

The Overconfidence Paradox: Managerial Overconfidence, Risk, and Efficiency of Public Sector Banks in India

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Abstract

This study aims to investigate the impact of behavioural biases of top managers measured through managerial overconfidence affect the risk and efficiency of PSBs in India. To achieve this objective, the independent variable managerial overconfidence is measured using two proxies: Loan Growth rate (LGR) and Net Interest Margin (NIM). The performance of banks is measured in terms of Bank Risk and Efficiency. Bank Risk is measured using Non-Performing Loan (NPL) ratio and efficiency is measured using DEA (Data Envelopment Analysis). This study has been conducted on 20 public sector banks in India over the period of 2016–2018. The Panel regression findings demonstrate that CEO overconfidence has a significant impact on the risk exposure and efficiency of Indian banks. The findings provide significant novel insights into the banking and finance literature that managerial overconfidence exerts a significant influence on bank risk and efficiency. As far as the authors are aware, this research endeavour is pioneering in its investigation of the association between CEO overconfidence and bank performance in the Indian context.

Keywords: Overconfidence, Risk, Efficiency, Loan Growth Rate, Net Interest Margin, Public Sector Banks, India

Introduction

The financial crisis of 2008 has created an environment of mistrust over the decisions of CEOs and drawn the attention of researchers towards the behavioural factors

of decision-makers. Mainstream finance theories equip rational financial decision-makers with the tools they need to make rational financial judgments. Top management or CEOs have a big influence on financial decisions on both capital acquisition and capital expenditure. A conflict of interest exists between principals, who own the firm, and their agents, who run it, according to the principal-agent model. Enterprise managers strive to maximise their welfare, which indicates that when they are reasonable, they minimise their work while attempting to maximise their reward. Mainstream finance theories are normative, which means they begin with human rationality. Managers are not always rational in practice, which can lead to major distortions in financial decision-making. As a result, modern finance theories are required to minimise this irrational behaviour of managers and mitigate the distortion in financial decision-making. Recently, the topic of corporate behavioural finance research has seen unprecedented growth and attention. Behaviour finance is a relatively young but rapidly expanding topic of research that uses behavioural psychology to make economic decisions in order to better understand why rational people frequently make irrational decisions when it comes to money and investment.

CEOs enjoy an apex role in an organisation's management hierarchy and are the most influential members of an organisation predominantly responsible for making major corporate decisions and their execution (Hambrick, 1991; Hosmer, 1982; Norburn, 1989). CEOs are responsible for the strategic formation and their enactment by managing the overall operations and resources of the firm. As CEOs control the vast resources of the firm, they play an important role in improving the corporate health and wealth.

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Several research studies claimed that the performance of organisations has been often influenced by the personal characteristics of CEOs (Roll, 1986; Malmendiar & Tate, 2005). The psychological personality traits of CEOs, such as their confidence level can influence their choices and decisions of CEOs. It is a well-documented fact that the higher level of confidence among CEOs induces them to opt for sub-optimal decisions and leads to degradation of firm performance (Roll, 1986; Malmendiar & Tate, 2005; Deshmukh et al., 2013). Hambrick and Masoon (1984) introduced the upper echelon theory to conceptualise

the importance of leadership and the personality traits of leaders. The upper echelon theory suggests that top managers are primarily responsible for strategic formation and enactment, and their personal attributes such as experiences, values, preferences, and other human factors greatly influence their strategic preferences and interpretation of results from their preferred project. In other words, the choices and decisions of CEOs, just like other human beings are susceptible to various behavioural biases such as overconfidence, boredom, exhaustion, and narcissism (Hambrick & Mason, 1984; Hambrick, 2007).

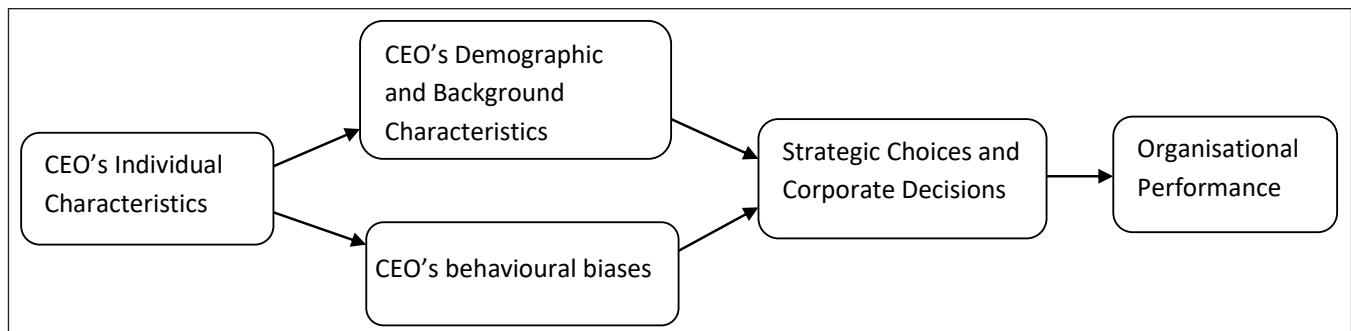


Fig. 1: Upper Echelon Model

Overconfident CEOs bring their own set of beliefs, such as assumptions about alternatives, future events, risk management, and outcomes from their preferred alternatives. Overconfidence among CEOs can influence the quality of their decisions, preferences, and ultimately the performance of the firm. Many research studies have been conducted on the cognitive biases of CEOs that found overconfidence to be one of the factors influencing the decisions of CEOs (Li & Tang, 2010). Overconfident CEOs are often inclined towards positive results and underestimate possible future risks (Fig. 1). They usually exhibit their overconfidence while making business decisions (Roll, 1986). Overconfident managers perceive unworthy investment proposals as the most profitable investment projects that can yield high returns in the future. Overconfident CEOs underestimate the possibilities of risk, which leads to delays in the recognition of losses. CEOs often have fallacies about their capabilities to manage risk and obtain positive outcomes. They underestimate the chances of negative outcomes and overestimate their abilities to generate positive outcomes. Thus, the behavioural biases of top managers impact their own actions and decisions. Top managers often due to their misconceptions about their capabilities to deal

with negative outcomes and generate positive outcomes degrade the performance of the firm. Therefore, CEO's excessive self-pride, over-optimism, and magnified egos can be the main reasons behind the degraded performance of organisations. Overconfident CEOs often take high risks without taking into consideration the best interests of the shareholders.

Need of the Study

Exploring the behavioural aspects of top managers is crucial in the Indian corporate sector, particularly in the environment of corporate scams and failures. For instance, the Yes Bank failure, the former managing director and CEO of Yes Bank, Rana Kapoor, was the main culprit behind this failure. He was famous for his confidence and mending the holes of a sinking ship in the market, which cost all the stakeholders their wealth. These evidences of failures make it important to understand the behavioural part of top managers, which encourages them to take these risks. Globally, the concept of behavioural finance is attracting the attention of academicians, especially in developed countries. However, the branch of behavioural finance that explores the relevance of behavioural biases

of top managers is still not fully explored in India yet. There are other sufficient convincing reasons to consider the Indian market a suitable case for the present study. The Indian economy is one of the emerging economies with a dynamic and developed capital market, integration of financial markets, and substantial differences in culture within the nation. For example, “The way you connect or network in India is not likely to be the same as how you do so in the United States; the way you inspire employees in Japan is quite dissimilar from how you motivate in Canada” (Molinsky, 2016). Moreover, despite a significant body of study on leaders’ irrationality and cognitive biases, little emphasis has been paid to the specific analysis of their behaviour in the banking sector.

Overconfidence bias has been much studied in the context of financial markets, with respect to investor as well as managerial behaviours in different industries and companies. However, studies on banks remain scarce. Despite the development of research in corporate behavioural finance, very few studies have focused on the impact of overconfidence on risk and efficiency of banks. A number of studies have been conducted on behaviour biases of managers in developed economies but no study has focused on the impact of cognitive biases such as overconfidence on risk and efficiency of Indian banks. Therefore, this study aims to address this gap, by exploring an overconfidence phenomenon in the context of Public Sector Banks in India. Moreover, this study can be considered as an extension of the existing literature dealing with behavioural finance, suggesting manager’s personal characteristics as the noteworthy determinants of bank efficiency in India.

The remaining of this paper is structured as follows: Section 2 presents the literature review related to CEO overconfidence and its impact on risk and efficiency. Section 3 introduced the research methodology. The estimation results of this study have been presented in Section 4 and the paper’s main conclusions are presented in Section 5.

Review of Literature

Derived from the literature of psychology, the present study uses the “better than average” effect as a prominent style of overconfidence. This psychological effect leads individuals to consider themselves superior in terms of

their relative skills (Malmendiar & Tate, 2005). In this regard, Lowe et al. (2006) investigated the impact of manager’s cognitive biases, such as over-optimism on the entrepreneurial venture performance. They examine 734 inventions released by the University of California between 1981 and 1999. They found that entrepreneurs of established firms tend to hold on longer to less commercial success technologies as compared to start-up firms. Moreover, established firms employ more resources for development greater than start-up firms. Established firms with overconfident CEOs enjoy more economic returns associated with the technologies than start-up firms. Jiang et al. (2011) examined the relationship between managerial hubris, expansion, and performance of the firm. They tested their predictions empirically, using a sample of Chinese publicly traded firms for the period of 2002 to 2005. To measure managerial overconfidence, two proxies (earning forecast and CEO’s relative salary) were used in the study. The results of regression analysis revealed that a significant positive relationship exists between managerial overconfidence and net internal investment. Thus, overconfident managers engage more in overall expansion and internal investment than rational managers. They are more likely to prefer internal expansion than external expansion. In addition to this, they found a significant negative relationship between managerial overconfidence and firm performance. Dashtbayaz and Mohammadi (2016) probed the effect of managerial overconfidence on the firm value. A sample of 50 firms listed in Tehran Stock Exchange was analysed for the period of 2011-2015. Overconfident managers often misjudge the probability of generating income from a project and underestimate the risk involved in it. The results of the study revealed that firms managed by overconfident CEOs face more negative consequences in the form of decreased firm value than firms managed by non-overconfident CEOs. Kim et al. (2019) probed the impact of CEO confidence on the profitability of the firm. A sample of 5192 U.S. firms for the period of 1992 to 2010 was used in this study. The CEO’s overconfidence was captured using the Holder67 proxy for overconfidence. Returns from net operating assets, profit margins, and asset turnover proxies were used to measure profitability. The results of regression analysis revealed that firms managed by overconfident CEOs have positive abnormal returns and better earnings forecasts than firms managed by rational CEOs.

Mahdi and Abbes (2018) examined the relationship between managerial overconfidence, risk, and efficiency of Islamic and conventional banks operating in the MENA region. They found that managerial overconfidence has a significant positive impact on the risk. Moreover, they revealed that managerial overconfidence drives the efficiency of banks in a negative direction. Similarly, the research conducted by Ho et al. (2016) claimed that banks managed by overconfident CEOs are more likely to experience loan defaults, lower operating and market returns, and have a higher probability of failure than those managed by non-overconfident CEOs. Additionally, Niu (2010) examined the determinants of bank risk-taking for a period of 13 years and suggested that managerial behavioural traits play a vital role in estimating the risk-taking of banks. Using a sample of US financial businesses, Black and Gallemler (2012) discovered that overconfident executives recognise smaller loan loss provisions and reflect present and prospective deterioration in nonperforming loans in their loan loss provisions less than other bank CEOs and CFOs. According to Graham et al. (2009), key behavioural qualities like optimism differ between U.S. and non-U.S. managers. This suggests that overconfidence is likely to vary worldwide, resulting in bank risk-taking behaviour that differs between the United States and other countries. Likewise, Chen and Chen (2015) employed a sample of banks covered in the G20 and Taiwan over the period of 2005–2012. They found that managerial overconfidence has a significant association with the credit and insolvency risk of banks, which means banks run by excessively confident CEOs tend to have higher credit and insolvency risk exposure.

This research endeavour aims to unravel the association between managerial overconfidence, risk, and efficiency of Indian banks. Drawing from the upper-echelon theory and extensive literature, this study contributes to the literature concerning bank risk and efficiency by identifying the behavioural factors of top executives as vital determinants of bank risk and efficiency.

Research Methodology

Sample and Data Sources

The sample consists of annual financial statement data of all public sector banks covered in India for the period 2016

to 2018. This study is based on secondary data and the same has been collected from the Ace Equity Database.

Variables

Independent Variables

Managerial Overconfidence

Following the research work of Mahdi and Abbes (2018), the present study captures managerial overconfidence using two proxies, i.e., Loan growth rate and Net Interest Margin. A high loan growth rate denotes high overconfidence among managers and a low net interest margin denotes high overconfidence among managers.

Dependent Variables

(A) Bank Risk

The present study gauges the probability of bankruptcy with credit risk. Credit risk has been measured with NPL ratio calculated by dividing the non-performing assets divided with the gross loans of the bank. The larger this ratio, the riskier the bank is in terms of credit risk (Ali & Dhiman, 2019).

(B) Efficiency

The efficiency of banks can be measured using various methods and techniques in which Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis are widely used. The key advantage of DEA over other approaches is that it easily accommodates both multiple inputs and outputs. In this work, the DEA approach has been adopted to measure the efficiency of banks. After selecting the technique to be used for measuring efficiency, the next step is to identify the bank's input and output to determine efficiency using an intermediary approach. An intermediary approach considers banks as financial intermediaries between liability holders and those who receive bank funds. Total loans and interest income are considered as outputs. Total assets, Deposits, and operating expenses are considered inputs.

Econometric Models

The first model analyses the capacity of overconfidence to explain the risk-taking in Public Sector Banks in India.

The first model uses non performing ratio as a proxy for banking risk as a dependent variable. Nonperforming asset as a fraction of gross loans were used as a measure of a banking risk obtained from accounting information. It is noteworthy that higher levels of ratio show greater banking risk. Two overconfidence proxies were integrated into both models. The loan growth rate (LGR) is the first overconfidence proxy. The net interest margin (NIM) is the second proxy for overconfidence. The panel regression framework for 1st model for firm i and time t is specified accordingly as:

$$NPA = \alpha + \beta_1 LGR_{it} + \beta_2 NIM_{it} + \varepsilon_{it} \quad (1)$$

α = Constant

β_1 = estimated coefficient of loan growth rate

β_2 = estimated coefficient of net interest margin

ε = error term

i = no. of firms

t = no. of years

The second model examines the relationship between the overconfidence bias and the efficiency of public sector banks in India. As for the second model, the bank cost efficiency is the Dependent variable. Efficiency scores were found as the distance of a firm's observed operating costs to the minimum or "best-practice" efficient cost frontier. They were obtained using the Data Envelopment Analysis. Two overconfidence proxies are employed in both models, namely Loan Growth Rate (LGR) and Net Interest Margin (NIM).

The panel regression framework for 2nd model firm i and time t is specified accordingly as:

$$\text{Efficiency} = \alpha + \beta_1 LGR_{it} + \beta_2 NIM_{it} + \varepsilon_{it} \quad (2)$$

α = Constant

β_1 = estimated coefficient of loan growth rate

β_2 = estimated coefficient of net interest margin

ε = error term

i = no. of firms

t = no. of years

Both models are inspired by the study of Ines Mahdi et al. (2018)

Empirical Results

In addressing the issue relating to the application of fixed effects (FE) or random effects (RE), we resort to the Hausman test. The Hausman test ascertains the appropriateness of RE or FE models in the estimation. The null hypothesis states that the regressors are uncorrelated with the individual-level effects. Acceptance of the null hypothesis means RE would be appropriate, while rejection of the same means FE would be appropriate. For the study, the application of the Hausman test revealed the acceptance of the null hypothesis thus, RE is used for analysis. To address the problem of multi-collinearity, variable inflation factors (VIFs) were computed. A score below ten is considered to rule out any possibility of multi-collinearity. The score for each of the variables in both models was found less than ten. To check the assumption of heteroskedasticity, the rejection of null hypothesis states that there is a problem of heteroskedasticity. This problem does not exist in both empirical models of this study as the null hypothesis of homoscedasticity is accepted. There is no need to check the assumption of stationarity as the data has been collected for less than 10 years.

CEO Overconfidence has a Positive Impact on the Risk-Taking

The results displayed in Table 1 show that CEO overconfidence has a significant and positive relation with the credit risk of Indian Public Sector Banks. The first overconfidence proxy (loan growth rate) has a statistically highly significant effect on non-performing asset ratio as a measure of bank credit risk. A higher loan growth rate maintains a strong positive relationship with NPA ratio. The second overconfidence proxy – NIM – has a statistically highly significant effect on non-performing asset ratio as a measure of bank credit risk. The results revealed that NIM is negatively related to the NPA ratio reflecting its role in the profit and loss statement. The higher the percentage of NIM, the lower the NPA ratio or bank risk (Dash & Ahuja, 2016).

Table I presents the panel regression results of investigating the impact of CEO overconfidence on

risk-taking in public sector banks in India. The results of the panel data analysis (shown in Table 1) indicate a statistically highly significant effect of managerial overconfidence on the bank risk of public sector banks. While checking the relationship between managerial overconfidence and the first overconfidence proxy (LGR), the coefficient of loan growth rate that is equal to ($b = 0.0434555$) and p -value < 0.01 percent (at the confidence level of 99 percent) shows a significant and positive effect of Loan growth rate or overconfidence on bank risk-taking.

Table 1: Examining the Relationship between CEO Confidence and Bank Risk

Variables	Bank Risk	
	(Coefficient)	(P Value)
Intercept	3.080454	0.000
Loan Growth Rate	0.0434555	0.001*
Net Interest Margin	-0.9214397	0.002*
R ²	0.2475	
Wald chi2	17.10	

Higher LGR leads to high NPA ratio which means CEO overconfidence leads to increased bank risk. Furthermore, the relationship between NIM and NPA ratio, the coefficient of NIM has turned out to be significant and negative with $b = -0.92$ and p -value < 0.01 , respectively. This shows that overconfidence bias among CEOs leads to a lower NIM of Indian PSBs, which ultimately leads to increased bank risk.

CEO Overconfidence has a Positive Effect on Bank's Efficiency

Table 2 presents the results for the relationship between cost efficiency and CEO overconfidence. The finding clearly shows that the loan growth rate is insignificantly related to the efficiency of PSBs. This means increase or decline in loan Growth Rate has no effect on efficiency thereby depicting no link between these two aspects. On the other hand, CEO overconfidence captured in terms of Net Interest Margin has a positive and significant association with efficiency. These results are in line with Mahdi and Abbes (2018) and Niu (2010), who investigated the relationship between CEO overconfidence and bank efficiency and found a significant link between them.

Table 2: Examining the Relationship between CEO Overconfidence and Bank Efficiency

Variables	Bank Efficiency	
	(Coefficient)	(P Value)
Intercept	0.831102	0.000
Loan Growth Rate	-0.0007147	0.587
Net Interest Margin	0.683914	0.000*
R ²	0.3236	
Wald chi2	19.67	

Table 2 presents the estimated results of Equation (2) investigating the impact of CEO overconfidence on the efficiency of public sector banks in India. The results of the panel data analysis (shown in Table 2) indicate a mixed effect of managerial overconfidence on the efficiency of public sector banks. The findings for the first overconfidence proxy (LGR) reveal that the coefficient of loan growth rate is -0.0007 with a p -value > 0.1 percent, thereby showing an insignificant effect of overconfidence on efficiency. Moreover, the relationship between CEO overconfidence (measured in terms of NIM) and efficiency has turned out to be positive and significant at the 10 percent level of significance. This indicates that a high percentage of NIM in the banks leads to high efficiency in PSBs in India. Overall, we found that CEO overconfidence drives bank efficiency in a negative direction in India, as overconfident CEOs tend to be involved in aggressive lending practices and opt for high-risk investment plans that lead to a decline in the overall efficiency of a business. These findings are akin to the conclusions drawn by Mahdi and Abbes (2018), Jangra (2020), and Lakshmanasamy (2021) in their work.

Conclusion

The main objective of this study was to test the ability of CEO overconfidence bias to explain the risk-taking and efficiency of Public Sector Banks in India. The results suggest that overconfidence has a significant relationship with bank risk and efficiency levels. Manager's overconfidence leads to excessive risk-taking, especially in the short run, due to the deterioration of customer quality. This irrational behaviour of the managers increases the inefficiency of the public sector banks. Further, the overconfidence bias impact on the efficiency of public sector banks was revealed by the

second overconfidence proxy, NIM. The Loan Growth Rate has an insignificant relation with the efficiency of PSBS in India. Overall, the empirical results of this study proved that PSB's managers are subject to overconfidence bias, which causes excessive risk-taking and degradation of cost efficiency. The primary hypotheses of this study are confirmed, assuming that overconfidence has a major effect on risk-taking and efficiency. As implications for this research, we confirm that traditional risk-taking studies in banks are insufficient to account for recent developments, particularly in India, and that new hypotheses that allow the extension of existing banking models while taking into account the new specificities of behavioural finance should be considered. Despite some previous works, the area needs to be researched in more depth. As a result, prospective extensions might include the use of other banking data sets, including the more or less confident banking groupings. Moreover, qualitative overconfidence measures can be employed to refine the analysis and robustness of the findings.

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