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The Feasibility of Implementing Activity-Based Costing (ABC) in Samen Credit Institution

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Abstract: Activity-based costing helps manager to better understand activities and organization procedures in order to make more correct and accurate decisions. Existence of competitive market that has been created due to privatization policies in government through the establishment of financial institutions and private banks and also monetary policies in order to reduce credit interest rates has increased bank management's need for accurate information about costs. Large volume, diversity and complexity of services. Increasing overhead costs of financial institutions and banks and also the fact that cost of services presented to the customer by this institution are not clear and transparent have duplicated the necessity to use activity-based costing to calculate cost of each service. This research examines the feasibility of implementing activity-based costing system in Samen Credit Institution and recognizing limitations and challenges and also presenting a pattern to implement and establish this system in financial or credit institutions and banks. The current research has been defined in the framework of a main hypothesis and four secondary hypotheses and it has been tested through examining circulars and instructions, observation and questionnaires among experts of the institution. Student's t-test is applied for statistical test and obtained results support the hypotheses of research indicating the feasibility of implementing activity-based costing and recognizing its components.

Key words: Costing, traditional costing, activity-based costing, cost pool, cost driver, responsibility centers

INTRODUCTION

Changes and developments in internal and external conditions of enterprises and organizations performance and effects of factors such as intensification of competition having importance, applying activities management and essentiality of responding to customer's need through suitable combination of quality and expected revenue have radically transformed the responsibility and role of costing systems. Result of performed studies and researches show that both groups of producers and consumers of information about cost of products are dissatisfied with current costing systems and the allocation of overhead costs method used by institutions and services are somehow effective on this dissatisfaction. Anyway, most of managers consider that estimation and prediction of long-term costs including allocation of overhead costs to product costs is a useful and acceptable work they could do. Activity-based costing system is the result of management accountants efforts in order to meet new informational needs in the age of information and recognizing value added activities and consequently, elimination of worthless activities and also increase in costing accuracy (Mays and Sweeney, 1994). In addition to correctly measuring costs, this system also is able to present useful information about the performance of organization business processes. Preparing non-financial information about activities as well as financial ones has made activity-based costing system to a powerful tool applied to improve organizations business (Hassan, 1960). This system, is able to meet many needs of world class companies in strengthening competitive position, achieving sustainable customer satisfaction and profit expected because of having advantages such as: the ability to concentrate on customers, recognizing opportunities, economic establishment and encouraging reforms. Activity-Based Costing (ABC) claims that produced products and services are not direct consumer of resources but the consumer of activities (Guire *et al*., 1998). Hence activity-based costing is the cost sharing system based on investigation and research in a way that, cost drivers are identified through analysis of economic unit and operated processes.

The necessity of research about applying activity-based costing, requires aspects of certain conditions which are classifiable as below titles. The business method chosen by organization's management and their awareness of ABC benefits in order to meet informational needs from these choices. Existence of necessary data to design and implement activity-based costing system inside the organization due to lack of

sufficient knowledge about required conditions to apply activity-based costing in companies under test and also lack of a suitable pattern to design an Activity-Based Costing System in Iran.

Activity-based costing, helps manager to better understand activities and organization procedures in order to make more correct and accurate decisions (Smith and Harper, 2001). Technological advances, increase in the quality and quantity of information and scope and diversity in services has caused vast changes in banking industry and its environmental circumstances and has made using efficient information systems like activity-based costing to an increasing need. The current research, states an activity-based costing pattern in particular circumstances of financial institutions and banks and explains factors and conditions necessary for implementing and running this system and its obtained results (Azizi, 1959). Evaluation of current banking system in the country, shows that active banks inside the country don't have a modern and applicable costing system and this indicates weakness in application of management accounting system in banks. This research tries to examine the feasibility of implementing activity-based costing in Samen Credit Institution and to identify existing challenges and obstacles. Despite intensely competitive market among enterprises and banks, it seems that the efficient management of costs through meeting customer's needs with low cost and high desirability, planning and effective control on costs and continuous improvement is an integral component in survival and promotion in current competitive environment. Traditional costing method is inefficient in determining cost of services by incorrectly sharing overhead costs. Moreover, the issue of existing a cause-effect relationship between overhead costs and the basis of their preparation is less considered in traditional costing systems which might cause reduction of accuracy in calculating the cost of products. Hence, below items can be gained by using activity-based costing:

- Identifying and eliminating activities without value added
- Reduction in costs
- Identifying and increasing focus on activities with most profitability
- Modifying basic processes of organization
- Increase in efficiency
- Increase in profitability
- Customers satisfaction with the services and facilities granted
- Providing part of transparent and accurate information in order to gain Total Quality Management (TQM)
- Controlling organization operations and more efficient planning in the future

Regulatory requirements about cost of services presented by banks and using a more accurate costing system can offer more accurate profit margin related to any service and the bank management can diversify services with respect to that margin profit and direct activities to make more profit considering the determined rate and act more actively in new competitive markets to sustain (Omid, 1967; Talebi, 1972).

Activity-based costing emphasizes on the activity as a cost subject. Because, the activity is the main factor of cost creation. In this system, costs are first allocated to activities and then to other subjects (such as products, services, department, etc.). This system analyses the reason of cost and activity creation (Fartoukzadeh, 1963).

The basic question of this research is whether there are preconditions and pre-requirements for implementing and establishing activity-based costing in Samen Credit Institution or not.

MATERIALS AND METHODS

Current research is an "Applied research" based on the purpose and is a "Case study descriptive" one based on the method of gathering data. Following methods are applied to gather data in this research:

- Using statistics and information from headquarters of the institution
- Using information and statistics from branches of the institution

Related literature to establishing activity-based costing system in financial services and credit institutions are done through desk studies, internet websites and study. Circulars, regulations, guidelines are examined to evaluate current status of Samen Credit Institution in order to implement activity-based costing system. Survey method is used to adjust and present questionnaire to managers of branches and institution's experts in order to obtain necessary information for testing hypotheses.

Statistical population is Samen Credit Institution (which holds 3.6% of total liquidity of the country solely) to examine the feasibility of implementing activity-based costing in this scope. After evaluation among informed experts related to study subject, the total number of 58 experts was determined. Considering that, this research is a case study of Samen Credit Institution, the statistical sample is equal to statistical population and in fact, a census has been done. Data collection tool has been questionnaire which is naturally a closed questionnaire. It is also a questionnaire with interview to avoid lack of

understanding questions by respondents. Questions are adjusted based on Five point likert scale which include 5 range of very much, much, medium, low and very low. Its validity was obtained by professors and its stability obtained 0.71 by Cronbach's alpha coefficients.

RESULTS AND DISCUSSION

Data analysis

First hypothesis: Services presented in branches of Samen Credit Institution are separable and identifiable based on Activity-Based Costing System (Table 1):

- H_0: $\mu \leq 3$ (the mean of responds is <3)
- H_1: $\mu > 3$ (the mean of responds is >3)

Test results of descriptive statistics show that the value of sample mean is >3. According to test results of Table 2, the value of t-statistic are numbers between 4.520-7.239, the degree of freedom (df) is 37 and Sig. (Statistical significance) is 0. Considering that the upper and lower limits are positive, the mean is higher than the tested value. According to this and with respect to that the sig. value is <5% for all questions, the hypothes is H_0 is rejected and the opposite hypothesis, respond's mean >3, is accepted. Therefore, offered services in branches of Samen Credit Institution are separable and identifiable based on Activity-Based Costing System.

Second hypothesis: Cost pools of performed activities in branches of Samen Credit Institution are separable and identifiable based on Activity-Based Costing System (Table 3):

- H_0: $\mu \leq 3$ (the mean of responds is <3)
- H_1: $\mu > 3$ (the mean of responds is >3)

Results of descriptive statistics test show that the value of sample mean is >3. According to test results of Table 4, the value of t-statistic are numbers between 11.68-12.08, the Degree of Freedom (df) is 37 and Sig. (Statistical significance) is 0. Considering that the upper and lower limits are positive, the mean is higher than the tested value. According to this and with respect to that the sig. value is <5% for all questions, the hypothes is H_0 is rejected and the opposite hypothes is respond's mean >3 is accepted. Therefore, cost pools of performed activities in branches of Samen Credit Institution are separable and identifiable based on Activity-Based Costing System.

Third hypothesis: The basis for allocation of costs to activity pools in branches of Samen Credit Institution is identifiable based on Activity-Based Costing System) (Table 5):

- H_0: $\mu \leq 3$ (the mean of responds is <3)
- H_1: $\mu > 3$ (the mean of responds is >3)

Table 1: Descriptive statistics of population mean-first hypothesis

Variables	N	Mean	SD	SE
Ability to being listed	38	3.97	0.85400	0.13900
Uniformity of procedures	38	3.92	0.78400	0.12700
Non-personalized behavior	38	3.82	0.83400	0.13500
Instructions	38	3.87	0.87500	0.14200
Internal controls	38	4.00	0.90000	0.14600
Information	38	3.74	1.00500	0.16300
X_1 (combination of first hypothesis variables)	38	3.88	0.44029	0.07142

Table 2: Statistical inference of population mean test first hypothesis

	Test value = 3					
					Confidence interval of the difference 95%	
Variables	t-test	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Ability to being listed	7.030	37	0.000	0.97400	0.6900	1.2500
Uniformity of procedures	7.239	37	0.000	0.92100	0.6600	1.1800
Non-personalized behavior	6.033	37	0.000	0.81600	0.5400	1.0900
Instructions	6.117	37	0.000	0.86800	0.5800	1.1600
Internal controls	6.846	37	0.000	1.00000	0.7000	1.3000
Information	4.520	37	0.000	0.73700	0.4100	1.0700
X_1 (Combination of first hypothesis variables)	12.404	37	0.000	0.88596	0.7412	1.0307

Table 3: Descriptive statistics of population mean-second hypothesis

Variables	N	Mean	SD	SE mean
Separating Pools	38	4.2600	0.64400	0.10500
Listing Pools	38	4.3400	0.70800	0.11500
X_2 (Combination of second hypothesis variables)	38	4.3026	0.51385	0.08336

Table 4: Statistical inference of population mean test-second hypothesis

	Test value = 3					
					Confidence interval of the difference 95%	
Variables	t-values	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Separating pools	12.08	37	0.000	1.26300	1.0500	1.4700
Listing pools	11.68	37	0.000	1.34200	1.1100	1.5700
X_2 (combination of second hypothesis variables)	15.62	37	0.000	1.30263	1.1337	1.4715

Table 5: Descriptive statistics of population mean the third hypothesis

Variables	N	Mean	SD	SE mean
Schedule of activities	38	4.1300	0.77700	0.12600
Time of equipment	38	4.1800	0.76600	0.12400
Software transactions	38	3.9700	0.82200	0.13300
X_3 (Combination of third hypothesis variables)	38	4.0965	0.64332	0.10436

Table 6: Statistical inference of population mean test-third hypothesis

	Test value = 3					
					Confidence interval of the difference 95%	
Variables	t-values	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Schedule of activities	8.977	37	0.000	1.13200	0.8800	1.3900
Time of equipment	9.530	37	0.000	1.18400	0.9300	1.4400
Software transactions	7.306	37	0.000	0.97400	0.7000	1.2400
X_3 (Combination of third hypothesis variables)	10.507	37	0.000	1.09649	0.8850	1.3079

Table 7: Descriptive statistics of population mean-fourth hypothesis

Varable	N	Mean	SD	SE mean
Activity drivers	38	4.08	0.818	0.133

Results of descriptive statistics test show that the value of sample mean is >3. According to test results of Table 6, the value of t-statistic are numbers between 7.306-9.530, the degree of freedom (df) is 37 and Sig. is 0. Considering that the upper and lower limits are positive, the mean is higher than the tested value. According to this and with respect to that the Sig. value is lower than 5% for all questions, the hypothes is H_0 is rejected and the opposite hypothesis, respond's mean >3 is accepted. Therefore, the basis for allocation of costs to activity pools in branches of Samen Credit Institution is identifiable based on Activity-Based Costing System.

The third hypothesis, states that allocation of costs to activity pools can be done according to measuring activity work and time based on the time of each activity and amount of using necessary equipment in presenting activities. Considering that in branches of Institution, activities related to two groups of loans and deposits are performed by two separate departments and parts, costs can be assigned to activity pools because of work separation at each department so the third hypothesis is accepted.

Hypothesis four: Activity drivers of each activity pool in branches of Samen Credit Institution, are separable and identifiable based on Activity-Based Costing System (Table 7):

- H_0: $\mu \leq 3$ (the mean of responds is ≤ 3)
- H_1: $\mu > 3$ (the mean of responds is >3)

Results of descriptive statistics test show that the value of sample mean is >7. According to test results of Table 8, the value of t-statistic is 8.130, the degree of freedom (df) is 37 and Sig. is 0. Considering that the upper and lower limits are positive, the mean is higher than the tested value. According to this and with respect to that the sig. value is <5% for all questions, the hypothes is H_0 is rejected and the opposite hypothesis, respond's mean >3 is accepted. Therefore, activity drivers of each activity pool in branches of Samen Credit Institution, are separable and identifiable based on Activity-Based Costing System (Table 9).

According to, first hypothesis test, it's possible to separate and identify institution services. It can be concluded that there are little personalized behavior of activities related to each service and there is uniformity of procedure inside credit institution. Therefore, activities related to each service can be separated by preparing a documented list of credit institution services.

According to, the second hypothesis test and also the opinion of respondents, it's possible to identify, separate, classify and list pools of service's activities.

Table 8: Statistical inference of population mean test–fourth hypothesis

	Test value = 3					
					Confidence interval of the difference 95%	
Variable	t-value	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Activity drivers	8.130	37	0.000	1.079	0.81	1.35

Table 9: Comparison of current interest-free deposit cost by traditional method and activity-based costing method

Method	Traditional (%)			Activity-based costing (%)		
Account name	Cost	Overhead cost	Direct cost of money	Cost	Overhead cost	Direct cost of money
Current interest-free deposit	1.19	1.19	0.0	6.28	6.28	0.0%

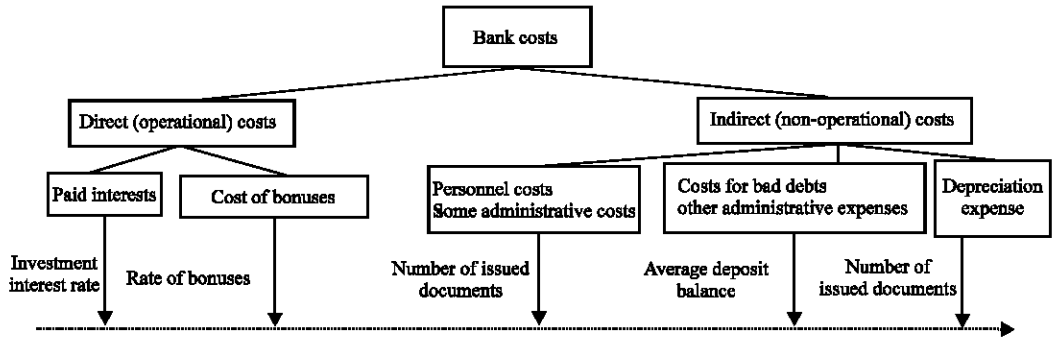

Fig. 1: The way of assigning bank costs to each type of deposits

According to the third hypothesis test and based on the opinion of respondents, the time of each activity and amount of using equipment are measurable. Moreover, the software existing in branches of credit institution, is able to report the number of transactions for each service. So, costs of each service can be assigned to its activity pools. According to the fourth hypothesis test it's possible to separate and identify activity drivers. Therefore, the measurable output of each activity is identifiable as activity measurement (driver). It can be said that the proposed model which Refah Bank has used by rate allocation method based on issued documents for costing deposits has adjusted the number of documents by assigning weights to documents related to types of deposits and with respect to that the necessary amount of activity to adjust and issue various documents is different. It also used weights with amount of complexity and time-consuming application in order to measure amount of each branch's work which specifies the way of assigning costs of bank to each type of deposits according to Fig. 1. This method is also used in Samen Credit Institution.

CONCLUSION

Obtained result in credit institution and proposed model of Refah Bank was identical based on having significant difference in cost of services using traditional costing method and activity-based costing. Hence, according to hypotheses of this research, offered services (first hypothesis) activities pools (second hypothesis), principles of assigning costs to activity pools (third hypothesis) and finally, activity drivers of each activity pool (fourth hypothesis) are separable and identifiable in branches of Samen Credit Institution. Therefore, it can be concluded that establishing a Activity-Based Costing System for Samen Credit Institution is feasible.

SUGGESTIONS

It's suggested to prepare a complete list of credit institution services and related activities to offering those services, due to acceptance of the first hypothesis saying that credit institution's services are separable and identifiable.

It's suggested to determine homogeneous activities with similar activity measurements for each activity, due to acceptance of the second hypothesis saying that credit institution's activity pools of services are separable, identifiable and classifiable.

It's suggested to calculate necessary time and equipment for each activity due to acceptance of the third hypothesis, saying that it's possible to identify the basis of cost allocation to activity pools.

It's suggested to implement this system due to feasibility of using activity-based costing information in order to accurately compare the performance of branches and create a competitive space and also determining various markets for bank services.

It'ssuggested that the charge for services, should be proportional to services cost due to different costs of current interest-free deposit accounts in Samen Credit Institution by traditional method and activity-based costing. There should be a review and re-examination on set of services in credit institution and their combination in order to make more profit.

REFERENCES

Azizi, D.A., 1959. The Association of Certified Accountants (AICPA): Activity Based Costing. Publications Audit Office, January New South Wales, Australian.

Fartoukzadeh, H., 1963. Activity-based costing based on time-management. Site Selection Magazine, Michigan, USA.

Guire, M.B.L., M.C. Kocakulah and L.G. Wagers, 1998. Implementing activity-based management in the banking industry. J. Perform. Manage., 11: 18-33.

Hassan, S., 1960. Costing Principles and Cost Accounting Methods. Vol. I, Publications of Audit Office, January New South Wales, Australian.

Mays, J. and R. Sweeney, 1994. Activity based costing in banking: A case study. Manage. Accounting Mag., 68: 19-25.

Omid, J., 1967. ABC system assessment and comparison with the traditional system and its impact on financial variables (Bistoun sugar factory). Master Thesis, Islamic Azad University, Science and Research Branch, Tehran, Iran.

Smith, J.T. and C. Harper, 2001. AMIfs bank cost analysis model (BCAM) implementing activity-based cost management in a financial institution. J. Perform. Manage., 14: 16-60.

Talebi, G., 1972. Activity-based costing booklet. Seed and Plant Improvement Institute, Iran.