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An Empirical Analysis on Application of Financial Analytics in Banking

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Abstract:

Purpose: Financial analytics can improve financial visibility, and profitability, and create value for businesses and stakeholders as well. It can manage the assets such as cash, and equipment which are very important in making any financial decisions. This technique focuses on several areas like revenues, operational efficiency, capital efficiency, solvency, liquidity, etc. which is crucial in accounting efforts. The Indian banking sector has transformed a lot with the increased use of I.T. since the 1980s, 1990s, and 2000s as there are various applications of I.T. in different processes of banking from various sources like cost reduction, revenue generation, fraud detection, and several security issues, etc. and this transformation persists with a new trend called Business Intelligence and Big Data Analytics.

Methodology: The study is conceptual and descriptive. This study is based on primary data and secondary data as the data is collected from various national and international journals, literature, and, reports on Analytics in Banking published by online resources.

Findings: Financial Analytics used in banks mainly helps in Marketing Analytics, Strategy Formulation, and Risk and Fraud management. It helps the banks in customer segmentation, cross-selling, customer retention, campaign management, and in cross-selling activities. Various persons use financial analytics whose main purpose is to diversify the risk.

Implications: Financial Analytics helps in a proper understanding of the behavior of customers by which we can meet the regulatory requirements also. It can improve transparency in improving the design of the product and overall product portfolio optimization. Its main significance is that it can remove fraud and can easily measure customer and product profitability.

Keywords: Financial Analytics, Customer Segmentation, Predictive Analysis, Fraud Detection, Artificial Intelligence, Banking Sector.

I. INTRODUCTION

Nowadays Big Data Analytics stands as the solution to increasing competition and regulatory challenges faced in fraud and cyber security threats as today banks face huge pressure in improving efficiency and revenue to earn more profit margins and attract large numbers of customers. The use of analytics in the banking sector supports the decision-making ability to reduce revenue, mitigate risk, and control costs. It can automatically improve the customer segment, targeting the customers easily and creating and retaining more and more customers to understand the risk involved in it. There has been a huge transformation taking place for so many years in the banking industry due to technological advancements. Apart from the banking sector, no

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industry shows quick responsiveness to changes. The analytics used in the banking sector is also a key driver for cloud services provided in banking. Several techniques like Datamining and advanced analytics help the banks manage the uncertainty in the market and also control risk exposure and it can minimize fraud. Improving the performance of bank financial metrics and KPIs can provide effective measures. While achieving the strategic goals of the organization we have to move beyond sales forecasting and standard business reporting. Predictive analytics, multivariate analytics, and data mining can help the banks a lot in extracting intelligent visions and quantifiable predictions that easily cover all types of customer behaviors like account opening and closing, transactions and defaults if any, and also include customer exit points. Due to increased competition and fraudulent practices, banks face huge pressure to improve operating efficiencies so that we can easily sustain ourselves in the market for a long period. Financial analytics proves to be the solution to improving the better operating efficiency and proper customer engagement and also it can mitigate risk as well optimize the deployment and effectively utilize the resources of banks.

II. AIM OF THE STUDY

The literature review revealed the existence of numerous studies in the banking sector at the international level. The application of financial analytics in the banking sector can optimize business processes and streamline operations which improves efficiency and competitiveness. Various banks are continuously working on improving data analytics which gives an edge against the competition to predict the latest trends and it can the business too.

III. LITERATURE REVIEW

Hamilton, R. et al. (2002) examined the growth rate of Big Data Analytics in the banking sector. Big Data can be characterized by four V's- Volume, Velocity, Variability, and Veracity. There is an explosion of data that can emanate from POS (Point-of-Sale), EDI (Electronic Data Interfaces), ATM transactions, and Internet Banking transactions. This paper revealed the theoretical framework that shows the importance of a developed financial system for the development of the economy and also in the reduction of poverty. The researcher studied that access to financial services or outreach to the financial system has proved to be a very important part of almost every policyholder in developing countries. The continuous use of financial services measured the deposit accounts with the banks which reached over 90% in high-income, middle-income, and even in low-level income countries. As the use of financial services is very much restricted to various firms and households.

Amim, H. et al. (2009) revealed the rise in innovative approaches to banking. Due to the revolution in the I.T. sector, it can popularize laptops and mobile phones which can bring the internet closer to the masses and can be leveraged in a big manner by the banks. Due to technology mobile banking and remote banking have also reduced the dependence on physical branches and a wide number of customers go for virtual banking tools. The researcher examined the channels in which how financial depth can cause economic growth which can be resorted to access related stories. Finance can lead to growth because it fuels by properly allocating resources to newcomers.

Arnone, M. et al. (2010) examined factors like rising operating costs, rising risk, and, cutting-edge competition that push banks and other financial institutions to do innovation and can differentiate their products easily. The researcher highlighted in their study that talented or smart newcomers can make strong connections and network with the incumbents as today everyone uses these financial services which is a public good and also it is very important in increasing participation which can give various benefits to the economy.

Alam, N. (2013) showed that there were various awareness campaigns will be organized to beat the challenges of the organizations which can give solutions to various well-defined questions. To choose the most appropriate solution to any problem one has to select the various resources as it is set to be the ultimate target of every business. This paper highlighted the fact that the barter system is now completely replaced with the monetary system and in this banks can play a very important role

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in the management of treasury, working capital management, project financing, and investment management and it also includes several activities.

Growe, G. et al. (2014) highlighted the role of financial analytics in the banking sector as to determine the profit of the company one has the full knowledge of it as it proves to be the future of the business as well. The researcher revealed that the impact of financial analytics on the banking sector has caused great significance. They can infiltrate the agenda of business and research that can be easily guided by the increased accelerating speed of technology-enabled advances within Human Resource Management.

Gait, A. et al. (2015) examined that the heaviest industry is the banking sector in which analytics can easily be able to redefine the field of play as most of the global banks started adopting sophisticated analytics and transitioning to more data-driven decision-making. This paper stated that the assumption of cash flow must not be proven real in various situations. There are various commercial software packages available for Enterprise Resource Planning (ERP) and Treasury Management Systems (TMS) that use these statistical techniques for forecasting cash flows.

Chaurasia, S. S. et al. (2018) assumed that business analytics can enable administrators to understand the dynamics of business to make strategic decisions. Company analytics allow faster and fact-based decision-making to customize goods and services to scale digital platforms to suit buyers as well as sellers.

Miskam, S. et al. (2019) examined that in reaching to accurate decisions based on facts and statistics financial analytics can be used and it can remove stereotypes and personal intuition. They can analyze the knowledge, ability, and expectations of owner-managers of the enterprises which is an alternative sourcing in every enterprise. To determine the determinants while adopting technological advancements there is great efficiency which can lead to adopt Internet banking.

Tlemsani, I., et al. (2020) stated that there was a detailed and robust database created to analyze the current practices followed in the banking sector. This paper showed that cash is the main bloodline of all industries. A firm without profit can be able to survive for a shorter period but any firm without cash or finance a firm becomes insolvent and risks bankruptcy. Cash flow forecasts can serve various purposes like treasury management, business valuation, and working capital financing.

IV. OBJECTIVES OF THE STUDY

To analyze the relationship and impact of Financial analytics on the banking sector.

To study the applications and challenges faced by the banking sector.

V. RESEARCH QUESTIONS

Is Financial Analytics help in the Banking sector?

Is there any relationship exists between Financial Analytics and the banking sector?

Is financial analytics cause any impact on the banking sector?

VI. HYPOTHESIS

H1. There is no relation between Financial Analytics and the banking sector.

H2. There is no impact of Financial analytics on the banking sector.

VII. METHODOLOGY

There is not as much interaction between customers and bankers due to technological upgrades to ensure that the customer is very well satisfied with the services to retain them for a longer span of period as the acquisition is costlier as compared to retaining them. Customer wants diverse services like discounts on purchases, information, alerts, convenience, simplified home

buying personalized services, etc. In making effective decisions traditional tools are very much important while processing the data. The effective and efficient use of financial analytics in the banking sector is a necessary contributor to making better and faster decisions and also maximizing revenue.

Today everybody is familiar with the concept of financial analytics as the data can be used in various sectors while achieving goals. Financial analytics is proven to be the most important method in various industries like in banking sector, sports, health care, retail, manufacturing, E-Commerce, etc. It includes various business functions like Distribution, development, strategy, and in supply chain management. In analytics, it is important to validate the source of data as the data needed is not incomplete and also data is not broken as it can lead to wrong observations. There will be proper feedback tools required which are used for effective implementation as it is a continuous process. The selection of technology is based on capability, and cost as various Turnkey technological solutions should be evaluated timely based on the ability to integrate with the processes of banking. There should be the right governance structures that will be adopted after clear relevancy to functions. The governance team also measures ROI and it can easily assess the changes that lie in the organizational and operational model of the banks.

Analytics has been used in various domains like Production and operation in this it can enable companies to analyze the production data to provide real-time insights into business operations. It involves an integrated collection of solutions starting from data acquisition to repetitive analysis decisions.

Analytics play a very important role in Marketing to understand the target audience and also to attract a large audience. The collection and consolidation of data from various marketing platforms followed a common approach to maximize the productivity level and also to double the rate of return on investment. It can find, manage, and evaluate the marketing results properly.

Analytics also contributes to the area of finance by relating the financial report data and non-financial metrics to the financial results.

Analytics is used in HRM also as it collects data and can create a single image of the whole workforce. It includes the areas like talent acquisition, retention, leadership building, attrition, and compensation.

VIII. DATA ANALYSIS AND INTERPRETATION

To attain the objectives of the study, correlation, and regression are used. Two variables are used one is the dependent variable and the other one is an independent variable. The dependent variable is the banking sector and the independent variable is financial analytics.

N	Valid	132
	Missing	0

COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	30	22.7	22.7	22.7
	1.33	22	16.7	16.7	39.4
	1.67	18	13.6	13.6	53.0
	2.00	34	25.8	25.8	78.8
	2.33	9	6.8	6.8	85.6
	2.67	12	9.1	9.1	94.7
	3.00	4	3.0	3.0	97.7
	3.33	2	1.5	1.5	99.2
	3.67	1	.8	.8	100.0
	Total	132	100.0	100.0	

Descriptive

Descriptive result of financial analytics

	N	Minimum	Maximum	Mean	Std. Deviation
COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	132	1.00	3.67	1.7626	.62399

Correlations

		COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	Z Score: COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)
COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	N	132	132
Z Score: COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	N	132	132

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

Descriptive Statistics

	Mean	Std. Deviation	N
COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	1.7626	.62399	132
Zscore: COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	.0000000	1.00000000	132

Correlations

		COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	Zscore: COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)
COMPUTE Financial Analytics=MEAN(FA1,FA2,FA3)	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	N	132	132
Zscore: COMPUTE banking sector=MEAN(FA1,FA2,FA3)	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	N	132	132

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Banking sector	.	Enter

a. Dependent Variable: COMPUTE banking sector=MEAN(FA1,FA2,FA3)

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.139[a]	.019	.012	.62029	.019	2.568	1	130	.111

a. Predictors: (Constant), financial analytics

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	.988	1	.988	2.568	.111[b]
1	Residual	50.019	130	.385		
	Total	51.007	131			

a. Dependent Variable: COMPUTE banking sector =MEAN(FA1,FA2,FA3)

b. Predictors: (Constant), Financial Analytics

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.561	.137		11.392	.000
	Banking sector	.112	.070	.139	1.603	.111

a. Dependent Variable: COMPUTE banking sector=MEAN(FA1,FA2,FA3)

In this, the null hypothesis is rejected meaning that there is a significant difference between financial analytics and the banking sector. The researcher proves the first objective by applying correlation and regression.

IX. OPERATIONALIZATION OF THE SECOND OBJECTIVE

Opportunities:

Can easily attract a large number of customers.

To better understand the behavior of consumers.

It can improve the ability to target any product or service to the prospective customers.

Can easily measure the profitability.

Proper management of fraud and increased operating efficiency.

It can develop a risk-adjusted view of performance and improve transparency as well.

Improvement in the design of any product and overall product portfolio optimization.

It can meet regulatory requirements and can address setbacks on a real-time basis.

It can assess and easily acquire microfinance debt.

It can do testing and distributing of the items like the Kisan Credit Card.

X. CHALLENGES

Expensive: - The budget of banks is not sufficient enough to meet the planning and implementation of financial analytics. The time provided to integrate the present process is more and if done it proves to be risky to gain a competitive advantage in delay.

Expertise: - There will be a requirement of expert staff personnel but banks don't have and also don't know about financial analytics which can hinder the process of implementation. Recruiting experts having good knowledge is not so tough as it requires professionals with business contact, data management, knowledge of existing and emerging regulations, and technology understanding.

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Technology Resources: - The integration of analytics with the process flow is very much limited in banks as there is a lack of expertise and resources.

Process Expertise: - It is very crucial to integrate the analytics with the objectives of achieving operational performance and it can be only possible with the help of a third-party service provider as it leads to an increase in the performance of the process used in driving analytics.

Data Benchmarking: - Various indicators help in comparing the performance internally in analytics it is very difficult to set the targets as there is a lack of information.

Increased Competition: The major challenge faced by the industry today is competition as it can't be avoided and we have to beat it to get accurate results.

XI. CONCLUSION

Financial Analytics is a very effective tool that can be used by business owners to track and measure business performance. It can allow the companies to adopt the factors that affect the operations of the banks. It can provide detailed and robust information and results which is the main contributor in determining the success of any business according to the point of view of bankers, investors as well as angel investors. In this dynamic world, high-risk and rewarding opportunities for entering new markets and changing business models can be easily recognized. It mainly focuses on integrating analytics with core business decision-making processes and has to be sustained for a long. By integrating both of them one has to detect consumer trends properly monitor them track all the emerging risks and create a better mechanism for continuous feedback and development in which market managers can easily streamline the internal business process. It helps in gaining a competitive advantage to adopt innovation and changes in the sector. Banks have a huge access to collect information but they lack slacker also as everyone doesn't have expertise in that.

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