatively impacting asset quality and the management's inadequate loan distribution.

Total Investment to Total Assets: Liquid assets are investments in stocks, mutual funds, and other instruments that are readily convertible to cash. In addition to these liquid assets, total assets also consist of fixed assets like real estate or other investments that take longer to turn into cash. At least 20% of total assets should be kept in liquid assets. The Central Bank of India, Oriental Bank of Commerce, State Bank of India, Punjab National Bank, Union Bank of India, Canara Bank, HDFC Bank, Kotak Mahindra Bank, ICICI Bank, Bank of India, and State Bank of India are the banks in decreasing order of Total Investment to Total Assets.

Return on Equity/Networth: In general, a company's rates below 10% are regarded as inadequate; a minimum of 15% RoNW suggests a higher valuation and profitable stock. The banks are ICICI Bank, Bandhan Bank, HDFC Bank, Kotak Mahindra Bank, Axis Bank, Bank of Baroda, State Bank of India, Canara Bank, Union Bank of India, Oriental Bank of Commerce, and Punjab National Bank in decreasing order of Return on Equity/Networth.

Net Profit/Employee: A higher ratio indicates that the bank's management is highly efficient and that its staff members are motivated to generate more business. The banks are ICICI Bank, HDFC Bank, Kotak Mahindra Bank, Axis Bank, Bandhan Bank, Bank of Baroda, State Bank of India, Canara Bank, Union Bank of India, Oriental Bank of Commerce, Bank of India, Punjab National Bank, and Central Bank of India, listed in decreasing order of net profit/employee. ICIC Bank has the greatest Net Profit/Employee ratio. Banks operating in the private sector have a higher net profit to employee ratio than those operating in the public sector.

Return on Asset (ROA): This metric demonstrates how profitable the bank is making use of its assets. The banks ICICI Bank, Bandhan, and the others in decreasing order of return on assets banks, Axis Bank, Bank of Baroda, State Bank of India, Canara Bank, Union Bank of India, Oriental Bank of Commerce, Punjab National Bank, Bank of India, Central Bank of India, HDFC Bank, Kotak Mahindra Bank, and Bank of India. The data indicates that private sector banks exhibit a higher return on assets in contrast to their public sector counterparts.

One measure of a bank's expansion and profitability is its net interest margin, or NIM. ICICI Bank, Bandhan Bank, HDFC Bank, Kotak Mahindra Bank, Axis Bank, State Bank of India, Bank of Baroda, Punjab National Bank, Central Bank of India, Oriental Bank of Commerce, Union Bank of India, Bank of India, and Canara Bank are the banks with the lowest Net Interest Margin ratios.

Liquid Assets to Demand Deposit: The Statutory Liquidity Ratio (SLR) is the ratio of these liquid assets to the demand and time liabilities. This ratio may be raised by the Reserve Bank of India (RBI) by up to 40%. A rise in the ratio limits the bank's capacity to stimulate the economy with new loans. A bank's liquidity can be evaluated by comparing its total loans to its total deposits over the same time period, which is known as the loan-to-deposit ratio. Divide the total amount of loans made by a bank by the total

amount of deposits made during the same time period to find the loan-to-deposit ratio. Generally, a loan-to-deposit ratio of 80% to 90% is optimal.

Bandhan Bank came in first place, followed by HDFC Bank in second place, Kotak Mahindra Bank in third place, ICICI Bank in fourth place, Bank of Baroda in fifth place, Axis Bank in sixth place, State Bank of India in seventh place, Canara Bank in eighth place, Bank of India in ninth place, Union Bank of India in tenth place, Oriental Bank of Commerce in eleventh place, Punjab National Bank in twelfth place, and Central Bank of India in thirteenth place. The private sector banks are outperforming the government sector banks, as evidenced by this higher CAMELS ranking.

It is possible to draw the conclusion that private sector banks perform better than public sector banks based on the CAMELS evaluation of well-known public and private sector banks. But due to their high debt-to-equity ratio, private sector banks operate at a higher risk. Compared to public sector banks, private sector banks have higher profits. The management control and policies are strict and heavily focused on growing the banks' business. The management practices of public sector banks are inferior to those of private sector banks. Almost all commercial banks manage their capital requirements, or capital adequacy, well. There is a problem with non-performing assets.

SUGGESTIONS

Based on the research done to assess and comprehend the banking performance using CAMELS, the following recommendations are made.

1. While some banks have good capital adequacy, it can still be managed and should be improved. To manage and maintain capital adequacy, management must take the appropriate actions.
2. The high debt to equity ratio of private sector banks needs to be brought down to an acceptable level in order to lower the banks' risk in the event that non-performing assets rise.
3. The bank must establish guidelines and should only provide secured loans in order to lower the NPA and permanently address the NPA issue. A bank's loan disbursement process should.
4. In the event of non-secured loan non-payment, it is challenging for the bank to recoup its losses. Thus, a bank should proceed with extreme caution when making any non-secured loan.
5. If a bank branch performs poorly, every employee should be held accountable, and appropriate training and motivational sessions should be scheduled in such instances.
6. Just as private sector banks train their staff, public sector banks should also base employee promotions and increases on the volume of business they bring in.
7. Employees in public sector banks who generate business for the banks should receive incentives.
8. To increase their business, the banks ought to pay their agents and other third-party companies more.
9. The staff of the public sector bank ought to treat each and every one of its clients with kindness. If more workers are needed to finish the work at the counter, where it is overworked, they should send some more.
10. Extra compensation for overtime work should be given to the employees who put in more hours.
11. The banks in both industries should keep an adequate amount of securities to lower business risk in general and credit risk in particular.
12. The banks must keep adequate liquidity to ensure the smooth operation of their business. Operating a bank requires a sufficient amount of liquid assets.
13. The bank should put moneys into liquid assets in order to earn a return and be able to convert it into liquid assets if needed to maintain a certain level of liquidity for the banking operation.

14. Compared to private sector banks, the earning efficiency of public sector banks is lower. By encouraging the staff to bring in more business for the bank, this can be improved.
15. The Reserve Bank of India (RBI) closely monitors the banking industry in India. However, recent events have shown that the non-performing assets (NPA) in private sector banks have exposed them to credit risk. This risk can be mitigated by adhering to appropriate loan disbursement procedures and maintaining market value of securities above loan amount.
16. Since a dynamic team can enhance the banking industry, public sector bank staff must receive training in order to increase business for their institutions.
17. It has been observed that candidates from north India are transferred to south India, where they have difficulty persuading clients. Therefore, the bank should assign the appropriate person to the right position in the public sector bank.
18. Public sector banks should assign each customer a personal banker, just as private sector banks do, who can help them with banking operations should they encounter difficulties or lack of knowledge.

As a result, there is enormous room for growth in the banking industry for both public and private sector banks. Comparing public sector banks to private sector banks, the former are performing worse overall. In order to attract more business and meet customer expectations, public sector banks must enhance their operational procedures. This will also help to close the gap between public and private sector banks.

CONCLUSION

The SBI has done better in capital adequacy and has a strong risk management system, according to research done by the CAMEL Model for the top Five banks. To combat rising non-performing assets (NPAs) in the future, all banks may implement stricter measures. BOI needs to take the necessary actions to turn around its negative profit per employee. In order to give its investors a larger dividend, PNB should work to increase its earnings. Canara Bank's asset-based revenue is sufficient. Over the past few years, these banks' performance has significantly changed. For daily operations, BOB offers superior working capacity and solvency. SBI is less able to meet demand and provide people with access to money.

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