

The Application of the Performance Focused Activities based Costing (PFABC) and its Role in Measuring the Cost of Banking Service and Improving Performance (An Applied Study in Al-Rafidain Bank / Al-Diwaniyah Branch)

Ali Abdul-Hussein Hani Al-Zameli ^a, Azhar Ghailan Marhoon AL-Zubaidi ^b,
Asaad Sasaa Agrab ^c

^a Accounting Department, Administration & Economic College, Al-Qadisiya University, Iraq.
E-mail: ali.alzameli@qu.edu.iq

^b Financial & Banking Sciences Department, Administration & Economic College, Al-Qadisiya University, Iraq.
E-mail: azhar.marhoon@qu.edu.iq

^c Chemical Engineering Department, Engineering College, Al-Qadisiya University, Iraq.
E-mail: asaad.saad@qu.edu.iq

Abstract

The current research aims to address cognitive pillars of performance focused activities based costing (PFABC) in terms concept, importance, steps of its application in banking units and to show the role of this in measuring cost and improving performance. The research was applied in Al-Rafidain Bank / Al-Diwaniyah branch for the fiscal year ending on 31/12/2020. The current research concluded that PFABC helps in accurately measuring the cost of banking service, and helps in measuring the efficiency and effectiveness of the performance of each activity of the economic unit to help measure productivity and take the necessary decisions to improve performance.

Keywords: Performance Focused Activities based Costing (PFABC), Banking Service Costing, Performance Improvement.

Introduction

In light of the rapid and successive changes and developments accompanying the modern business environment, economic units have become operating in a complex competitive environment that requires them to expand their projects while ensuring cost reduction and performance improvement. Therefore, these units must apply appropriate systems that are consistent with these changes and developments. PFABC is one of the effective and efficient systems that can be used to measure cost and provide the necessary information to improve performance. The actual costs of each activity are determined separately from each other. The (PFABC) system came due to the criticisms and obstacles that faced the work of the (ABC) system and the (TDABC) system, and this system allows greater flexibility when choosing cost drivers that reflect the causal relationship between the main resources and cost purposes.

Research Methodology and Previous Studies

1. Research Methodology

▪ The Problem of Research

The problem of current research is that banks operating in the Iraqi environment still depend on traditional methods of cost measurement, which led to the lack of indicators that give a clear picture of their performance, despite the presence of many technologies, systems and methods. The most prominent of these systems is the activity-based performance-based costing system. The research problem is expressed through the following question: (Is the application of PFABC helps in accurately measuring the cost of banking service and helps in improving the performance?).

▪ The Importance of Research

The importance of current research comes from the importance of the performance focused activities based costing (PFABC), This approach helps in measuring the cost in banking units in a way that helps in improving the bank's performance.

▪ The Objectives of Research

The current research aims to address cognitive pillars of PFABC in terms concept, importance, steps of its application in banking units and to show the role of this in measuring cost and improving performance.

▪ The Hypothesis of Research

The current research is based on the following hypothesis: (The PFABC application helps in measuring the banking service costs and improvement of performance in bank).

▪ The Sample of Research

Al-Rafidain Bank / Al-Diwaniyah branch was selected as a sample for the research, and the search was applied for the fiscal year ending on 12/31/2020.

2. Previous Studies and the Contribution of the Current Research

Previous studies related to the current research can be explained as follows:

1. A study (Namazi, 2009): The study aims to address the (PFABC) system as the third generation of the (ABC) system), and the study concluded that the (PFABC) system, (PFABC) is addresses the problems faced by the activity-based costing system (ABC).
2. A study (Sarokolaei, et. al., 2013): The study aims to demonstrate the importance of applying the (PF-ABC) system in cost measurement, and the study concluded that this system can It helps provide accurate cost measurement better than traditional systems.
3. A study (Carroll & Lord, 2016): The study aims to show the importance of applying cost accounting in health units, and the study found the possibility of applying the (PF-ABC) system in a way that can Increases the effectiveness of cost accounting reports.
4. A study (Van, et. al., 2020): The study aims to determine the necessary steps to implement the (PFABC) system in hospitals, and the study concluded that the application of this system in Hospitals can assist in cost management and control.

The current research deals with the issue of the performance focused activity based costing (PFABC) and then its application and statement of the role of that in the accurate measurement of the cost of banking service, as well as

helping to improve performance. Contribute to laying down a logical basis for applying the performance focused activities based costing (PFABC) in banks to accurately measure the cost of banking service and improve performance in terms of improving efficiency, effectiveness and productivity indicators.

The Theoretical Side of the Research

1. Concept of PFABC

PFABC represents a true picture that expresses all the work and activities of the economic unit, due to the close relationship between it and all the operations and operational activities of the economic unit. and censorship (Al-Hamrouni, 2015).

As the information provided by the (PFABC) system keeps pace with the development processes in economic units and continuous improvement because it is an effective tool in making strategic decisions and raising the level of production efficiency by allocating costs and optimal use of resources, and thus it is a cost-effective system characterized by high accuracy when calculating the costs of each activity saving More appropriate information for senior management for the purpose of improving decisions, control and performance evaluation (Noman, 2017).

PFABC determines the actual costs of activities separately from each other with the necessary flexibility, in addition, it is considered an efficient tool for allocating indirect costs (Babu & Masum, 2019).

The (PFABC) system is the third generation of the (ABC) system, as well as its modern and hybrid method that overcomes some of the obstacles that faced the work of the (TDABC) system, which is a cost measurement process that depends on a set of steps to allocate indirect costs correctly (Carroil & Lord, 2016).

Based on the foregoing, it can be said that the (PFABC) system is a hybrid system for measuring indirect costs and evaluating performance, as it takes advantage of the advantages of the (ABC) and (TDABC) systems and thus helps provide a mixture of appropriate information to take many measures. administrative decisions.

2. Importance of PFABC

The importance of the performance-based activity-based costing system (PFABC) can be clarified through the following: (Dina, 2013), (Al-Hamrouni, 2015), (Al-Shibli, 2017).

1. Determining the behavior of the actual resources acquired for activities through two types of resources, namely, flexible resources and mandatory resources. We obtain the characteristics of fixed costs, making them to be closer to the accuracy in determining the costs of the activity.
2. Determining the supplier's cost behavior with sufficient accuracy and this feature is positively reflected on the process of determining costs for each activity.
3. Determining the behavior of costs for both flexible resources and mandatory resources through a look at four levels, namely batch level, unit level, production level and regular activities level. This leads to further cost analysis as well as planning and budgeting.
4. It is considered one of the best planning and measurement tools for performance that can be relied upon, such as management in delivery and identifying the most important cost deviations such as efficiency deviation as well as volume deviation for production.
5. Separation between the exploited energy and the untapped energy, as the exploited energy depends on the consumption of flexible and mandatory costs in the production process. As for the unused energy, we can determine it due to the difference between the planned and the consumption of mandatory resources.
6. Overcoming the weaknesses in the (ABC) and (TDABC) systems by identifying clear and important activities, as well as mapping the costs of resources related to the activities.
7. The first generation (ABC) system goes through the problem of information asymmetry, as the third generation (PFABC) system can overcome this problem because it obtains the necessary information through labor cards for workers and does not depend on the information systems that are available in the unit Economic.

From the above, it can be said that the (PFABC) system is a good tool for planning, evaluating performance and allocating costs, because it can measure some deviations such as efficiency deviation, effectiveness deviation, etc., and it was also able to overcome most of the shortcomings that faced the work of the (ABC) and (TDABC) so it is considered better than it.

3. Application Steps of PFABC

There are a sets of necessary steps to implement PFABC in economic units, which are as follows:

First: Defining the main activities: The work of the (PFABC) system in this step is similar to the work of the (ABC) system in the first step. This step is necessary because the costs behavior differ from one activity to another within company and even within the department. One, or the other, the main element in the activity-based costing system is the identification of activities (Drury, 2018).

Second: Determining the resources used in activities: Determining a resources in the (PFABC) system is done in a different way, as the workers, when performing a specific activity, are able to determine the quality and quantity of a resources used in the activities according to information systems, resource measures may be time or quantity of materials or another measure, and a condition for that is a reflection of the causal of cost measurement. A resources are evaluated into two types of materials, which are flexible resources and binding resources (Mojbil, 2020).

Third: Determining the actual load rate for each activity: Determining the actual rate of activities in the activity-based costing approach (ABC) is through the percentage of employees' time spent in each activity, while in the time-oriented activity-based costing approach (TDABC) The average costs for the fair energy of each department are determined by dividing the total costs of energy supplied by the energy of the practical resources consumed on the basis of the time of the resources. As for the (PFABC) system, the actual costs rate is determined separately for each activity separately within the activities of the economic unit (Sarokolaei, 2013).

Fourth: Determining the actual costs: The behavior of resource costs affects the cost of activity in the company. As the increase in the cost of the activity will affect the total cost of the product, which will be reflected in the selling prices, and the inevitable costs should be determined using appropriate cost drivers in company (Namazi, 2009).

Fifth: Determining the standard load rate for activities: When implementing a standard rate to all activities should be estimated, and this estimate is made according to internal and external indicators, work measurement technique and other means necessary to estimate the standard rate, as well as there are statistical methods that are used to estimate the standard rate, including models Time series and regression analysis (Kuhait & Megabal, 2020).

Sixth: Calculating the price deviation for activity: The price deviation for each activity is determined by the cost management by calculating the actual resource quantity reached in each activity in order to obtain a price deviation for the resources Flexible, as for the mandatory resources, where their quantity remains fixed and does not change. We note that the administration compares the results of the actual costs with the planned activities, as its work is not limited to determining the cost of each activity. This is one of the features of the (PFABC) system, through which it can evaluate the efficiency Better job performance (Al-Hamrouni, 2016).

Seventh: Determining the costs of the resources used in each activity: The implementation of this step is somewhat similar to what is applied in the (ABC) system, as the (PFABC) system takes into account the behavior of the consumed resources, whether they are flexible or obligatory resources. We calculate the elastic resources, we should specify the "standard amount of resources consumed, and it is described as an indicator and is also used to compare with the actual amount of the resource, so it should be accurately determined (Namazi: 2009).

Eighth: Calculating the quantity deviation (efficiency) for each activity: If the production manager uses more than the standard quantity required for actual production during a certain period of time, there will be an inappropriate deviation, and vice versa if the standard quantity is less than the actual, noting that there is no negative impact on quality, as the quantity deviation is determined by multiplying the amount of actual resources needed in the standard resource price consumed from them (Soekardan, 2016).

Ninth: Calculating the productivity of each activity: The management performance evaluation process depends on the productivity of the activity, which is not found in the (ABC & TD-ABC) systems and it is consideration a more vital steps in the (PF-ABC) system. The productivity of each activity by summing the variance of quantity (efficiency) and skewness of effectiveness (Al-Waeli, 2020).

It is noted from the above, that the above nine steps are necessary to implement the (PFABC) in economic units, in a way that makes this system an effective tool for cost measurement and performance evaluation.

4. The Role of Performance Focused Activity based Costing (PFABC) in Cost Measurement and Performance Improvement

The performance focused activity based costing (PFABC) determines actual costs and resource cost behavior is determined with sufficient accuracy and this feature in company. Positively reflected on the process of determining costs for each activity (Dina, 2013).

The (PFABC) system is complementary to the work of the two traditional systems (ABC & TDABC) and takes into account the behavior of costs for both flexible and mandatory resources measures the costs of activities objectively

and accurately and works on performance evaluation, which helps management In making the right decisions as well as helps continuous improvement by providing important information and thus helps the economic unit to achieve profit by reducing costs and improving product quality (Alroqy, 2020).

Thus, it can be said that the performance-based activity-based costing system (PFABC) can help in accurately measuring cost, by following an appropriate method for allocating indirect costs to cost objectives.

On the other hand, the performance focused activity based costing (PFABC) can help improve the effectiveness and efficiency of performance by providing appropriate information through which the efficiency and effectiveness of each activity of the economic unit can be measured, and thus help in measuring productivity. The role of PFABC in improvement of performance can be explained through the following:

1. Improving performance efficiency: The (PFABC) system helps to improve performance efficiency, which refers to the amount of inputs used to achieve a certain level of output, and shows the efficiency deviation if the resources were used efficiently or not (Terungwa, 2013).
2. Improving the effectiveness of performance: The (PFABC) system helps in improving the effectiveness of performance, which indicates the possibility of achieving predetermined goals, and the effectiveness deviation shows whether or not the specified goals have been achieved by the planning manager (Mujbil, 2020)).
3. Productivity improvement: The management performance appraisal process depends on the productivity of the activity and it can be considered in evaluation process, and productivity represents the sum of each of the performance efficiency and its effectiveness (Namazi & Hosseini, 2020).

Based on the foregoing, it can be said that the (PFABC) system helps measure the efficiency and effectiveness of the performance of each activity of the economic unit and thus help in measuring productivity, which can help management in taking the necessary decisions to improve performance.

The Practical Aspect of Research

1. An Introduction to Al-Rafidain Bank / Al-Diwaniyah Branch

Al-Rafidain Bank was established under Iraqi Law No. (33) of 1941. The research sample bank started its activities in the same year with a capital of (50,000) dinars. This bank is the first local national bank practicing various commercial banking activities, and it witnessed a tremendous development in order to contribute Support the national economy. The bank aims to achieve a number of things, the most important of which is enhancing confidence in the banking system and creating awareness in the commercial and financial circles of the importance of banking work and enhancing public understanding of the banking system. It aims to reduce financial crimes such as money laundering. It undertakes various types of local and international investment banking activities in different currencies. It seeks to respond effectively and efficiently to the desires and needs of customers, develop their money carefully and responsibly, and develop manpower to achieve continuity of discrimination in performance.

2. Application of PFABC in Rafidain Bank / Al-Diwaniyah Branch and its Use to Measure the Cost of Banking Service and Improve the Performance

For the purpose of implementing the performance focused activity based costing (PFABC), it is a set of steps is required, namely, identifying the main activities, determining the actual resources used in each activity, determining the actual charge rate for each activity, determining the actual costs for each activity, and determining the standard load ratio to activities. Calculating the price deviation: determining the costs of the resources used in each activity, calculating the quantity (efficiency) deviation for each activity, and calculating the productivity of each activity. These steps can be clarified as follows:

The first step: Defining the main activities: There is a group of main activities practiced by the sample bank, which is the current account activity, savings account activity, banking facilities activity, remittance activity, loan activity, automobile activity, self-sufficiency activity, treasury activity, accounting activity, and bank management activity. The main activities and functions provided by each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 1: The Main Activities and Functions Provided by each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Activities functions
1	Current accounts activity	Opening current accounts, depositing cash, depositing a check, ratifying the instruments, withdrawing an instrument from the current account.
2	Savings accounts activity	Opening savings accounts, depositing cash, depositing a check, calculating interests, withdrawing cash from savings accounts.
3	Banking facilities activity	Providing facilities of all kinds, providing advances of all kinds, calculating interests, collecting the values of advances from customers.
4	Remittance activity	Discounting remittances and bills of exchange, calculating interest, collecting the values of commercial and financial papers and their interests.
5	Loan activity	Providing loans of all kinds, short and long-term, calculating interest, collecting loan values from customers.
6	Auto activity	Providing loans related to the purchase of cars, calculating the interests, collecting the values of car loans from customers.
7	Subjective activity	Carrying out all the work related to employees in the bank, including bonuses, promotions, and all other administrative orders.
8	Treasury activity	Keeping cash, keeping remittances, bills of exchange, bonds and contracts, receiving and paying cash for all sections of the bank.
9	Accounting activity	Carrying out manual and electronic accounting work, compiling accounting data, preparing trial balance and final accounts.
10	Bank management activity	Carrying out all work related to the implementation of the bank's policies and managing its affairs, supervising the rest of the departments, and supervising the work.

Source: Prepared by researchers based on bank data and interviews with its employees.

It is noted from the above table that the main activities of the bank in the research sample are ten activities that were practiced during the year to achieve the various objectives of the bank.

The second step: Determining the resources in activities: During this step, the actual resources used in each of the main activities of the research sample bank are determined, which can be calculated according to the following equation: **Actual resources used in each activity = (number of working days during the year * number of employees x number of daily working hours) - number of regular and sick leave hours during the year.**

Actual resources used in each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 2: Actual Resources Used in each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Number of actual working days during the year (1)	Number of employees (2)	Number of daily working hours (3)	Hours of regular and sick leave (4)	Actual working hours (actual resources used) (1*2*3)-(4) = (5)
1	Current accounts activity	260	5	8	88	10312
2	Savings accounts activity	260	4	8	56	8264
3	Banking facilities activity	260	4	8	112	8208
4	Remittance activity	260	3	8	16	6224
5	Loan activity	260	5	8	48	10352
6	Auto activity	260	6	8	72	12408
7	Subjective activity	260	4	8	32	8288
8	Treasury activity	260	7	8	120	14440
9	Accounting activity	260	4	8	40	8280
10	Bank management activity	260	3	8	24	6216

Source: Prepared by researchers based on bank data.

It is evident from the above table that the lowest value of the actual resources used was for the activity of the bank's management, which amounted to (6216) hours, while the highest value of these resources was for the activity of the treasury, which amounted to (14440) hours. Research, which can assist management in making necessary decisions about bottlenecks in some activities.

The third step: Determining the actual loading rate in activities: The actual loading rate for each of the main activities of the research bank is determined, which can be calculated according to the following equation: **Actual load rate per activity = Actual resources used per activity ÷ Quantity of actual cost driver for each activity.**

Actual loading rate for each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 3: Actual Loading Rate for each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Actual resources used (1)	Cost driver type	Quantity of actual cost driver (2)	Actual load rate 1÷2 = (3)
1	Current accounts activity	10312	Number of customers	4312	2.391 hours/customer
2	Savings accounts activity	8264	Number of customers	3524	2.345 hours/customer
3	Banking facilities activity	8208	Number of customers	871	9.424 hours/customer
4	Remittance activity	6224	Number of customers	902	6.900 hours/customer
5	Loan activity	10352	Number of loans	8955	1.156 hours/loans
6	Auto activity	12408	Number of loans	2788	4.451 hours/loans
7	Subjective activity	8288	Number of transactions	1573	5.269 hours/transaction
8	Treasury activity	14440	Number of customers	28559	0.506 hours/customer
9	Accounting activity	8280	Number of transactions	22466	0.369 hours/transaction
10	Bank management activity	6216	Number of transactions	20535	0.303 hours/transaction

Source: Prepared by researchers based on bank data and interviews with its employees.

It is evident from the above table that the lowest loading rate was for the bank management activity, which amounted to (0.303) hours/transaction, while the highest value was for the banking facilities activity, which amounted to (9.424) hours/customer.

Fourth step: Determining the actual costs of each activity: During this step, the direct and indirect costs of each activity will be determined. The direct costs of each activity in the research sample bank as follows:

Table 4: Direct Costs for each Activity in Rafidain Bank / Diwaniyah Branch

No.	Activities	Direct Costs
1	Current accounts activity	6788255
2	Savings accounts activity	5413008
3	Banking facilities activity	3899014
4	Remittance activity	5340423
5	Loan activity	1817067
6	Auto activity	6778115
7	Subjective activity	4002375
8	Treasury activity	6453018
9	Accounting activity	6886423
10	Bank management activity	3512067

Source: Bank records and statements during the year.

It turns out that the direct costs of the bank ranged between (1817067-6886423) dinars, and after determining the direct costs, the share of each activity will be determined from the indirect costs, and the indirect costs in the bank of the research sample during the year 2020 consist of indirect wages, fuel and oils, and extinction Buildings,

deterioration of furniture and equipment, deterioration of means of transportation, maintenance of buildings, maintenance of furniture and equipment, maintenance of means of transportation, stationery, travel, dispatch, supplies and errands, water, electricity and legal services. Ratios of distribution of indirect costs on the activities of Rafidain Bank / Al-Diwaniyah branch as follows.

Table 5: Ratios of Distribution of Indirect Costs on the Activities of Rafidain Bank / Al-Diwaniyah Branch

No.	Element of indirect costs	Amount of indirect costs	Allocated bases	Activities										
				Current %	Savings %	Facilities %	Remittances %	Loans %	Cars %	Autonomous %	Treasury %	Accounting %	Management %	Total %
1	Indirect wages	6715425	Number of employees	12	10	16	7	4	16	8	6	18	3	100
2	Fuels and oils	2550116	Space	10	14	12	8	5	17	9	4	15	6	100
3	Collapse of buildings	4200123	Building value	9	12	8	10	8	7	14	15	12	5	100
4	Depreciations of Assets	2176008	Value of assets	11	10	9	10	9	6	10	16	11	8	100
5	Depreciations of transportation	3523661	Value of transportation	12	9	13	12	8	8	9	14	11	4	100
6	Maintenance of building	423145	Space	10	14	12	8	5	17	9	4	15	6	100
7	Maintenance of assets	856129	Work hours	14	12	8	9	7	15	6	8	14	7	100
8	Maintenance of transport	1744904	Work hours	14	12	8	9	7	15	6	8	14	7	100
9	Stationery	2255214	Number of employees	12	10	16	7	4	16	8	6	18	3	100
10	Travel and dispatch	895427	Number of employees	12	10	16	7	4	16	8	6	18	3	100
11	Supplies and errands	1014675	Work hours	14	12	8	9	7	15	6	8	14	7	100
12	Water	2613774	Number of employees	12	10	16	7	4	16	8	6	18	3	100
13	Electricity	4766453	Space	10	14	12	8	5	17	9	4	15	6	100
14	Legal services	1344934	Number of transactions	15	13	10	8	12	17	7	5	10	3	100

Source: Bank records and statements during the year.

It is clear that the indirect costs in bank, the sample ranged between (423145-6715425) dinars, and it is noted that all activities benefited from the indirect costs that were spent during the year, this costs consist of indirect wages, fuel and oils, and extinction Buildings, deterioration of furniture and equipment, deterioration of means of transportation, maintenance of buildings, maintenance of furniture and equipment, maintenance of means of transportation etc. The indirect costs of each activity in the Rafidain Bank / Al-Diwaniyah branch as follows:

Table 6: Indirect Costs for each Activity in Rafidain Bank / Diwaniyah Branch

No	Element of indirect costs	Activities									
		Current	Savings	Facilities	Remittances	Loans	Cars %	Autonomous	Treasury	Accounting	Management
1	Indirect wages	805851	671543	1074468	470080	268617	1074468	537234	402926	1208777	201463
2	Fuels and oils	255012	357016	306014	204009	127506	433520	229510	102005	382517	153007
3	Collapse of buildings	378011	504015	336010	420012	336010	294009	588017	630018	504015	210006
4	Depreciations of Assets	239361	217601	195841	217601	195841	130560	217601	348161	239361	174081
5	Depreciations of transportation	422839	317129	458076	422839	281893	281893	317129	493313	387603	140946
6	Maintenance of building	42315	59240	50777	33852	21157	71935	38083	16926	63472	25389
7	Maintenance of assets	119858	102735	68490	77052	59929	128419	51368	68490	119858	59929
8	Maintenance of transport	244287	209388	139592	157041	122143	261736	104694	139592	244287	122143
9	Stationery	270626	225521	360834	157865	90209	360834	180417	135313	405939	67656
10	Travel and dispatch	107451	89543	143268	62680	35817	143268	71634	53726	161177	26863
11	Supplies and errands	142055	121761	81174	91321	71027	152201	60881	81174	142055	71027
12	Water	313653	261377	418204	182964	104551	418204	209102	156826	470479	78413
13	Electricity	476645	667303	571974	381316	238323	810297	428981	190658	714968	285987
14	Legal services	201740	174841	134493	107595	161392	228639	94145	67247	134493	40348
	Total Costs	4019704	3979013	4339215	2986227	2114415	4789983	3128796	2886375	5179001	1657258

Source: Prepared by researchers based on Table (5).

After determining the direct and indirect costs of each activity, the actual costs of each activity will be determined in Rafidain Bank / Al-Diwaniyah branch, as shown in the following table:

Table 7: Actual Costs Used in each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Direct costs (1)	Indirect costs (2)	Total costs 1+2 = (3)
1	Current accounts activity	6788255	4019704	10807959
2	Savings accounts activity	5413008	3979013	9392021
3	Banking facilities activity	3899014	4339215	8238229
4	Remittance activity	5340423	2986227	8326650
5	Loan activity	1817067	2114415	3931482
6	Auto activity	6778115	4789983	11568098
7	Subjective activity	4002375	3128796	7131171
8	Treasury activity	6453018	2886375	9339393
9	Accounting activity	6886423	5179001	12065424
10	Bank management activity	3512067	1657258	5169325

Source: Based on table No. (4) and table No. (6).

It turns out that actual costs used for the loan activity were (3931482) dinars, which is the lowest value. Either the actual costs used for the accounting activity were (12065424) dinars, which is the highest value among the costs of other activities.

The fifth step: determining the standard loading rate: During this step, the standard loading rate is determined for activities of the research sample bank during the year 2020, as shown by the following equation: **Standard load rate per activity = Actual resources planned for each activity ÷ Quantity of cost driver planned for each activity.**

The standard loading rate for each activity in Al-Rafidain Bank / Al-Diwaniyah branch as follows:

Table 8: Standard Loading Rate for each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Planned actual resources (planned working hours) (1)	Cost driver type	Quantity of planned cost driver (2)	Standard loading rate $1 \div 2 = (3)$
1	Current accounts activity	12000	Number of customers	5500	2,182 hours/client
2	Savings accounts activity	10000	Number of customers	3250	3,077 hours/customer
3	Banking facilities activity	9000	Number of customers	1400	6,429 hours/customer
4	Remittance activity	6000	Number of customers	1750	3,429 hours/customer
5	Loan activity	10000	Number of loans	9400	1,064 hours/loans
6	Auto activity	14000	Number of loans	3250	4,308 hours/loans
7	Subjective activity	8000	Number of transactions	2800	2.857 hours/transaction
8	Treasury activity	15000	Number of customers	25500	0.588 hours/customer
9	Accounting activity	9000	Number of transactions	24300	0.370 hours/transaction
10	Bank management activity	6000	Number of transactions	18750	0.320 hours/transaction

Source: Prepared by researchers based on bank data.

It is evident from the above table that the lowest loading rate was for the bank management activity, which amounted to (0.320) hours/transaction, while the highest value was for the banking facilities activity, which amounted to (6,429) hours/customer.

Step Six: Calculating the price deviation for each activity: The activity price deviation is calculated for flexible (variable) resources only because the amount of binding (fixed) resources is characterized by stability within the appropriate range, and since the research sample bank is a service unit, it does not include any flexible (variable) resources), so the price deviation is not calculated in this step.

The seventh step: Determine the costs of the resources used in each activity: In order to determine the costs of the resources used in each activity, the standard price for the resources of each activity must be determined, as shown by the following equation: **Standard price for each activity's resources = Planned budgeted costs ÷ Planned hours of work.**

The standard price for the resources of each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 9: The Standard Price for the Resources of each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Budgeted costs (1)	Planned working hours (2)	Standard price for each activity's resources $1 \div 2 = (3)$
1	Current accounts activity	12575000	12000	1047.917
2	Savings accounts activity	9766000	10000	976.600
3	Banking facilities activity	8134000	9000	903.778
4	Remittance activity	9525000	6000	1587.500
5	Loan activity	4550000	10000	455.000
6	Auto activity	12500000	14000	892.857
7	Subjective activity	8675000	8000	1084.375
8	Treasury activity	7545000	15000	503.000
9	Accounting activity	10680000	9000	1186.667
10	Bank management activity	6335000	6000	1055.833

Source: Prepared by researchers based on bank data.

It can be seen from the above table that the highest standard price was for the loan activity, which amounted to (455,000) dinars / hour, or the lowest standard price was for the remittance activity, which amounted to (1587,500) dinars / hour.

The costs of the binding resources used for each activity of the research sample bank can be calculated through the following equation: **Costs of binding resources used = Amount of standard binding resources * Standard price.**

The costs of the binding resources used for each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 10: The Costs of Binding Resources Used for each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Actual production quantity (1)	Standard load rate (2)	Quantity of standard resource 1*2=(3)	Standard price (4)	Costs of resources used 3 * 4 = (5)
1	Current accounts activity	4312	2.182	9408.784	1047.917	9859625
2	Savings accounts activity	3524	3.077	10843.348	976.600	10589614
3	Banking facilities activity	871	6.429	5599.659	903.778	5060849
4	Remittance activity	902	3.429	3092.958	1587.500	4910071
5	Loan activity	8955	1.064	9528.12	455.000	4335295
6	Auto activity	2788	4.308	12010.704	892.857	10723841
7	Subjective activity	1573	2.857	4494.061	1084.375	4873247
8	Treasury activity	28559	0.588	16792.692	503.000	8446724
9	Accounting activity	22466	0.370	8312.42	1186.667	9864075
10	Bank management activity	20535	0.320	6571.2	1055.833	6938090

Source: Organizing and arranging the researchers.

It turns out that binding resources used for the loan activity were the lowest value of (4335295) dinars, either the costs of the binding resources used for the car activity were the highest value and amounted to (10723841) during the research year.

The eighth step: Calculating the quantity deviation (efficiency) for each activity: The quantity deviation (efficiency) is calculated for each activity of the research sample bank through the following equation: **Deviation of quantity (efficiency) per activity = budgeted planned costs per activity - actual costs per activity.**

The deviation of quantity (efficiency) for each activity in Rafidain Bank / Al-Diwaniyah branch as follows:

Table 11: Deviation of Quantity (Efficiency) for each Activity in Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Budgeted costs (1)	Actual costs (2)	Variance of quantity (efficiency) for each activity 1-2 = (3)
1	Current accounts activity	12575000	10807959	1767041 Fav.
2	Savings accounts activity	9766000	9392021	373979 Fav.
3	Banking facilities activity	8134000	8238229	-104229 Unfav.
4	Remittance activity	9525000	8326650	1198350 Fav.
5	Loan activity	4550000	3931482	618518 Fav.
6	Auto activity	12500000	11568098	931902 Fav.
7	Subjective activity	8675000	7131171	1543829 Fav.
8	Treasury activity	7545000	9339393	-1794393 Unfav.
9	Accounting activity	10680000	12065424	-1385424 Unfav.
10	Bank management activity	6335000	5169325	1165675 Fav.

Source: prepared by researchers Table No. (7).

It turns out that quantity deviation (efficiency) was appropriate for seven activities, namely, current accounts, savings accounts, remittances, loans, cars, self-management of the bank. In order to clarify the real reasons for making this deviation inappropriate in some activities and the need to take corrective measures in this regard.

The ninth step: Determining productivity index: For purpose of calculating the productivity of each activity of the research sample bank, it is necessary to calculate the deviation of quantity (efficiency) and deviation of effectiveness, as for the deviation of quantity (efficiency), it was calculated in the previous step. The difference between the costs of the obligatory resources used and the costs planned in the budget for each activity of the research sample, as shown by the following equation: **Effectiveness variance for each activity = Costs of committed resources used for each activity - Planned budgeted costs for each activity**. The effectiveness deviation was appropriate for the activities of savings accounts, treasury and bank management. As for the rest of the activities, the deviation of their quantity was inappropriate due to the high costs planned in the budget over the cost of the binding resources used.

The deviation of effectiveness for each activity in the Rafidain Bank / Al-Diwaniyah branch as follows:

Table 12: Deviation of Effectiveness for each Activity in Al-Rafidain Bank / Al-Diwaniyah Branch

No.	Activities	Costs of resources used (1)	Budgeted costs (2)	Variance of effectiveness for each activity = 1-2 (3)
1	Current accounts activity	9859625	12575000	-2715375 Unfav.
2	Savings accounts activity	10589614	9766000	823614 Fav.
3	Banking facilities activity	5060849	8134000	-3073151 Unfav.
4	Remittance activity	4910071	9525000	-4614929 Unfav.
5	Loan activity	4335295	4550000	-214705 Unfav.
6	Auto activity	10723841	12500000	-1776159 Unfav.
7	Subjective activity	4873247	8675000	-3801753 Unfav.
8	Treasury activity	8446724	7545000	901724 Fav.
9	Accounting activity	9864075	10680000	-815925 Unfav.
10	Bank management activity	6938090	6335000	603090 Fav.

Source: Prepared by researchers based on tables (10) and (11).

It is noted from the above table that effectiveness deviation was appropriate for the activities of savings accounts, treasury and bank management. As for the rest of the activities, the deviation of their quantity was inappropriate due to the high costs planned in the budget over the cost of the binding resources used. The productivity of each activity in Al-Rafidain Bank / Al-Diwaniyah branch as follows:

Table 13: Productivity of each Activity in Rafidain Bank / Diwaniyah Branch

No.	Activities	Variance of quantity (efficiency) (1)	Variance of effectiveness (2)	Productivity of each activity 1 + 2 = (3)
1	Current accounts activity	1767041	-2715375	-948334
2	Savings accounts activity	373979	823614	1197593
3	Banking facilities activity	-104229	-3073151	-3177380
4	Remittance activity	1198350	-4614929	-3416579
5	Loan activity	618518	-214705	403813
6	Auto activity	931902	-1776159	-844257
7	Subjective activity	1543829	-3801753	-2257924
8	Treasury activity	-1794393	901724	-892669
9	Accounting activity	-1385424	-815925	-2201349
10	Bank management activity	1165675	603090	1768765

Source: Prepared by researchers based on tables (11) and (12).

It is clear from the above table, that the activities of savings accounts and loans, the management of the bank, have achieved positive productivity by (1197593), (403813) (1768765) dinars, respectively. As for the rest of the activities, they achieved negative productivity during the year 2020, and the reason for the negative productivity is due to most of the activities. The research sample bank has many stumbling blocks in the repayment of some debts by some borrowers, especially car loans, so the bank's management must ensure that its strategies are implemented correctly in order to achieve the desired goals.

After applying the performance-based activities-based costing system (PF-ABC) in the bank in the research sample during the year 2020, it became clear that this system can help the bank's management in accurate measurement of costs, especially indirect costs, and for each of the bank's activities, and on the other hand, This system gives important indicators related to efficiency, effectiveness and productivity, through which it is possible to measure and evaluate performance, and thus take appropriate measures in order to improve performance, and thus the research hypothesis has been proven.

Conclusions & Recommendations

1. Conclusions

1. PFABC system is a hybrid system for measuring indirect costs and evaluating performance. It takes advantage of the advantages of the (ABC) and (TDABC) systems and thus helps provide a mixture of appropriate information for making many administrative decisions.
2. PFABC system is considered a good tool for planning, evaluating performance and allocating costs, because it can measure some deviations such as efficiency deviation, effectiveness deviation, etc., and it was also able to overcome most of the shortcomings that faced the work of the (ABC) and (TDABC) systems for that. It is considered better.
3. The (PFABC) system helps in accurately measuring the cost, by following an appropriate method for allocating indirect costs to cost objectives.
4. The (PFABC) system helps in measuring the efficiency and effectiveness of the performance of each activity of the economic unit to help measure productivity and take the necessary decisions to improve performance.
5. There is a possibility to apply the performance focused activity based costing (PFABC) in Al-Rafidain Bank / Al-Diwaniyah branch. It helps accurately costs measuring of the health service, as well as helping to improve performance.

2. Recommendations

1. The necessity of educating the top managements of Iraqi banks of the importance of adopting and applying modern management accounting methods, especially the (PFABC) system, in response to the rapid and increasingly complex environmental changes day by day.
2. Continuing studies that show the advantages of banks using the (PF-ABC) system, especially those that show the impact on measuring both cost and performance.
3. The need for professional associations and Iraqi university professors to pay attention to modern management accounting systems, such as the (PF-ABC) system, by holding workshops for bank managers to introduce them to the benefits of applying the (PFABC) system, and highlighting the importance of managerial accounting and its systems and their role in providing Information needed to make decisions.
4. The necessity of educating shareholders and those dealing with companies working in them, of the importance of banks applying modern administrative accounting methods, especially the (PFABC) system.
5. Iraqi banks in general and Al-Rafidain Bank / Al-Diwaniyah branch in particular depend on the methodology specified in this research in order to apply the (PFABC) system to help accurately measure the cost of banking service and improve performance.

References

- Al-Hamrouni, M.M.A. (2015). *A proposed framework for applying the costing system based on performance-based activity in the flexible production environment to improve competitive performance*. PhD thesis in Accounting, Faculty of Commerce, Suez Canal University.
- Alroqy, F. (2020). The Factors Influencing Cost and Management Accounting Practices in Manufacturing in Saudi Stock Exchange. *Journal of Accounting Research*, 4, 1–49.

- Al-Shibli, S.A.M. (2017). *Measuring costs based on performance-based activity to improve profitability*. Master's thesis in Accounting, College of Administration and Economics, University of Al-Qadisiyah.
- Al-Waeli, A.A.K.A. (2020). *A proposed model for the use of cost based on performance-based activity in the application of the sustainable balanced scorecard*. Master's thesis in Accounting, College of Administration and Economics, Wasit University.
- Babu, M.A., & Masum, M.H. (2019). Crucial Factors for the Implementation of Activity-Based Costing System: A Comprehensive Study of Bangladesh. *ABC Research Alert*, 7(1), 20–27.
- Carroll, N., & Lord, J.C. (2016). The Growing Importance of Cost Accounting for Hospitals. *Journal of Health Care Finance*, 171–185.
- Sarokolaei, M.A., Bahreini, M., & Bezenjani, F.P. (2013). Fuzzy performance focused activity based costing (PFABC). *Procedia-Social and Behavioral Sciences*, 75, 346–352.
- Drury, C. (2018). *Management and Cost Accounting*. 10th edition, Hampshire, United Kingdom: Engage Learning.
- Kuhait, J., & Megabal, D. (2020). A survey of factors influencing the choice of product costing systems in UK organizations. *Management Accounting Research*, 18, 4081–4099.
- Mujbil, H.M. (2020). *Using the Performance-Based Activity-based Costing Approach in Improving the Efficiency of Resource Use*. Master's Thesis in Accounting Techniques, College of Administrative Technology, Al Furat Al Awsat Technical University.
- Namazi, M. (2009). Performance-Focused ABC: A Third Generation of Activity-based Costing System. *Cost Management*, 23(5), 34–46.
- Namazi, M., & Hosseini, Z.S. (2020). Design and Empirical Testing of a Framework for Implementing PFABC Costing Systems. *Asia-Pacific Management Accounting Journal*, 15(3), 219–257.
- Numan, L.H. (2017). *The Impact of the Activity-Based Costing System on the Quality of Accounting Information and Improving Performance*. PhD thesis in Accounting, Faculty of Commerce, Al-Nelain University, Sudan.
- Sarokolaei, M.A., Bahreini, M., & Bezenjani, F.P. (2013). Fuzzy Performance focused Activity based Costing (PFABC). *Procardia Social and Behavioral Sciences*, 75, 346–352.
- Soekardan, D. (2016). An Analysis of Activity Based Costing: Between Benefit and Cost for Its Implementation. *International Journal of Scientific & Technology Research*, 5(6), 334–339.
- Terungwa, A. (2013). Time-Driven Activity-Based Costing and Effective Business Management: Evidence from Benue State, Nigeria. *International Journal of Finance and Accounting*, 2(6), 297–306.
- Van, T.H., Thuy, L.T.T., & Nam, D.H. (2020). Determinants influencing cost system in Vietnam's public hospitals. *Accounting - Growing Science*, 6, 727–736.