CHAPTER-4
THE CAMEL MODEL EXPLAINED

CAMEL Rating Framework:
This section outlines the explanation as well as fundamentals of the CAMEL rating system and the five components of the CAMEL rating framework.

4.1 What is CAMEL Rating Framework?
The CAMEL Rating Framework is a system of rating for on-site examinations of banking institutions (Barr et al., 2002). The Uniform Financial Institution Rating system, commonly referred to the acronym CAMEL rating, was adopted by the Federal Financial Institution Examination Council on November 13 1979, and then adopted by the National Credit Union Administration in October 1987 (The United States, Uniform Financial Institutions Rating System, 1997). It is recognized to be an effective internal supervisory tool for evaluating the soundness of financial firms especially banks.

Under this system, each banking institution subject to onsite examination is evaluated on the basis of five (now six) critical dimensions relating to its operations and performance, which are referred to as the component factors. These are Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality and Liquidity. These parameters are used to reflect the operating performance, financial performance and regulatory compliance of the banking institutions world over. A sixth component relating to Sensitivity to market risk has been added to the CAMEL rating in 1996 to make the rating system more risk-focused. Each of the component factors is rated on a scale of 1 (best) to 5 (worst). A composite rating is assigned which is taken as the prime indicator of a bank’s current financial condition. The banks rating are highly confidential, and only exposed to the bank’s senior management for the purpose of projecting business strategies, and to appropriate supervisory staff (Hirtle and Lopez, 1999). The CAMEL components completely reflect the safety and soundness of banks (Barr et al., 2002). RBI has approved this framework for measuring the performance of Indian Commercial banks (Bodla and Verma, 2006).
CAMEL is, basically, a ratio-based model for evaluating the performance of banks. Various ratios’ that make the Framework are detailed as follows:

4.2 Capital Adequacy:

Capital Adequacy is an important indicator of the financial health of a banking entity. This indicates the banks capacity to maintain capital commensurate with the nature and extent of all types of risks, as also the ability of the bank’s managers to identify, measure, monitor and control these risks. It reflects the overall financial condition of the banks and also the ability of management to meet the requirement for additional capital. This ratio acts as an indicator of bank leverage. Capital base of financial institutions facilitates depositors in forming their risk perception about the organization since Capital Adequacy is very useful for a bank to conserve and protect stakeholder’s confidence and prevent the bank from bankruptcy. Capital is seen as a cushion to protect depositors and promote the stability and efficiency of financial system around the world. It also specifies whether the bank has adequate capital to grip unanticipated losses. It also acts as a boundary for financial managers to maintain adequate levels of capitalization.

Reserve Bank of India prescribes banks to maintain a minimum Capital to risk-weighted Assets Ratio (CRAR) of 9 % with regard to credit risk, market risk and operational risk on an ongoing basis as against 8 % prescribed in Basel documents. The following ratios measure Capital Adequacy:

4.2.1 Capital Adequacy Ratio (CAR):

Capital adequacy ratio is the ratio which safeguards banks against insolvency, protects banks against surplus leverages, insolvency and keeps them out of difficulty. It is defined as the ratio of banks capital in relation to its current liabilities and risk weighted assets. Risk weighted assets is a measure of amount of banks assets, adjusted for risks. An appropriate level of capital adequacy confirms that the bank has adequate capital to increase its business, while at the same time its net worth is enough to absorb any financial slumps without becoming insolvent. It is the ratio which determines banks capacity to meet the time liabilities and other risks such as credit risk, market
risk, operational risk etc. As per RBI norms, Indian SCBs should have a CAR of 9% i.e., 1% more than stipulated Basel norms while as per the latest RBI norms, public sector banks are emphasized to keep this ratio at 12%. It is arrived at by dividing the sum of Tier-I, Tier-II and Tier-III capital by aggregate of risk weighted assets (RWA).

Symbolically,

\[
\text{CAR} = \frac{\text{Tier-I} + \text{Tier-II} + \text{Tier-III}}{\text{RWA}}
\]

Tier-I capital includes equity capital and free reserves.
Tier-II capital comprises of subordinate debt of 5-7 years tenure, revaluation reserves, hybrid debt capital instruments and undisclosed reserves and cumulative perpetual preference shares.
Tier-III capital comprises of short-term subordinate debt. The higher the CAR, the stronger the bank.

4.2.2 Debt Equity Ratio (D/E Ratio):

Debt Equity Ratio in banks is a measure of the quantum of banks business that is financed through the blend of debt and equity. It is a measure of financial leverage of a bank. It is calculated as the proportion of total 'Outside Liabilities' to Net worth. 'Outside Liabilities' includes total borrowings, deposits and other liabilities. 'Net Worth' includes equity capital and reserves and surplus.

Higher ratio indicates less protection for the creditors and depositors in the banking system.

Symbolically,

\[
\text{D/E Ratio} = \frac{\text{Total Outside Liabilities}}{\text{Net Worth}}
\]

4.2.3 Total Advances to Total Assets Ratio (Tot ADV / Tot ASS Ratio):

This is an important parameter to measure the aggressiveness of banks in lending. This ratio indicates a bank’s sternness in lending which ultimately results in better profitability. Total advances also include receivables. The value of Total Assets excludes the revaluation of all the assets.

Symbolically,

\[
\text{Tot ADV / Tot ASS Ratio} = \frac{\text{Total Advances}}{\text{Total Assets}}
\]
4.2.4 Government Securities to Total Investment Ratio (G-Sec / Tot INV Ratio):

This ratio indicates the quantum of safe investments in the total investments of the banks and also measures the risk involved in a bank’s investment. Government Securities, are commonly, considered as the most safe debt instrument, which, as a result, brings the lowest return. Since government securities are risk-free, a higher investment in Government Securities to investment ratio, the lower the risk involved in a bank’s investment. This ratio is calculated by dividing Government Securities by Total Investments of the bank.

Symbolically,

\[
\text{G-Sec / Tot INV Ratio} = \frac{\text{Government and State Government securities in India} + \text{Government Securities outside India}}{\text{Total Investments}}
\]

4.3 Asset Quality:

Asset Quality reflects the magnitude of credit risk prevailing in the bank due to its composition and quality of loans, advances, investments and off-balance sheet activities. The financial soundness of a bank is determined with the quality of assets that the bank possesses. Asset quality defines the financial health of banks against loss of value in the assets, as asset weakening, risks the solvency of the financial institutions especially banks. This declining value of the bank’s assets has a rippling effect, as losses are ultimately written-off against capital, which eventually affects the earning capability of the bank. With this structure, the asset quality is measured with respect to the level and robustness of nonperforming assets, sufficiency of provisions, dispersal of assets etc. The primary dictum behind measuring the assets quality is to establish the elements of Non-Performing Assets (NPAs) as a percentage of the total assets. This clearly indicates the quality of advances that the bank has granted to generate interest income. Thus, assets quality clearly specifies the type of the debtors that banks have in their balance sheet. The following ratios measure Asset Quality:
4.3.1 Net Non-Performing Assets (NPA) to Net Advances Ratio (NNPA’s/ ADV Ratio):
Net Nonperforming Assets to Net Advances Ratio is a measure of the overall quality of banks advances. It shows the actual financial burden on the bank. An NPA are those assets for which interest is overdue for more than three months or ninety days. Net NPAs are calculated by reducing cumulative balance of provisions outstanding at the end of the period as well as some other interest adjustments, from gross NPAs. Higher ratio reflects rising bad quality of loans. Symbolically,

\[ \text{NNPA’s/ ADV Ratio} = \frac{\text{Net Non-Performing Assets}}{\text{Net Advances}}. \]

4.3.2 Gross Non-Performing Assets (GNPA) to Net Advances Ratio (GNPA’s/ ADV Ratio):
Gross Non-Performing Assets (GNPA) to Net Advances Ratio is a measure of the quality of assets in a situation, where the management has not provided for loss on NPAs. It reflects the quality of advances made by the bank. Gross NPAs are the sum total of all loan assets that are classified as NPAs as per RBI guidelines as on Balance Sheet date. The Gross NPAs are measured as a percentage of Net Advances. A low ratio signifies that the bank has granted sound loans and proves the good quality of advances. Symbolically,

\[ \text{GNPA’s/ ADV Ratio} = \frac{\text{Gross Non-Performing Assets}}{\text{Net Advances}}. \]

4.3.3 Total Investment to Total Assets Ratio (Tot INV / Tot ASS Ratio):
This ratio measures the proportion of total assets of the bank that are locked up in investments which does not form a part of the core income of the bank, as against providing advances to the customers. An aggressive bank would have a low investment to asset ratio as a high ratio signifies that the bank has very conventionally kept a high cover of investment to safeguard against the risk of Non-Performing Assets. This adversely affects the profitability of the banks since the interest income generated through investments is much less than interest income earned through granting advances. Symbolically,

\[ \text{Tot INV / Tot ASS Ratio} = \frac{\text{Total Investment}}{\text{Total Assets}}. \]
4.4 Management Efficiency:
The Management Efficiency parameters signal the ability of the board of directors and senior managers to identify, measure, monitor and control risks associated with the bank. Management Efficiency is an important element of the CAMEL model. The management of the bank takes crucial decisions depending on its risk perception. It sets vision and goals for the organization and sees that it achieves them. This parameter is used to evaluate management efficiency as to assign premium to better quality banks and discount poorly managed ones. Management efficiency, another vital component of the CAMEL framework, means management’s adherence to standards and policies, capability to plan and be anticipatory, leadership, innovativeness and managerial aptitude of the top level management. This qualitative measure, although has a streak of subjectivity, yet uses risk management policies and processes as indicators of sound management practices. The following ratios measure Management Efficiency:

4.4.1 Total Expenditure to Total Income Ratio (Tot EXP / Tot INC Ratio):
Every banking organization is keen on controlling its expenditure as it is an essential aspect to enhance the profits for the bank. It is justified that in case of banks, keeping a close watch on expenditure would enable it to enhance its return to its equity share holders. A substantial part of operating expense of banks consists of salaries to employees, technological upgradations and branch rationalization, especially the new generation banks. Although these expenses consequence into higher Total Expenditure to Total Income Ratio, in long term they help the bank in enhancing its return to equity shareholders. It is ideal for banks to have a lower ratio as it will enhance the profits of the bank and subsequently enhance returns to the stakeholders. The ratio gives investors a clear view of how efficiently the bank is being run – the lower it is, the more profitable the bank will be. Changes in the ratio can also highlight potential problems. If the ratio rises from one period to the next, it means that costs are rising at a higher rate than income.

Symbolically,

\[
\text{Tot EXP} / \text{Tot INC Ratio} = \frac{\text{Total Expenditure}}{\text{Net Interest Income + Non-interest Income}}.
\]
4.4.2 Total Advance to Total Deposit Ratio (Tot ADV/Tot DEP Ratio):

The ratio gives the first indication of the health of a bank as this ratio measures the extent to which a bank's core funds are being used for lending which is its main banking activity. Advances are necessary to earn profit and service the interest being paid to the deposits. The ratio measures the efficiency and ability of the bank’s management in converting the deposits available with the bank (excluding other funds like equity capital, etc.) into high earnings advances. It indicates the quantum of advances a bank has as against the deposits it has mobilized. A higher ratio indicates more reliance on deposits for lending, whilst a low ratio signifies less reliance on deposits. The regulator does not provide any standard norm or level for the ratio but, a very low ratio indicates banks are not making full use of their resources. However if the ratio is above a certain level, it indicates a pressure on the banks resources with an asset-liability mismatch leading to unhealthy balance sheet. This is extremely disturbing as apart from creating unhealthy financial statements it may also hint at capital adequacy issues, forcing banks to raise more capital. Such a situation is considered extreme as RBI completely ensures on a regular basis that Indian banks don’t overstretch themselves.

Symbolically,  
\[
\text{Tot ADV/Tot DEP Ratio} = \frac{\text{Total Advances}}{\text{Total Deposit}}.
\]

4.4.3 Asset Turnover Ratio (ATR):

Asset Turnover measures how quickly a bank turns over its asset through its income, both interest incomes as well as non-interest income. It measures the ability of a bank to use its assets to efficiently generate income. The higher the ratio indicates that the bank is utilizing all its assets efficiently to generate income.

Symbolically,

\[
\text{ATR} = \frac{\text{Total Income}}{\text{Total Assets}}.
\]

4.4.4 Diversification Ratio (DIVRSF ratio):

This ratio measures the ability of the bank to generate income other than interest income from regular banking activities. A large proportion of banks income is generated through its lending activities, however presently banks have also started enhancing its income by resorting to
activities other than regular banking activities that are called as fee based activities (e.g. fees and commission, trading gains, forex activities etc.). Today fee based income accounts for a major portion of a bank's other income. A bank generates higher fee income by acclimatizing technology for developing innovative products for sustained service levels. Since fee based income is not any ways related to bank's capital adequacy therefore the potential to generate non-interest income is enormous. A high ratio indicates increasing proportion of fee-based income.

The ratio is also opinionated by gains on government securities, which fluctuates depending on interest rate movement in the economy. The explanation of this ratio is subject to some debate. Few analysts view a high number as a good indicator, since it shows that the bank is not reliant only on its lending activities to generate earnings. Few Analysts take the opposite view and express that a high indicates that the bank is dependent on unsteady fee based revenues that are not predictable for its earnings.

Symbolically,

\[ \text{DIVRSF Ratio} = \frac{(\text{Total Income} - \text{Interest Income})}{\text{Total Income}}. \]

4.4.5 Profit Per Employee (PPE):

This is an important parameter to measure the efficiency of the banks management as this ratio measures the company’s profits in relation to number of employees. The ratio indicates the surplus earned per employee. It specifies the average profit generated per person employed. An upright management will inspire and stimulate employee to earn more profit for the bank. A high ratio clearly signifies efficient management.

Symbolically,

\[ \text{PPE} = \frac{\text{Profits After tax}}{\text{Number of Employees}}. \]

4.4.6 Business Per Employee (BPE):

Business per employee ratio shows the productivity of employees of the bank and is used as a tool to measure the efficiency of all the employees of a bank in generating business for the bank. It indicates how much business each employee is producing for the bank. Business is in terms of sum of Total Deposits and Total Advances in a particular year of the bank. A high business per employee ratio means that employees are generating adequate sales or revenue for the bank which is a clear indicator of efficient and sound management of the bank, while a low ratio is
often a sign of low productivity. A high ratio is good for the bank as it automatically signifies efficient bank management.

Symbolically,

\[ BPE = \frac{\text{Total Income}}{\text{Number of Employees}}. \]

4.5 Earnings Quality:

The quality of earnings is a vital parameter that determines the ability of a bank to earn steadily, going into the future. The quality of earnings represents the sustainability and growth in future earnings of the bank and the competency of the bank to sustain maintain this quality and earn steadily. It is an indicator of profitability of banks. The ultimate aim of a bank is to increase its bottom line and bring profit to the stakeholders.

The parameter gains importance as a substantial part of a bank's income is earned through fee based activities like investments, treasury operations, and corporate advisory services and so on. The quality of earnings of the bank will also aid the bank in executing activities like dividend payment, maintaining adequate level of capital, taking up growth and diversification strategies and maintaining a competitive attitude.

However apart from the sources of earning, the following dimensions also decide significantly the financial performance of the banks. i. trend, level, and constancy of earnings, ii. quality and sources of earnings. iii. Capability to extend capital through retained earnings. iv. exposure to market risks. v. provisions for credit losses. Sound earnings performance would stimulate the confidence of depositors, investors, creditors, and the public at large.

The following ratios measure the Earnings Quality:
4.5.1 Net Profit Margin (NPR):
Net profit margin is an important criterion to measure the earnings quality in banks. Increasing profits is the best indicator that the bank can pay dividends due to which the share price will trend upward. Stakeholders look at net profit margin thoroughly because it signifies the quality of the bank that is reflected in its ability in converting revenue into profits available for shareholders. It is explained as percentage of revenue that is residual after all operating expenses, interest, taxes and preferred stock dividends other than common stock dividend is deducted from the total income of the bank. A high Net Profit Margin clearly signifies that the bank has stable and steady earnings.
Symbolically,
\[ NPR = \frac{\text{Net profit After Taxes}}{\text{Total Income}}. \]

4.5.2 Return on Equity (ROE):
The return on equity (ROE), also known as return on investment (ROI), is a sound measure of return, since it is the product of the operating performance, debt- equity management and asset turnover of the bank. ROE measures how much the shareholders earned for their investment in the bank. This ratio indicates how profitable a bank is by comparing its net income to its average shareholders’ equity. If a bank can mobilize deposits at a lower rate and advance these to customers to generate higher returns than the cost of deposits, it is able to create additional revenues that accrue to shareholders as increased equity.

The higher the ratio percentage, the more efficient the bank is in earnings and utilizing its equity base to generate better return is to investors.
Symbolically,
\[ \text{ROE} = \frac{\text{Net Income}}{\text{Average Shareholders Equity}}. \]

4.5.3 Net Interest Margin (NIM):
Net Interest margin is an important parameter of the performance of banks. It is the difference between the interest income and the interest expended as a percentage of total assets. NIM, shows the ability of the bank to keep the interest on deposits low and interest on advance high. It
is an important measure of a bank's core income (income from lending operations). A higher NIM indicates better earnings as against the total assets.
Symbolically,
\[
\text{NIM} = \frac{\text{Interest Income} - \text{Interest Expense}}{\text{Interest Earning Assets}}.
\]

4.5.4 Interest Spread (IS):
Interest spread is the difference between yield and cost of borrowing, where yield is the interest income earned on interest earning assets and cost of borrowing is interest expense charged on interest bearing liabilities. It clearly indicates the extent to which interest earning capacity of the bank exceeds or falls short of its interest cost obligations. The larger the spread, the more profitable the bank is likely to be; the lower the spread, the less profitable the bank. While the federal funds rate plays a large role in determining the rate at which an institution lends immediate funds, open market activities ultimately shape the rate spread.
Symbolically,
\[
\text{IS} = \frac{\text{Interest Income}}{\text{Interest earning assets}} - \frac{\text{Interest Expense}}{\text{Interest bearing Liabilities}}.
\]

4.5.5 Interest Income to Total Income Ratio (INTINC/ Tot INC Ratio) :
Interest income to total income indicates the capability of the bank in generating interest income from its advances. Interest income is a basic source of revenue for banks. In other words, this ratio computes the income from lending operations as a percentage of the total income generated by the bank in a year. Ideally banks would like to have a high ratio as it signifies regularity in income and represents the income of the bank in the regular course of banking operations.
Symbolically,
\[
\text{INTINC/ Tot INC Ratio} = \frac{\text{Interest Income}}{\text{Total Income}}.
\]
4.6 Liquidity:
Liquidity management in banks has assumed key prominence due to competitive force of peer banks and the smooth flow of foreign capital in the domestic markets. Every bank should ensure that it is able to maintain adequate level of liquidity to meet its financial commitments in a timely manner. In order to fulfill the demands of the customers; the creditors and the depositors, banks must maintain liquidity in their asset, as the influence of liquidity crisis in banks can adversely impact their financial performance. Liquidity is an important aspect for any organization dealing in money and banks rank ahead in the list of institutions that deal with money and therefore have to maintain that apt balance between profitability and liquidity. Incapability of banks to manage its short term liquidity liabilities and loan commitments can undesirably impact the performance of banks by substantially increasing its cost of funds.

Liquidity in banks is managed by an effective mechanism called the Asset and Liability Management. It reduces maturity mismatches between assets and liabilities to optimize returns. The following ratios measure Liquidity:

4.6.1 Cash to Deposit Ratio (CD Ratio):
This is an important parameter to measure liquidity as it evaluates the amount of cash that the bank has from the deposits that it has generated. Cash being liquid of all the assets gives the complete picture of the liquidity of the bank. Banks need to maintain sound cash to deposit ratio so as to ensure that large volume of cash is not maintained, as idle cash does not generate any returns and will subsequently endanger the earnings quality of the bank. Symbolically,

\[ \text{CD Ratio} = \frac{\text{Cash}}{\text{Total Deposits}}. \]

4.6.2 Government Securities to Total Asset Ratio (G-Sec /Tot ASS Ratio):
Investment in government securities, whether within the country or outside India are considered to be the safest investment and therefore the most liquid investment. This ratio measures the total assets of the bank that are held in government securities. Although a high ratio signifies sound liquidity of the bank, it affects the earning quality of the bank since government securities do not
give high returns unlike other market investing instruments. Inspite of this, banks invest in government securities primarily to meet their SLR requirements.

Symbolically,

G-Sec /Tot ASS Ratio = Government and State Government securities in India + Government Securities outside India/ Total Assets.

4.6.3 Total Investment to Total Deposit Ratio (INV/DEP Ratio):
This ratio measures liquidity available to the depositers of a bank. It measures how liquid the bank is in meeting its obligation towards the depositors of the bank.
Symbolically,

INV/DEP Ratio = Total Investment / Total Deposits.

4.6.4 Interest Expended to Interest Earned Ratio (INT EXP/ INT EARN Ratio):
This ratio measures interest expense as a percentage of interest income. It measures the ability of the bank to meet the interest expenditure on deposits from the interest income from advances. It also shows the apt management of deposits and advances of the bank. If the ratio is less than 1, the bank is generating enough interest from advances to meet its interest obligations of deposits which signifies sound liquidity of the bank.
Symbolically,

INT EXP/ INT EARN Ratio = Interest Expenditure / Interest Income.
4.7 References:


