



Analysis of Banking Industry Using the VIKOR Method

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Abstract. Banking means credit facilities, for money Savings, investments and other funds A business that deals with transactions. Banking industry in most economies one of the key drivers is because It is for borrowers with productive investments Provides funds. People are their Money is deposited in banks Bank Car Loans, Credit Cards, In mortgages and commercial loans Lending money. Debt Recipients will borrow their money Spend money, bank Earns interest on loans, and this Process money through computer moves. Financial Services The foundation of the group is the banking sector. It is direct savings and loan is very concerned with providing, At the same time, financial services sector investments, Insurance, risk redistribution and others Includes financial activities. From this analysis the VIKOR technique determines the maximum correct solution with the shortest distance and the worst-good solution with the longest distance from the solution, although the variance of these distances is not taken into account. The VIKOR approach is a multi-criteria choice (MCDM) or multi criteria choice evaluation technique. Alternative: Customer satisfaction, Minimum wasted time of customer, Customer retention, attracting new customers, Development of sales to the customer, increasing customer loyalty. Evaluation Preference: Tejar at bank, Saderat bank, Mellat bank, Maskan bank. The result it is seen that Minimum wasted time of customer is got the first rank where as is the Attracting new customers is having the lowest rank.

Keywords: Banking Industry, VIKOR method.

1. Introduction

People deposit their money in the banking industry Banks that help save and use of financial institutions Includes systems. Banks to their customers saving or investing money for various purposes such as doing Offer to open accounts. Individuals, families and organizations for transactions and investments by providing resources to use, the banking industry is also valuable to the economy. One way in which the banking sector does this is, Arrange loans for applicants They property by distribution Buying, starting a business or financing a college education Can be used for purposes like Different types of banking sector There are experts, all of them One in managing people's money Service for a specific purpose are doing For example, banking Tellers account to customers Assist in opening and closing, deposits and for withdrawals and other services Can schedule recurring payments. Another type of packing professional is an A mortgage consultant is one who owns properties for buy-to-let mortgages Individuals and families to apply can help. Similarly, an A credit analyst of a bank Analyzing the customer's credit to do, they get the loan whether to be a good candidate Can suggest about. Most International Money and Security Being behind exchanges Society for Worldwide Interbank System for Financial Telecommunications (SWIFT). SWIFT is a vast messaging network Banks and other financial institutions Fast, accurate and secure, Like money transfer mechanisms Used to send and receive information. Analyzing the customer's credit Bank provides services of services. That is why banking is a tertiary industry and that construction is a secondary industry Construction is a secondary industry is called It is a tertiary It is secondary because it is a profession Encourages and helps the development of stage industries.

2. Banking Industry

Banking industry and their interrelationship investigates. The Panzar Rosse model Competition is measured using In local, national and international markets In order to distinguish competitive behavior, For each country, three sub Samples are taken: small Banks and large or international banks. One of the consequences of this is European of recent mergers in the banking sector already evident in the wave. This concentration process can affect competition, Especially retail banking In local markets for services [1]. On the one hand, banking in China The sector is interest rate liberalisation and narrow interest-rate spreads It faces the impact of a decline in profitability. On the other hand, it's economic change, the Internet By growth and financial innovation Affected. So, to the banking sector Needs urgent change and new Looking for ways to grow. therefore, Blockchains make payments to banks and the basis of credit information systems can revolutionize technology, Thus they can be improved and can change Applications of Blockchain Multi-centre, weakly intermediate They also encourage the creation of visuals, This will improve the efficiency of the banking sector [2]. Existing banks are new domestic Not only banks but also foreign Banks are also facing tough competition. Banks in their unprofitable branches started to close and/or Retrenched employees Branch size by redundancy reduce A perfect match And in a competitive financial market, Inefficient banks are efficient Discharged by banks or will be acquired. Hence, the new regulation Competitiveness of banks in the environment To increase, bank managers and Regulators in the banking sector Level and

causes of inefficiency It is necessary to decide [3]. Banking sector in European countries A number of regulatory changes affecting Implemented, for financial services To establish a single, competitive market To achieve the required level of compliance Driven by necessity. The second in the early 1990s Banking Consolidation Ordinance Implementation is one of these processes The basic step is that it is a single banking license Basic conditions for being invited Defined. For implementation of new regulation Ahead, cross-border expansions Recognition of the host country and Successive controls and capitalization Subject to requirements. of the present regime Under, in contrast, the European Union (EU) Banks from other European countries Allowed to branch freely in Union countries [4]. Regulation controls the role of Directors in Controlling Management A possible explanation for this is the assumption that Banking from many more restrictions Nowadays, the product is in the market The purpose of competition or corporate Controlling the share of the market for control While it may not be the main factor. From the market for corporate control Increased competition and more Classified by threats In a business context, the interests of stakeholders Internal governance structures in safeguarding Performance has become more relevant than ever. For this reason, in banking institutions Administrative structures in Used by unregulated companies Evolve towards administrative system should, and in performance May have similar effects [5]. The setting for this study is American Banking sector. For this study Two considerations in the choice of banking sector had an impact. Firstly, Some basic structural changes Because, in this industry Competitive importance is largely the market from dependent to more resource-based What appears to have changed is the Wall Street Journal. 1991. Therefore, This industry is my research question provides fertile ground for empirical experimentation. Second, of this researcher Self-interest is also the work of industry and knowledge. About industry Understanding its strategic group analysis is a prerequisite for doing (Cool and Schendl, 1987)[6]. Banking sector in fair value literature To be the primary focus There are many reasons. Firstly, Banks rather than industrial companies Use financial instruments. Second, fair value Application of Accounting to Banking Regulation May have implications for capital. U.S. bank regulators actually In the absence of active markets of the fair value used were early critics. Regulatory capital rules are reasonable To reduce the impact of value accounting Uses sensible filters. For example, Tier 1 capital is debt and fairness of equity securities Values contain false Excludes gains and losses. Third, the Great Depression, the S&L crisis and the more recent financial crisis Around banking crises including The use of fair value accounting has evolved [7]. Service in banking sector for many years Quality is remarkably important Although considered, this topic is recent More attention is paid. Such interest Affecting a section of the banking sector Customer base and marketing May be the result of stock depletion Indeed, Bowen and Hedges, Focusing on service quality, banks Decrease in market share enjoyed that may contribute significantly to improvement They believe. Hence, retail banking For activities, high level Achieving service quality is a key objective [8]. Domestic and foreign banks Focusing on the debate, Poland On the performance of the banking sector The above by providing evidence We want to contribute to the literature. To do so, we data envelope Analysis and evaluation cost, Allocation, Technical, Pure Technical and We use scale performance. Later, domestic and Foreign banks in the same population Many to investigate whether coming from Parametric and non-parametric tests We do. Finally, Capitalization, Problem Loans Ratio, Growth of assets, size and income such as volatility Franchise system and different bank Characteristics, our performance ratings We analyze how it affects [9]. Empirical study during the period 1977-87 Video by American Commercial Banks Based on acceptance of banking has Video banking is a novelty. is, which is the direction of innovation or To the previous question about content Allows you to respond. Organizational innovations A historically based theory of Banking is the best system for testing We believe that the sector provides. Its testing is sector specific However, the results are for other types of companies can be generalized to include [10]. Policy makers are aware of these scandals Are more concerned, too Mostly in practice Business culture in banking industry In terms of terms and informality and innovations of various kinds Rules to prohibit them Instead of dishonest behaviors Considered tolerable. UK Financial Services from 2008 to 2013 Lord who chaired the Commission Adair Turner, "Bank Executives a Culture is clear from above Facing the challenge of setting up, this Things they shouldn't do to people Even though. They are legal, Although they are profitable, The supervisor will not find them [11]. The banking industry in China is currently Faces many pressures, including A decline in profitability and an increase in risk And to a new level of change and growth has arrived The Internet Finance Boom, Traditional banking business Guo and Liang Financial Innovation leading to many challenges. As a result, commercial banks product and to accelerate service innovation Depend on new technological development Want, thereby new customer [12]. The principal of a country's financial system Activities include investment Opportunities and capital allocation Creating information about Monitoring and financing of investments Corporate governance after issuance Implementation Trading, Diversification and facilitating risk management Aggregation and collection storage and goods, services and Regulation of trading in securities. A very promising investment Effectively capitalize on opportunities How good is the financial system to allocate? Works, providing these functions Economic Prosperity Financial System Can affect powerfully. Finance regulatory, and political and financial inter-institutional relations.1 latest As the financial crisis made clear, banking System A country's financial infrastructure is the central element, which is devastating Vulnerable to formal events [13]. Banking sector from 1988 to 2001 Acquisition in model of acquisitions Institutional to explore the possibilities We derive theories of learning. Research on organizational learning Experience and performance feedback Institutional procedures arising from Guides learning, this A combination of two sources Outcome learning has rarely been studied. The findings are in line with our theoretical predictions Compatible with: previous acquisition Experience, recent acquisition Performance and acquisition experience and recent acquisitions between performance All communications are subsequent acquisitions are positively related to potential [14]. Banking is very information technology As one of the dependent industries However, before computers were massive Began to act dependent Although one of the sectors, banking Most about technology Applied literature on this topic Very few studies have included,

Mainly due to lack of proper amount due to. Information. During the period 1989-2000 of more than 600 Italian banks By using group We have overcome this obstacle, investment in this and computers and software Both related expenses Includes information about our In terms of knowledge, in the banking sector No previous study has been this comprehensive Basically IT Does not directly measure the impact of diffusion [15]. These changes are policy concerns Raise because the banking industry Integration of the American economy is part of Banks are for depositors Aggregate and absorb risks, sustainable investment resources and for non-financial industries Provide working capital funds. In addition, banks smoothly Offer a working payment system, It is financial and real resources For their high revenue applications allowing it to flow relatively freely. By accessing the discount window, Bank The department is in temporary trouble For cash flow to any sector As a backup source. Similarly, for currency control mechanism Necessary open market operations Balance sheets of banks Includes transformative interventions [16]. Consolidation is shaking up the banking industry. Chemical Bancorp and Chase Manhattan's latest addition High quality links like and Acquisitions, of the banking sector Coordination at all levels The department is in temporary trouble Occurs in the structure of the banking sector Loans to small businesses of changes Long-term impact on delivery, Lending Cost Structure for Banks How the changes work Not only dependent, but also non-bank loan How providers respond to those changes It also depends on what they reflect [17]. Usually large BHCs fail Because the FDIC does not allow bank profession. Additionally, during the period 1959-1985 We among our sample companies In the extended data set that collects Our companies to enter the model We allow. In Section 4 our How about the model from 1959-1985 We discuss expanding In each of the years 1986-1996 Companies are among the 200 largest companies of the year To be together is small Our for bank holding companies Findings may vary. However, poor management is possible The impact has serious consequences of management in established institutions A requirement to inspect the stock was imposed. Our model before 1986 We have no restrictions on companies Since not imposed, of this period In our analysis, the model Our results by exam Ensures that it is not enabled [18]. These models are basic business formed by a set of operations See, and this To represent the scene, many financial and Use non-financial metrics. Unique to the retail banking industry and proprietary cross-sectional data Using the package, such Empirics of measurement models Some of the first tests of validity We provide. price, service, Customer Application and Customer Financial and in satisfaction Using non-financial metrics, its of the bank with its customers Significance of relationships is important Retail banking is an intangible base We categorize deposits [19]. To formulate our hypotheses Before, the US banking sector Regarding relevant organizational aspects Providing perspective is important. U.S. Banks and Banking Number and size of offices Historical trends in By summarizing this Part begins. Next, the banks services and products offered and Banks in their vertical and How about horizontal systems We discuss the differences. Finally, among bank customers Discuss the differences in Big banks in small business lending Why do smaller banks have a comparative advantage We present an argument that can be obtained.[20]

3. VIKOR Method

The VIKOR method is implemented within the mcdm problem introduced as a matching technique, also it is incompatible different units and unique decision making multi attribute decision making with conflicting criteria method for the problem solving was created. This method is ranking and focus on choosing alternative means of payment and from conflicting criteria determines a compromise option to the problem, which help decision makers arrive at a very last solution. Reconciliation multi standards dimension for ranking, compromise programming used as an integrating function in the method generated from LP-metric [21].The VIKOR method solves mcdm problems with contrasting and comparable different units criteria created to resolve, conciliation is for conflict resolution deeming it acceptable, for the decision maker ideal a closer solution prefers, and evaluates alternatives are done. All installed criteria. This time is contradictory an alternative to the presence of criteria ranking from set and focuses on selection, and compromise solutions (one or more) propose. VIKOR systematic weight stability intervals deterministic stability analysis and trading compared to decision-making methods the extended VIKOR method has three variations. Topsis, promethee and electre a numerical example is the VIKOR method explains the application, and four the results of the considered methods are compared [22]. VIKOR method is inconsistent or inconsistent (mcdm) multi criteria decision making, with criteria created to solve problems. For conflict resolution this method assumes that the compromise is acceptable. VIKOR method used in multi-criteria analysis (MCA). Although a popular method, mcdm problems there are some problems with solving. This study is traditional discussed the problems with VIKOR method. This the intention of the take a look at is to resolve issues with the traditional VIKOR technique to keep away from numerical troubles in fixing is modified VIKOR approach to create. Modified in MCA solution efficiency of VIKOR method several artificial experiments to verify the improvement were designed and evaluated [23]. VIKOR for solving complex decision making problems in addition to using the method successfully, the result depending on the type detailed victor, busy victor, shot theory-past victor, victor modified etc., interval VIKOR methods genres are also in the picture. The decision maker's problem relating to requirements. They have different results are used in situations, there are general properties and math formulas. These five of the VIKOR method the ranking performance of categories is their original there is a better chance to compare with no. This the main focus of the thesis is two demonstrations all six types while solving the examples comparing the ranking performance of VIKOR methods aims to spearman's rank correlation using coefficient values works best it tries to detect the VIKOR method [24]. Extended fuzzy VIKOR method, risk based on the overall risk on the factors used sorting out failure modes. This consequently, risk assessment issues in FMEA to deal with, joint weight ambiguous vikor risk assessment method using method is provided. To verify the applicability of the

model and to study its effectiveness, proposed the setting is general at a university hospital risk of anesthesia to analyze procedure is used. Fuzzy vikor and ahp client using methods dincer and hacioglu in turkey based on skills evaluated the performance of banks. Vinod et al many people. Meet the changing needs of customers many people. Meet the changing needs of customers using fuzzy vikor method to do the concept deals with design choice in an appropriate context [25]. Classical VIKOR method is fuzzy VIKOR, interval-valued VIKOR, intuitive fuzzy VIKOR, interval valued various like the reluctantly obscure VIKOR extended in forms. Contradictory VIKOR on dealing with mcdm problems with criteria as the method is observed to be very powerful, this covering the main idea in the thesis vikor within hesitant ambiguous linguistic situations we are motivated to explore an extended [26]. Multiple criteria decision making (mcdm) VIKOR method evolved from compromise programming an agglomerative denoting 'closeness to ideal' based on activity. Interval numerical decision making VIKOR method for problems. In this paper is the confidence level of the decision maker introducing sanaye et al. Distribution supplier selection issues in chain organization for inter-interval comparisons, vikor to deal with fuzzy set theory a hierarchical mcdm using model fuzzy vikor method based on the proposed method best alternative under each of the selection criteria the best alternative under each of the selection criteria and chen and wang to create a compromise solution they provided a rational and systematic process. The findings of the study were unclear on several criteria for solving decision problems gives an important hint [27]. A new one that includes incomplete scale weights we propose the VIKOR method. Incomplete our about scale by scale weights can express preferences effectively. The proposed VIKOR method is the intensity of weights ranks the alternatives using points. VIKOR for decision making under uncertainty we re-explain the method from scratch. VIKOR the method is multi scale of complex systems developed for optimization (opricovic, 1998). Compromise by proposing a solution conflicting criteria from the set of alternatives available in presence this method of ranking and selection attention VIKOR method, on the other hand, is the risk of the result when considered less important, suitable for situations where profit maximization is the goal [28]. Given the material selection characteristics identified short of materials in engineering use after making the list, VIKOR's proposed rank the detailed version, optimized material select can also be used. VIKOR method multiple criteria in complex systems developed to improve and wide enjoys acceptance. It is contradictory and ranking with criteria of different units and focuses on choosing from alternatives. A compromise is the ranked VIKOR approach, optimal by comparing the size closest to the replacement is done, and compromise is by mutual concessions an established contract. By traditional to skip the vikor method number complications in solving the problems, chang developed a modified VIKOR method [29].

4. Analysis and Discussion

Tejarat bank it is seen that Minimum wasted time of customer is showing the highest value for Development of sales to the customer is showing the lowest value. Saderat bank it is seen that Customer satisfaction is showing the highest value for Minimum wasted time of customer is showing the lowest value. Mellat bank it is seen that Customer satisfaction is showing the highest value for Attracting new customers is showing the lowest value. Maskan bank it is seen that Customer satisfaction is showing the highest value for Attracting new customers is showing the lowest value.

TABLE 1. Determination of best and worst value

	Determination of best and worst value			
	Tejarat bank	Saderat bank	Mellat bank	Maskan bank
Customer satisfaction	0.34	0.95	0.97	0.53
Minimum wasted time of customer	0.42	0.71	0.85	0.21
Customer retention	0.39	0.89	0.93	0.37
Attracting new customers	0.25	0.93	0.72	0.14
Development of sales to the customer	0.19	0.76	0.86	0.26
Increasing customer loyalty	0.36	0.82	0.89	0.36
Best	0.19	0.95	0.97	0.14
worst	0.42	0.71	0.72	0.53

Table 1 shows the Determination of best and worst value of Alternative: Customer satisfaction, Minimum wasted time of customer, Customer retention, Attracting new customers, Development of sales to the customer, Increasing customer loyalty. Evaluation Preference: Tejarat bank, Saderat bank, Mellat bank, Maskan bank is the Best and Worst Value. It is solved by using the VIKOR method. It is the data set of this paper.

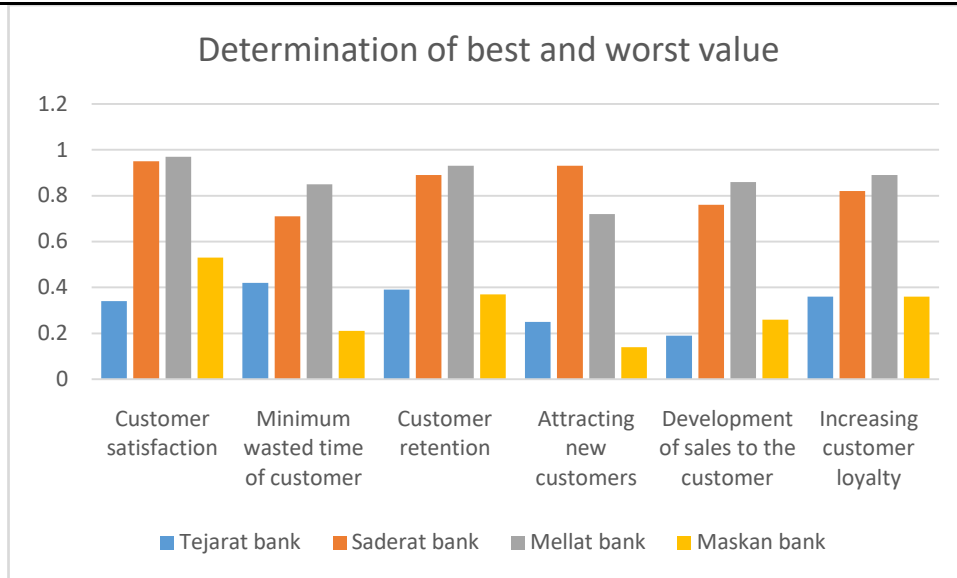


FIGURE 1.Determination of best and worst value

Figure 1 shows the Determination of best and worst value of Alternative: Customer satisfaction, Minimum wasted time of customer, Customer retention, Attracting new customers, Development of sales to the customer, Increasing customer loyalty. Evaluation Preference: Tejarat bank, Saderat bank, Mellat bank, Maskan bank.

TABLE 2. Calculation S_j and R_j

Culcation S _j and R _j					
				S _j	R _j
-0.25595	0.176056	0.25	0.25	0.420104	0.25
-0.30357	0.119718	0.25	0.25	0.316147	0.25
-0.17857	0.200704	0.25	0.25	0.522133	0.25
-0.2619	0.158451	0.25	0.25	0.396546	0.25
-0.27976	0.123239	0.25	0.25	0.343478	0.25
-0.32738	0.200704	0.25	0.25	0.373323	0.25

Table 2 shows the calculation S_j and R_j is the sum of Normalization of the tabulation 1 which is calculated from the Determination of best and worst value.

TABLE 3. Calculation Q_j

	Culcation Q _j		Q _j
	S _j	R _j	
	0.913043	0.413043	0.554589
	0.959744	0.664872	1
	0.832154	0.467327	0.528903
	0.586051	0.336051	0
	0.659679	0.38484	0.172703
	0.867033	0.541225	0.687938
S+ R+	0.586051	0.336051	
S- R-	0.959744	0.664872	

Table 3 shows the S_j,R_j,Q_j by using the previous tabulation it is the sum of the value. S_j and R_j using the S+ R+ Minimum formula, S- R- Maximum formula.

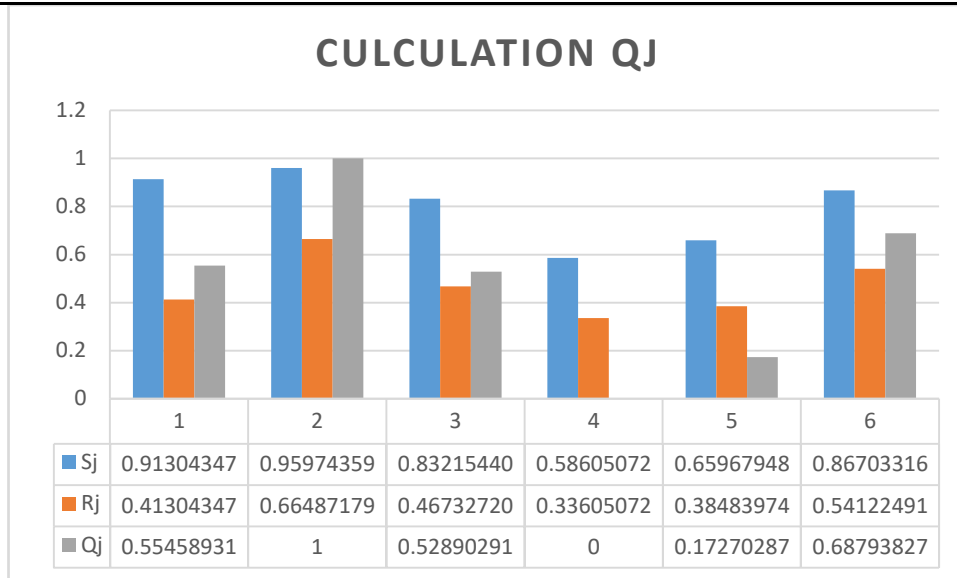


FIGURE 2. Calculation Sj and Rj and Qj

Figure 2 shows the graphical view of Calculation Sj and Rj & Qj value Qj for Increasing customer loyalty is showing the highest value and Attracting new customers is showing the lowest value.

TABLE 4. Rank

	Rank
Customer satisfaction	3
Minimum wasted time of customer	1
Customer retention	4
Attracting new customers	6
Development of sales to the customer	5
Increasing customer loyalty	2

Table 4 shows the final result of this paper Customer satisfaction is in 3rd rank, Minimum wasted time of customer is in 1st rank, Customer retention is in 4th rank, attracting new customers is in 6th rank, Development of sales to the customer is in 5th rank and increasing customer loyalty is in 2nd rank. The final result is done by using the VIKRO method.



FIGURE 3. Rank

Figure 3 shows the graphical view of the final result of this paper Customer satisfaction is in Third rank, Minimum wasted time of customer is in First rank, Customer retention is in Fourth rank, Attracting new customers is in Sixth rank, Development of sales to the customer is in Fifth rank and Increasing customer loyalty is in Second rank.

5. Conclusion

Banking industry is stable in society However, as new trends emerge It experiences changes. Very famous in banking sector One of the current trends is online It means using a bank, which is an account Holders access their accounts, their finances from home on computer Also allows to manage. close A related trend is mobile banking Increasingly, it's mobile for users their banking using devices Provides access to accounts. Both these trends are technological Related to developments, this To improve the processes of the banking sector helps. Another in the banking sector A pervasive trend is investment banking is an increase. Investment banking is banking Professionals to their clients Where to invest their money Advise on what may be desired A service that involves providing Artificial Intelligence and of automated banking processes Due to growth, investment banking, Because of how easy it is to get involved, is becoming popular. Many people their investment banking is used to inform decisions. Investment banking tasks can be completed automatically. Modern Banking sector is very important to the economy. As a primary lender, People Cars And buying homes and businesses To purchase equipment and their activities To expand their payroll Also offers money for meeting. The end result of this paper is the customer Satisfaction ranked third, At least one wasted customer Time takes first place, Customer retention is fourth Takes place, new Attracting customers is sixth Liked, for a customer Sales growth ranked fifth Likes and customer loyalty Increasing is ranked second.

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