

# [The credit risk management indicators finance essay](https://assignbuster.com/the-credit-risk-management-indicators-finance-essay/)

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ROE as an important indicator to measure the profitability of the banks has been discussed extensively in the prior studies. Foong Kee K. (2008) indicated that the efficiency of banks can be measured by using the ROE which illustrates to what extent banks use reinvested income to generate future profits. According to Riksbank’s Financial Report (2002), the measurement of connecting profit to shareholder’s equity is normally used to define the profitability in the banks. Felix and Claudine (2008) investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that that there was an inverse relationship between the profitability ratios return on equity (ROE) and return on assets (ROA) and the credit risk ratio NPLR of financial institutions thereby leading to a decline in profitability. In accordance with the study Waymond A G. (2007), profitability ratios are often used in a high esteem as the indicators of credit analysis in banks, since profitability is associated with the results of management performance. Empirical work by Miller (1997), Athanasoglou et al. (2008) and Liu et al. (2010) found that deterioration in credit quality reduces bank profitability measured by ROA and ROE. Conversely, other studies show that loan loss provisions increase lending rates and improve bank net interest margins. In fact, the more provisions are necessary, the riskier the customers of the bank are, and lending rates should be higher to compensate for losses incurred by banks (Ho and Saunders, 1981; Zarruk and Madura, 1992; Angbazo, 1997). The impact of credit risk on bank profitability is thus undetermined. ROE and ROA are the most commonly used ratios, and the quality level of ROE is between 15% and 30%, for ROA is at least 1%. The study of Joetta C (2007) presented the purpose of ROE as the measurement of the amount of profit generated by the equity in the firm. It is also mentioned that the ROE is an indicator of the efficiency to generate profit from equity. This capability is connected to how well the assets are utilised to produce the profits as well. The effectiveness of assets utilisation is significantly tied to the amount of assets that the company generates for each rupee of equity. Thus, after bringing the evidence of ROE being used as the profitability indicator next is the discussion of credit risk management indicators.

## 2. 1. 2 Credit risk management indicators

In response to recent corporate and financial disasters, regulators have increased their examination and enforcement standards. In banking sector, Basel II (superseded by Basel III in 2010) has established a direct linkage between minimum regulatory capital and underlying credit risk, market risk and corporate risk exposure of banks. This step gives an indication that capital management is an important stage in risk mitigation and management. However, the development of effective key risk indicators and their management pose significant challenge. Some readily available sources such as policies and regulations can provide useful direction in deriving key risk indicators and compliance with the regulatory requirement can be expressed as risk management indicators. A more comprehensive capital management framework enables a bank to improve profitability by pricing risk based product more efficiently and resource allocation. The objective of Basel II is to know how much capital banks need to set aside to guard against the types of risk banks face, through the creation of an international standard. In practice, Basel II tries to achieve this by setting up meticulous risk and capital management requirements aimed at ensuring that sufficient capital reserves is held by a bank to safeguard against the risks the bank exposes itself to. The higher the risk the greater amount it needs to hold. The theoretical banking literature, however, is divided on the effects of capital requirements on bank behaviour and consequently, on the risks faced by the institutions. Some academic works point toward that capital requirement clearly contributes to various possible measures of bank stability. On the contrary, other works conclude that capital requirements make banks riskier institutions than they would be in the absence of such requirements. Jeitshko and Jeung (2005) have discovered numerous aspects that explain the differing implications of portfolio-management models for the responsiveness of bank portfolio risk to capital regulation. Results depend on banks being either value-maximising or utility-maximising firms; bank ownership (if limited liability) and whether banks operate in complete or incomplete asset markets. Moreover, the effects of capital regulation on portfolio decisions and therefore on the banking system’s safety and soundness, eventually depend on which perspective dominates among insurers, shareholders, and managers in the principal-agent interactions. Capital and profitabilityTheory provides contradictory forecast on whether capital requirements limit or enhance bank performance and stability. The soundness of the banking system is important because it limits economic downturn related to the financial anxiety. Furthermore, it avoids unfavourable budgetary consequences for governments which often bear a substantial part of bailouts cost. Prudential regulation is expected to protect the banking system from these problems by persuading banks to invest prudently. The introduction of capital adequacy regulations strengthen bank and therefore, enhance the resilience of banks to negative shocks. However, these rules may cause a shift of providing loans from private sector to public sector. Banks can comply with capital requirement ratios either by decreasing their risk-weighted assets or by increasing their capital. Athanasoglou et al. (2005) found that capital is important in explaining bank profitability and that increased exposure to credit risk, lower the profits. Buyinza (2010) found that high profitability of the banks was associated with well-capitalised banks with efficient management and bank size. Goddard, Molyeux and Wilson (2004) analysed the determinants of profitability of European banks. The authors found a considerable endurance of abnormal profits from year to year and a positive relationship between the capital-to-asset ratio and profitability. Demirguc-Kunt and Huizinga (1999) examined how capital requirement alter the incentives that banks face. An increase in capital requirement necessitates banks to substitute equity for deposit financing, reduce shareholder’s surplus. The decline in surpluses intensifies the probability of loss, driving a rise in the cost of intermediation to sustain profitability. In support of this hypothesis, authors have provided empirical evidence showing a significant effect on interest margins pursuant to higher capital holdings and the share of total assets held by banks. The evidence also supports higher net interest margins and more profitability for well-capitalised banks. This is in harmony with the fact that banks with high capital ratio have low interest expenses due to less probable bankruptcy costs. Samy and Magda (2009) focused on the impact of capital regulation on the performance of the banking industry in Egypt. The study provided a comprehensives framework to explicitly measure the effects of capital adequacy on two specific indicators of bank performance: cost of intermediation and profitability. The results provide a clear illustration of the effects of capital regulations on the cost of intermediation and banks’ profits. As CAR internalises the risk for shareholders, banks increase the cost of intermediation, which supports higher return on assets and equity. These effects appear to increase progressively over time, starting in the period in which capital regulations are introduced and continuing 2 years after the implementation. Nonetheless, the evidence does not support the hypothesis of a sustained effect of capital regulations over time, or variation in the effects with the size of capital across banks. The authors have concluded that in the post-regulation period, a number of factors contributed positively to banks’ profitability, including higher capital requirements, the reduction in implicit cost, and the increase in management efficiency. Countering effects on banks’ profitability were attributed to the reduction in economic activity and, to a lesser extent, to the reduction in reserves. An improvement of cost efficiency is not reflected in a reduction in the cost intermediation or an improvement in profit. The effect of better efficiency is likely to have been absorbed in banks’ fees and commissions. Non-performing loansWhy NPL occurs? Non-performing loan is the percentage of loan values that are not serviced for three months and above (Ahmad and Ariff, 2007). The IMF30 paper (2001) presents two main reasons for that: poor risk management and plain bad luck in form of external independent factors. The inflation, deregulation and special market conditions can lead to poor credit lending decision which in turn leads to NPLs. In fact, many NPL studies are conducted in the countries with financial market recession. In prior studies, NPL is usually mentioned in East Asian countries’ macroeconomic studies, while they run into serious economic downturn, as one of the financial and economical distress indicators. Japan and China, are those of most mentioned in this regard. Moreover, IMF working paper from December 2001 encourages better account of NPL for macroeconomic statistics which makes NPL to be widely used in macroeconomic statistics. Hippolyte F. (2005) advocates that macroeconomic stability and economic growth are associated with declining level of NPLs, while the adverse macroeconomic situation is associated with rising scope of NPLs. Ongoing financial crises suggest that NPL amount is an indicator of increasing threat of insolvency and failure. However, the financial markets with high NPLs have to diversify their risk and create portfolios with NPLs along with Performing Loans, which are widely traded in the financial markets. In this regard, Germany was one of the leaders of NPL markets in 2006 because of its sheer size and highly competitive market. Also, Czech Republic, Turkey and Portugal are noticeable NPL markets in EU according to Ernst &Young’s Global Non-performing Loan report (2006). Ahmed, Takeda and Shawn (1998) in their study found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely. Brewer et al. (2006) use NPLR as a strong economic indicator. Efficient credit risk management supports the fact that lower NPLR is associated with lower risk and lower deposit rate. However it also implies that in long run, relatively high deposit rate increases the deposit base in order to fund relatively high risk loans and consequently increases possibility of NPLR. Therefore, the allocation of the available fund and its risk management heavily depend on how the credit risk is handled and diversified to decrease the NPL amount. NPL is a probability of loss that requires provision. Provision amount is " accounting amount" which can be further, if the necessity rises, deducted from the profit. Therefore, high NPL amount increases the provision amount which in turn reduces the profit. The above stated discussion proves that NPLR and CAR are reasonably considered as credit risk management indicators. Thereby, they can be used in the study.

## 2. 2 Theories

## 2. 2. 1 Risks in banks

Risks are the uncertainties that can make the banks to loose and be bankrupt. According to the Basel Accords, risks the banks facing contain credit risk, market risk and operational risk. Credit risk is the risk of loss due to an obligator's non-payment of an obligation in terms of a loan or other lines of credit. The Basel committee proposes two methodologies for calculating the capital requirements for credit risk, one is to measure the credit risk in a standardized manner and the other is the bank’s supervisor approval and allows banks to use the IRB approach. Market risk is defined as the risk of losses in on and off-balance sheet positions arising from movements in market prices. The capital treatment for market risk addresses the interest rate risk and equity risk pertaining to financial instruments, and the foreign exchange risk in the trading and banking books. The value at risk (VaR) approach is the most preferred to be used when the market risk is measured. Operational risk is defined as the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events. There are three approaches applied to the operational risk measurement: Basic Indicator Approach (BIA), Standardised Approach (SA), and Advanced Measurement Approach (AMA).

## 2. 2. 2 Credit risk management in banks

Bank loan is a debt, which entails the redistribution of the financial assets between the lender and the borrower. The bank loan is commonly referred to the borrower who got an amount of money from the lender, and need to pay back, known as the principal. In addition, the banks normally charge a fee from the borrower, which is the interest on the debt. The risk associated with loans is credit risk. A bank exists not only to accept deposits but also to grant credit facilities, therefore inevitably exposed to credit risk. Credit risk arises as a result of customers or counter-parties’ failure or unwillingness to fulfill their financial and contractual obligations as and when they arise (Basel II). According to Chen and Pan (2012), credit risk is the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties. Credit risk is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risks (Gieseche, 2004). The main source of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Kithinji, 2010). An increase in bank credit risk gradually leads to liquidity and solvency problems. Credit risk may increase if the bank lends to borrowers it does not have adequate knowledge about. Credit risk can be divided into three risks: default risk, exposure risk and recovery risk. As the extension of credit has always been at the core of banking operation, the focus of banks’ risk management has been credit risk management. It applied both to the bank loan and investment portfolio. Credit risk management maximises bank’s risk adjusted rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of credit risk management on banks’ profitability (Kargi, 2011). Credit risk management incorporates decision making process; before the credit decision is made, follow up of credit commitments including all monitoring and reporting process. The credit decision is based on the financial data and judgmental assessment of the market outlook, borrower, management and shareholders. The follow-up is carried out through periodic reporting reviews of the bank commitments by customer. Additionally, " warning systems" signal the deterioration of the condition of the borrower before default, whenever possible. Loans that are in default or close to being default become NPLs. The terms of the default rate in loans are defined by each bank. Usually, loan becomes non-performing after being default for three months but this can depend on contract terms. NPLR shows the proportion of the default or near to default loans to the actual performing loans. It indicates the efficiency of the credit risk management employed in the bank. Therefore, the less the ratio the more effective the credit risk management. Measurement of credit riskUsually, bank can project the average level of credit losses it can reasonably expect to experience. These losses are referred to: a. Expected Losses (EL): perceived as cost of business undertaking by financial institutions; b. Unexpected Losses (UL): losses above expected level when banks anticipate their occurrence though the timing and severity cannot be known beforehand. A few portions of unexpected losses might be absorbed by the interest rate charged on credit exposure although market will not support adequate prices to cover all unexpected losses. c. Loss Given Default (LGD): the amount of fund that bank can lose when the borrower defaults on a loan. Therefore, capital is needed to cover the risks of such losses. Banks have an incentive to minimise capital they hold since reducing capital frees up economic resources that can be directed to profitable investment. In contrast, the less capital a bank holds, the greater is the likelihood that it will not be able to meet its own debt obligations, i. e. that losses in a given year will not be covered by profit plus available capital, and that the bank will become insolvent. Accordingly, banks must carefully balance the risks and rewards of holding capital. There are a number of approaches exist to determine how much capital a bank should hold. The IRB approach adopted by Basel II focuses on the frequency of bank insolvencies (the case of the bank failing to meet its senior obligations) arising from credit losses that supervisors are willing to accept. Through IRB approach, the Basel Committee intended to develop a framework which is credible, prudentially sound and reflect healthy risk management practices. Banks have made use of internal rating systems for very long time as a means of categorizing their exposure into broad, qualitatively differentiated layers of risk.

## 2. 2. 3 Bank Profitability

In this study, the profitability of the banks is examined. The profitability in this case is presented and measured using ROE. In other words, the amount of NI returned as a percentage of TSE. ROE is chosen as profitability indicator because it comprises aspects of performance, such as profitability and financial leverage. ROE in banksThe measurement of bank performance has been developed over time. At the beginning, many banks used a purely accounting-driven approach and focused on the measurement of NI, for example, the calculation of ROA. However, this approach does not consider the risks related to the referred assets, for instance, the underling risks of the transactions, and also with the growth of off-balance sheet activities. Thus the riskiness of underlying assets becomes more and more important. Gradually, the banks notice that equity has become the scarce resource. Thereby, banks turn to focus on the ROE to measure the net profit to the book equity in order to find out the most profitable business and to do the investment. ROE is commonly used to measure the profitability of banks. The efficiency of the banks can be evaluated by applying ROE, since it shows that banks reinvest its earnings to generate future profit. The growth of ROE may also depend on the capitalisation of the banks and operating profit margin. If a bank is highly capitalised through the risk-weighted capital adequacy ratio (RWCAR) or Tier 1 capital adequacy ratio (CAR), the expansion of ROE will be retarded. However, the increase of the operating margin can smoothly enhance the ROE. ROE also hinges on the capital management activities. If the banks use capital more efficiently, they will have a better financial leverage and consequently a higher ROE. Because a higher financial leverage multiplier indicates that banks can leverage on a smaller base of stakeholder’s fund and produce higher interest bearing assets leading to the optimisation of the earnings. On the contrary, a rise in ROE can also reflect increased risks because high risk might bring more profits. This means ROE does not only go up by increasing returns or profit but also grows by taking more debt which brings more risk. Thus, positive ROE does not only represent the financial strength. Risk management becomes more and more significant in order to ensure sustainable profits in banks.

## 2. 3. 2 The Basel Accords

The Basel Accords (Basel I, Basel II and Basel III), issued by the Basel Committee on Banking Supervision (BCBS), refer to the banking supervision Accords recommended on banking laws and regulations. Basel I was first published in 1988 and enforced by law in 1992 by the G10 countries. Basel II, issued by BCBS in June 2004 and Basel III issued in December 2010 is the new Basel Accord. The purpose of the Basel Accords is to establish an international standard in order to promote the safety and soundness of the financial system, to ensure adequate level of capital in international banking system, to enhance the competitive equality among the banks, and to guard against the financial and operational risks that banks face.

## Capital requirement

Capital requirement (also known or Capital adequacy) is the amount of capital a bank or other financial institution has to hold as required by its financial regulator. This helps to ensure that institutions are not involving in or holding investments that amplify the risk of default. In addition, to guarantee that financial institutions have enough capital to sustain operating losses while honouring withdrawals. Basel Committee on banking supervision, in 1988, introduced a capital measurement system which is generally referred to as the Basel Accord. This framework has been replaced by new and significantly more complex capital adequacy framework known as Basel II. Whilst Basel II considerably changes the calculation of the risk weights, it sets aside the calculation of capital alone. Basel II is based on a three pillars concept, which helps in boosting stability in the financial system: First pillar-minimum capital requirements (addressing risk)Second pillar- supervisory reviewThird pillar- market discipline

## The First Pillar- Minimum Capital Requirements

Minimum capital requirements are composed of three fundamental elements: a definition of regulatory capital, RWAs and the minimum ratio of capital to RWAs. Regulatory capital according to Basel Accord is the total of tier 1 (Core) capital and tier 2 (supplementary) capital. Utilising regulatory capital as numerator, the capital ratio is calculated in relation to the denominator i. e. total RWAs. The capital ratio must be not less than 8% for total capital.

## Tier 1 capital

The theoretical reason why the banks hold capital is that they provide protection against the unexpected losses which are not covered by the provisions, reserves and current year profit. Tier 1 capital is the core measurement of the bank’s financial strength. It primarily includes equity capital and disclosed reserves. However, the irredeemable non-cumulative preferred stock and retained earnings may also be included. Tier 1 capital ratio refers a bank’s core equity capital to its total RWAs which are the total assets held by bank weighted for credit risk. The assets, for instance, cash has a 0% risk weight whereas the debentures might have a 100% risk weight. Each country may have its own discretion relating how financial instruments are counted in the calculation of the capital. Therefore, the legal frame work may vary in different legal systems.

## Tier 2 capital

Tier 2 capital measures a bank’s financial strength with the second reliable form of financial capital. This was largely standardised in Basel I and remained untouched in the Basel II. Most countries around the world have implemented the standards in the local legislation. The classification of the Tier 2 capital is diversified, which is classified as the undisclosed reserves, revaluation reserves, general provisions and hybrid instruments and subordinated term debt in Basel I.