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COMPARATIVE STUDY OF ASSESSMENT ON RISK IN BANKING SECTOR

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ABSTRACT

The aim of this paper is to define and examine business risk, explore the possibility of using economic capital to mitigate this risk, and analyze various methodologies for measuring business risk. The study assesses the effectiveness of three measurement methodologies, namely peer group analysis, statistical methods, and scenario analysis, and evaluates their suitability as management control tools. The research findings suggest that economic capital can serve as a mitigating factor for business risk, although it is not the only solution. Additionally, scenario analysis emerges as a methodology that satisfies most of the criteria for effective management control. The paper's practical implications call for a further discussion to develop the scenario approach in both theory and practice. The study is original as it sheds light on a relatively new field of research that has received little attention in the literature, despite the significant amount of economic capital financial institutions hold to cover business risk. Overall, this paper is a conceptual study.

I. INTRODUCTION

Recently, economic capital has become a significant topic of interest in the financial industry. Business risk is often considered a component of economic capital allocation schemes, but there is a lack of industry-wide discussion on the subject. Kuritzkes and Schuermann (2006) suggest that an average of 18% of total economic capital should be allocated to business risk, while banks allocate around 5-10% to this risk type according to our initial survey of annual reports. However, measurement methodologies for business risk are not as advanced as those for other risks like credit and market risk. This paper aims to achieve three objectives: to provide a proper definition for this challenging-to-measure risk type, to identify whether economic capital can be used to mitigate this risk, and to highlight an area that requires further development of measurement methodologies for business risk .

II. LITRATURE REVIEW

There are numerous examples in literature that show that competition does not help at all. Although it may help some banks, it is an economic loss for everyone. In 2000, Boot and Thakor found evidence supporting this conclusion. In 2004, Gale and Allen also stated that it is difficult to determine whether competition adds or diminishes value due to the complexity of the situation.

In 2001, Cetorelli found evidence contradicting popular belief that complete competition and extreme no competition are good for the banking industry. He also stated that competition can have detrimental effects on the economy.

In 2019, Alam and colleagues stated that excessive competition could lead to issues of financial solvency. Martinez and Repullo noted that there have been numerous instances of bank failures due to competition. In 1990, Keeley also stated that competition could be detrimental to banks.

According to Acharya (1996), the banks' charter value is undermined by competition, leading to an increased risk of default and a decrease in bank capital. Agoraki et al. (2011) built upon Keeley's (1990) idea and connected it to regulation, suggesting that competition (referred to as market power) could heighten credit risk and the likelihood of default. Hellmann et al. (2000) further strengthened this argument, stating that competition leads to poor decision-making and behavior among banks. However, other factors that impact bank performance, such as regulation for capital, support careful and sensible bank decision-making.

Business Risk and Economic Capital: The Relationship- The relationship between business risk and economic capital has been the subject of many studies. According to a paper by Gregory et al. (2002), business risk can be defined as the variability in earnings due to changes in market conditions, while economic capital represents the amount of capital required to support a company's operations and absorb unexpected losses. The authors argue that understanding the relationship between these two factors is crucial for effective risk management.

Approaches to Measuring Business Risk in Economic Capital-There are several approaches to measuring business risk in economic capital. One common method is to use historical data to estimate the probability of future losses. Another approach is to use scenario analysis to assess the impact of different events on the company's financial position. A third approach is to use stress testing to evaluate the company's ability to withstand adverse events.

Managing Business Risk in Economic Capital-There are several strategies for managing business risk in economic capital. One common approach is to diversify the company's operations to reduce its exposure to specific risks. Another strategy is to hedge against certain risks using financial instruments such as options or futures. Companies can also use insurance to transfer some of their risk to a third party.

Table 1: Bank risk definition from bank's economic capital

Bank	Bank risk definition	Percentage of economic capital
Bank of Baroda	Indian public sector bank headquartered in Vadodara, Gujarat. It is the second largest public sector bank in India after State Bank of India, with 132 million customers, a total business of US$218 billion, and a global presence of 100 overseas offices. Based on 2019 data, it is ranked 1145 on Forbes Global 2000 list.	12.50%
HDFC	Our Board of Directors is responsible for managing comprehensive risks. The Risk Policy & Monitoring Committee (RPMC), constituted by the Board, oversees the implementation of our risk strategy. The RPMC guides the development of our policies, procedures and systems and evaluates their adequacy and appropriateness to the changing business conditions, as well as our risk appetite.	11.7%
Axis	We are exposed to various risks that are integral to any banking business, with the major risks being credit risk, market (including liquidity) risk and operational risk.	19.51%
ICICI	As a financial intermediary, we are exposed to various risks, primarily credit risk, market risk, liquidity risk, operational risk, technology risk, compliance risk, legal risk and reputation risk. Our active risk management energizes our strategic approach of risk-calibrated growth in core operating profit.	18.27%

III. METHODOLOGY

This section covers three types of methods for measuring business risk, but banks usually keep their methods private. However, we know that the banks listed in Table I use one of the following methods. The first method is called the "analogue company approach" or "peer group analysis". This involves a bank estimating its business risk by analyzing other institutions. In peer group analysis, the bank identifies the amount of economic capital held by similar banks or a specific group of companies. From this, the bank determines how much capital it needs to cover its business risk. The advantage of this method is that it is simple and quick, but it doesn't satisfy certain criteria. For example, a bank cannot influence the amount of economic capital by taking management actions, and peer group analysis assumes that banks in the peer group have optimized their capital position for business risks, which may not always be the case. The analogue company approach estimates the amount of business-risk economic capital by analyzing the equity capital of non-financial companies. This approach suffers from similar drawbacks as peer-group analysis. However, it is more advanced because it takes into account the cost structure of the bank. This method can only be used as a temporary measure or benchmark, as more

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advanced models should be used to produce accurate results.

Some banks utilize statistical methods to assess business risk, which involves measuring economic capital based on income and expense fluctuations that cannot be linked to other risk categories. This approach assumes a probability function, such as lognormal, based on the volatility of earnings and costs. However, it is difficult to accurately measure income streams that are not linked to other risk categories because it is challenging to separate credit earnings that are based on the general economy and the business model of the bank from the credit risk part. In addition, historical data may not be relevant in predicting future earnings volatility, especially when there are fundamental changes in the competitive environment. The availability of data also poses a challenge in conducting reliable statistical analyses. While statistical methods satisfy some criteria for measuring business risk, such as objectively estimating worst-case losses, they fall short in linking managerial interventions to the output of the model and providing adequate information to managers.

According to the text, there are only a few large banks currently using scenario-based methods to measure business risk. This is similar to the development of operational risk models, which were initially based on statistical methods and loss data. Over time, operational risk models have evolved to incorporate a more subjective and scenario-based approach, and now all banks use a mix of loss data and scenarios in their operational risk models. Scenario-based methods for measuring business risk are consistent with the idea that structural uncertainties, such as business risks, should be addressed using scenario-based methods. This method involves generating a limited number of scenarios based on experts' views of extreme business-risk events and potential management actions, determining the potential financial loss and subjective probability of each scenario, and deriving the total economic capital to cover business risk based on the scenarios. The scenario approach is based on company experts' views, but subjective elements play an important role in the outcome of the model. Nevertheless, the scenario approach incentivizes managers to think creatively about strategic weaknesses and draft emergency plans before a crisis occurs, and link the application of economic capital explicitly to the management control cycle.

IV. MODELING AND ANALYSIS

The study consisted of two successive research phases, starting with an exploratory qualitative research followed by a descriptive quantitative research. The qualitative research aimed to develop hypotheses for the subsequent quantitative research and to prioritize research objectives. The methods used in the preliminary research included analyzing secondary information, interviewing banking experts to obtain additional information, and conducting workgroups or focus groups to facilitate discussions on the topic. Depending on the venue, the research was field research, and depending on the frequency of deployment, the research was occasional. To measure the phenomena, several scales and scaling methods were used, and ordinal scales were selected based on the desired information, the characteristics of the phenomenon, the respondents' capacity, the measuring context, and the post-measurement analysis possibilities. This involve different business risk strategic risk, compliance risk, operational risk, and reputational risk be part of bank like BOB bank, HDFC , Axis ,ICICI. And analyzing the economic percentage involve in it. Then the graph came to measure the risk on various view point. Examining economic capital from the perspective

Defining business risk –

Business risk has long been a concern for managers, but it is a relatively new concept in formal risk management frameworks used by banks. Defining business risk is challenging, as it is used in various contexts and its definition differs across literature. The term is sometimes defined as the aggregate of all risks or the residual risk after all other risk types are identified. It is also defined as the equivalent of non-systematic risk in the context of the capital asset pricing model. In the context of strategic management, business risk is sometimes defined as the risk of pursuing an ineffective strategy. Business risk is observed in the context of economic-capital frameworks, and some authors define it as uncertainties about demand and price for products and services. Business risk is regarded as the risk that, due to changes in margins and volumes, earnings will fall below the fixed cost base. This type of definition is applied by banking supervisors, but it is excluded from the Pillar I capital requirements in Basel II. Business risk can be expressed in monetary units using the

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economic capital methodology. It is defined as the risk of financial loss due to changes in the competitive environment or the extent to which the organization could timely adapt to these changes. The competitive environment refers to all relations of the organization with clients, competitors, regulators, and other economic actors. Business risk is categorized as a structural uncertainty because it manifests itself sufficiently often, but via different causes.

	ADAPT QUICKLY	ADAPT SLOWLY
DYNAMIC	BUSINESS RISK MEDIUM	BUSINESS RISK HIGH
STABLE	BUSINESS RISK LOW	BUSINESS RISK MEDIUM

Horizontal line show – Internal Organization

Vertical line show – Completive Environment

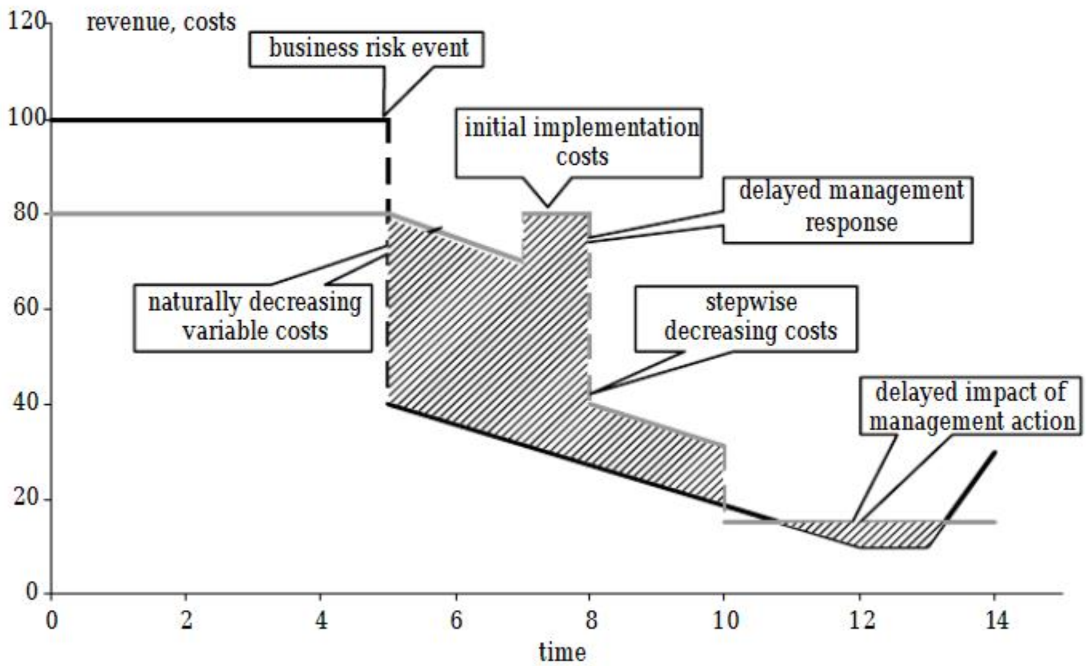

Figure 1. Two component of Business Risk

Business risk and economic capital –

According to Table I, many banks reserve economic capital to cover business risk, which includes two components: competitive environment and adaptation to changes. The variability of cost structure, known as operating leverage, is an important indicator of a company's ability to adapt to changes. However, the degree of operating leverage is not an independent business variable but rather a logical outcome of the firm's strategy. When observing changes in the competitive environment, there are two separate components: abrupt or gradual changes and permanent or temporary changes. Permanent changes in the environment require a permanent change in the organization, and holding economic capital cannot be the primary solution to address business-risk events. Instead, other instruments in strategic and organizational management are more appropriate. Temporary changes can be overcome without a permanent change in the organization, but a mechanism is needed to address these losses, such as an economic-capital buffer or risk hedging. Gradual changes in the competitive environment are often better addressed by adapting the organization rather than financing the loss via economic capital. In the case of abrupt temporary changes, holding economic capital may be appropriate for the organization to survive the crisis, and in the case of abrupt permanent changes, holding economic capital may be useful to absorb the time lag that often lies between the occurrence of the event and the management intervention, as well as the initial investment of the organizational change.

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Table 2. Classification of business risk event

Permanent business risk	Technological progress (e.g. internet banking)	New low cost competitor enters market
Temporary business risk	Economic recession	Aggressive marketing actions by market leader (e.g. price war)
	Gradual	Abrupt

3. Business risk and economic capital

As indicated in Table I, many banks hold a certain amount of economic capital to cover business risk. The business-risk definition includes two components (Figure 1):

(1) competitive environment; and

(2) adaptation to changes (Pratt et al., 2002).

Therefore, an important indicator of the extent to adapt to changes is the variability of the cost structure, also called operating leverage. van Triest (2000) concludes that Figure 1. Two components of business risk

V. RESULTS AND DISCUSSION

Business risk is an essential aspect of any economic capital and can have a significant impact on the performance of companies. The primary sources of business risk are related to the company's internal operations, external market conditions, and regulatory changes. Understanding and managing these risks is essential for any business to achieve its objectives and maintain financial stability.

One of the most significant sources of business risk is related to changes in the market conditions. This can include changes in customer preferences, shifts in the competitive landscape, and fluctuations in commodity prices. Businesses need to monitor these changes and adapt their strategies accordingly to minimize the impact of these risks.

Another significant source of business risk is related to internal operations. This can include factors such as management quality, operational efficiency, and the effectiveness of internal controls. Companies need to have robust risk management practices in place to mitigate these risks and ensure that they are operating efficiently and effectively.

Regulatory changes can also pose a significant risk to businesses, particularly in highly regulated industries such as banking and finance. Changes in regulations can impact a company's ability to operate, and non-compliance can result in significant financial penalties.

In summary, managing business risks is essential for companies operating in economic capital. Businesses need to monitor external market conditions, have strong risk management practices in place, and remain compliant with regulatory requirements to mitigate the impact of these risks on their operations. By doing so, companies can maintain financial stability and achieve their objectives in an economic capital. the degree of operating leverage is not an independent business variable. Rather, the degree of operating leverage is a logical outcome of the strategy of the firm. When observing changes in the competitive environment (i.e. business-risk events),

we distinguish two separate components (Figure 2) (de Geus, 1988):

(1) changes may occur abruptly or gradually; and

(2) changes may be permanent or temporary

VI. CONCLUSION

Observations indicate that banks typically allocate a percentage of their economic capital to address business risk. However, there is limited literature available on the topic of business risk in the context of economic capital. In this study, we have analyzed the concept of business risk and provided an alternative definition: "the risk of financial loss resulting from changes in the competitive environment or the ability of the organization to adapt to these changes in a timely manner." Our definition is suitable for economic-capital frameworks used by banks as their primary risk management tool. As economic capital is a crucial component of risk management for banks, we have investigated whether our definition of business risk can be integrated into an economic-capital framework. Our conclusion is that while economic capital can be an effective risk mitigation strategy, it should not be the sole solution. Moreover, current methods for measuring business risk are not well-developed. We have analyzed three methodologies: the analogue company approach, the statistical approach, and the scenario approach.

VII. REFERENCES

[1] Aas, K. et al. (2005), Risk Capital Aggregation, SAMBA/40/05, Norwegian Computer Centre, Oslo.

[2] Alexander, C. (2005), "The present and future of financial risk management", Journal of Financial Econometrics, Vol. 3 No. 1, pp. 3-25.

[3] Amit, R. and Wernerfelt, B. (1990), "Why do firms reduce business risk?", Academy of Management Journal, Vol. 33 No. 3, pp. 520-33.

[4] Anders, U. (2003), "The path to operational risk economic capital", in Alexander, C. (Ed.),Operational Risk: Regulation, Analysis and Management, Prentice-Hall, London.

[5] Anthony, R.N. (1988), The Management Control Function, Harvard Business School Press, Boston, MA.

[6] Balou, B. and Knechel, W.R. (2002), "Applying business risk audit techniques in an emerging market economy", Issues in Accounting Regulation, Vol. 17 No. 3.

[7] BCBS (2004), International Convergence of Capital Measurement and Capital Standards:a Revised Framework, Basel Committee of Banking Supervision – BCBS, Basel,

[8] Conine, T.E. (1982), "On the theoretical relationship between business risk and systematic risk",Journal of Business Finance & Accounting, Vol. 9 No. 2, pp. 199-205 Crouhy, M. et al. (2006), The Essentials of Risk Management, McGraw-Hill, New York, NY.

[9] Crouhy, M. et al. (2006), The Essentials of Risk Management, McGraw-Hill, New York, NY.

[10] Cumming, C.M. and Hirtle, B.J. (2001), "The challenge of risk management in diversified financialcompanies", FRBNY Economic Policy Review, March.

[11] de Geus, A.P. (1988), "Planning as learning", Harvard Business Review, Vol. 66 No. 2, pp. 70-4.

[12] de Leeuw, A.C.J. (1990), Organisaties: Management, Analyse, Ontwerp en Verandering, 4th ed.,Van Gorcum, Assen.

[13] Doff, R. (2004), "Economic Capital en Risicobeheer bij Banken", NIBE-SVV. Doff, R. (2007), Risk Management for Insurers: Risk Control, Economic Capital and Solvency II, Risk Books, London.

[14] Drury, C. (1995), Management Accounting, 3rd ed., Chapman & Hall, London. Ellis, B. (1966), Basic Concepts of Measurement, Cambridge University Press, Cambridge. Fenton-O'Creevy, M. and Soane, E. (2001), "De Subjectieve Inschatting van Risico", Mastering Risico, Financieel Dagblad, pp. 32-38 (in Dutch).

[15] Froot, K.A. (2001), "Bank capital and risk management: issues for banks and regulators", IFCI Geneva Paper No. 8.

[16] Froot, K.A. and Stein, J.C. (1998), "Risk management, capital budgeting, and capital structurepolicy for financial institutions: an integrated approach", Journal of Financial Economics,Vol. 47, pp. 55-82.

[17] Glasserman, P. (2001), "Het streven naar precisie", Mastering Risico,Financieel Dagblad,pp. 129-136 (in Dutch).Glassman, C. (2000), "Strategic risk: quadruple jeopardy", RMA Journal, September, pp. 52-3.Goto, S. (2007), "The bounds of classical risk management and the importance of a behaviouralapproach", Risk Management and Insurance Review, Vol. 10 No. 2, pp. 267-82.

[18] Hamel, G. and Prahalad, C.K. (1994), Competing for the Future, Harvard Business School Press,Boston, MA.James, C.