

Evaluating the Performance of Public and Private Banks and Providing Suggestions for Improving the Performance of Them (Case study: Melli, Agriculture, Pasargad and Parsian Bank of Qom)

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ABSTRACT

In this study use the CAMEL model which includes dimensions such as capital adequacy, asset quality, management quality, earning performance and liquidity to evaluate and compare the financial performance of public and private banks. Statistical sample includes Melli and Agriculture bank which are public and Pasargad and Parsian bank which are private. The results show that there is a significant difference between private and public banks in terms of liquidity and earning performance and management quality. In terms of liquidity and earning performance the private banks have better performance but the public banks have better performance in terms of management performance. Also the result of testing the main hypothesis show there is no significant difference in the performance of public and private banks. Although the overall mean suggests the better performance of private banks, but this difference is not significant. So the private banks should try to improve their performance.

KEYWORDS: CAMEL model, Capital adequacy, Asset quality, Management quality, earning performance, Liquidity

1. INTRODUCTION

Today banks have a key role in all countries. And their policies and strategies affect economic development, employment, prices, national income, etc. (Kazemi, 2008;2). The operations of banks are known as one of the most important economic activity in the world. Any activity which requires investments and financial resources undoubtedly requires the involvement of banks and financial institutions (Haghighat and Nasiri, 137:2003). Thus banks have the central role in economy (Fethi & Pasioura, 2010:189). On the other hand, Managing of a country's financial system requires a variety of ways that enable financial institutions to identifying of management problems to be responsible for protecting the citizens and the entire system because existing problems due to poor management of bank, threaten the entire financial system of a country (Hunjak and Jakovčević, 2001:149). Achieving to the components of a strong and efficient banking system, achieving goals, efficient use of resources and operating efficiently have been considered for many years so it requires assessment of bank's performance (Teker et al, 2011:99). Evaluation of bank performance is very important for Bankers due to the need to protect the banking operations against continuous risks or due to gambling-incentives related to capital market (Hays et al, 2009:4). In addition, there are numerous studies on financial interventions and its effect on efficiency of economic growth and also other studies on bank failures and its relationship with systemic crisis which demonstrate the important of performance evaluation. Today, the bank performance has become a favorite subject for many stakeholders such as customers, investors and the general public (Jha & Hui, 2012:7602). There is a wide range of indicators of financial reports to evaluate financial performance. But the important criteria to determine the compatibility and health of a financial organization act as some mediators to measure profitability and liquidity of the organization. Among the various criteria; Basel Committee on Banking Supervision proposed the CAMEL¹ component to investigate financial organizations in 1988. Criteria for the CAMEL model (ADB, 2002:11). CAMEL model is a simple and appropriate model for managerial and financial assessment of organizations (Kouser & Saba, 2012:67).

It is classified as a modern approach to evaluate the performance (Nimalathasan, 2008:142). However, this method has been used more in foreign countries but in our country little efforts has been done to introduce this model and some banks use it to measure their performance. But it is not used as a formal method which Central Bank introduces it. So there is still a need for further investigation in this field. In this study the CAMEL model was used to measure and compare the financial performance of public and private commercial banks of Qom city. For this purpose we measure the dimensions of the CAMEL model such as capital adequacy, asset quality, management quality, earning performance and liquidity. Then by these result, we will decide about any significant differences in the performance of public and private banks. Finally we seek to answer this question: Is there a significant difference between public and private bank in terms of performance?

¹ : CAMEL: Capital adequacy, Assets quality, Management quality, Earnings, Liquidity

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1.1. The history of CAMEL model

This system has applied by National Credit Union Administration (NCUA) in October 1987 (Babar&Zeb, 2011:23). Also Federal Reserve Bank of America assesses its banks on a scale of one to five by using the CAMEL model components which is monitoring various aspects of bank's health. The rank 1 is the highest rank (strongest performance) and rank 5 is the lowest rank (weakest performance). Reliability, profitability and liquidity are the most important criteria for assessing the competency performance of a bank. Therefore, since 1988 the Basel Committee on Banking Supervision has stated that the CAMEL model is necessary to evaluate financial institutions (Abassgholipour, 2010; 29). In 1997 another component was added to the CAMEL model which was called market risk (S). However, most of developing countries use CAMEL instead of CAMELS to evaluate the performance of financial organizations (Baral, 2005:42). It means they don't consider the market risk. Given that our country is a developing country so in this study we used the CAMEL model.

CAMELS' framework is a common approach to evaluate the financial health of the organization. This system was created by U.S. bank supervising organizations (Jaffar & Manarvi, 2011:62). Also the Asian Development Bank, African Development Bank, Central bank of America (the Federal Reserve Bank) and the World Bank use these parameters to evaluate the performance of financial organizations (Abassgholipour, 2010, 29). In addition, the International Monetary Fund use compressed index of financial institutions to evaluate the accuracy of the financial systems of the members (Sangmi & Nazir, 2010:40).

Testing CAMELS system needs information from various sources such as balance sheet financing, financing sources, data macroeconomic, budget and cash flow forecasting, staffing and operation. In this model, the overall condition of the banks and their strengths and weaknesses are assessed (Babar & Zeb, 2011:23). Many studies using the CAMEL model has been accomplished to performance evaluation of banks which are described in Table 1.

Table 1: Research conducted using the CAMEL model

Research title	Year	Researcher
Assessing the health of commercial banks using the CAMEL model. Case Study Joint venture banks in Nepal	2005	Baral
CAMELS and performance appraisal; a leading way	2007	Wirnkar & Tanko
The comparison study on financial performance of banks in Bangladesh using classification system of CAMEL.	2008	B. Nimalathasan
Assessing credit risk of commercial banks based on VGA and CAMEL	2009	Yang& Zhao
Analyzing banks in India, CAMEL approach	2010	Kaur
Efficiency ratio and bank performance (Using the CAMEL approach)	2010	Hays et al.
Evaluating performance before and after the nationalization of the banks in Pakistan by using CAMEL model	2011	Shar et al.
The CAMEL ranking system for banks in Pakistan	2011	Babar & Zeb
Evaluating the performance of the Turkish banks after the global crisis using CAMEL model	2011	Dincer et al.
Measuring the financial performance of banks using CAMEL model; comparing traditional, combined and Islamic banks of Pakistan.	2012	Kouser & Saba

1.2. The ways of calculating dimensions of CAMEL model

For measuring dimension in which more than a formula has been introduced; its geometric mean is used.

1- Capital adequacy ratio

Based on first provision of capital adequacy bylaw; the capital adequacy ratio is dividing initial capital (as defined in the bylaw relating to initial capital) by weighted total assets and the risk coefficients based on percentage (as defined in provision 5 of this bylaw) (Central Bank of the Islamic Republic of Iran, 2003:1). In fact capital adequacy indicates the financial strength of banks (Dincer et al, 2011:1532). Thus, capital adequacy is a term in which banks report to Central bank about their capital and risk management (Sadri, 2007:4).

Capital adequacy ratio

$$= \frac{\text{Initial capital}}{(\text{risk coefficient})(\text{ConversionRatio})\text{Below the line items} + (\text{risk coefficient})\text{Top of the line items}}$$

2- Asset quality

Asset quality of banks is directly related to with their financial performance. The primary focus of the asset quality analysis is on credit risk (Jegarasingam, 2006:4). Asian Development Bank (ADB) suggests the following scales to measure the asset quality (ADB, 2002:13-14).

- Loan loss provision ratio

$$\text{Loan loss provision ratio} = \frac{\text{Loan loss provision} \times 100}{\text{profitable assets mean}}$$

This ratio represents the reserve requirements in loan portfolio for present cycle.

- Portfolio in Arrears

$$\text{Portfolio in Arrears} = \frac{\text{Outstanding receivables} \times 100}{\text{Total receivables}}$$

This ratio measures deficiencies in the portfolio.

- Loan Loss Ratio

$$\text{Loan Loss Ratio} = \frac{\text{doubtful receivables costs} \times 100}{\text{Total receivables mean}}$$

This ratio represents the amount of irrecoverable loans in last cycle. Any loan which last more than a year; should be considered irrecoverable.

- Reserve Ratio

$$\text{Reserve Ratio} = \frac{\text{Loan loss ratio} \times 100}{\text{Total receivables}}$$

This ratio represents the reserves adequacy related to the portfolio. Loan loss reserve (reserve of doubtful receivables) is a reserve to cover potential loan losses.

3- Management quality

The other four components' performance of the CAMEL is associated with insight, ability, awareness, professionalism, honesty and integrity and competence of financial institutions manager. Several indicators can be used together as "integrity and competence of management". ADB offers per currency unit cost of loans which is an indicator for measuring management quality.

$$\text{per currency unit cost of loans} = \frac{\text{Operating cost}}{\text{Total loan payment}}$$

This ratio represents the efficiency of loans payment (depending on the currency).

4- earning performance

The capacity of profitability or earning maintains the financial health of an organization. ADB proposes the following indicators as indicators of financial institutions profitability (ADB, 2002:15).

- Return on Assets (ROA)

$$(\%) \text{ROA} = \frac{\text{After taxes net profit} \times 100}{\text{The average of total assets}}$$

- Return on Equity

$$(\%) \text{ROE} = \frac{\text{After taxes net profit} \times 100}{\text{The average of equity}}$$

- Interest-Spread Ratio

$$(\%) \text{Interest spread Ratio} = \frac{\text{The income of loan portfolio} \times 100(a)}{\text{The average of loan portfolio}(b)} - \frac{\text{Interest expense and other's} \times 100(c)}{\text{The average of loan}(d)}$$

- It is sum of total interests of loan portfolio and interests of other financial organizations. Also it contains discounts, commissions, other debts (payment in advance) and customers' taxes.
- It contains the average of customer loans, interbank loans and bank debts.
- It contains commissions and discounts, fees to buy stocks (brokerage), the debt accumulated by broker banks etc.
- Included in deposits and other borrowings (debt).

- Earnings-Spread Ratio

$$(\%) \text{Earning spread Ratio} = \frac{\text{Total revenue} - \text{non operating revenue} \times 100(a)}{\text{The average of portfolio}(b)} - \frac{\text{Interest expense and other's} \times 100(c)}{\text{The average of total resources}(d)}$$

- Include in loan portfolio, cash, banks debt, interbank loans, investments in government securities and other investments.
- Include in equity+ borrowing+ deposits.

- Intermediation Cost Ratio

(%) Intermediation Cost Ratio

$$= \frac{[\text{Total costs} - (\text{Interest expense} + \text{Fees, commission and the obligation transfer cost})] \times 100}{\text{The average of total assets}}$$

Financial intermediation costs refer to the gap between gross borrowing costs and net lending efficiency.

5- Liquidity

Controlling of cash is one of the most important responsibilities of bank managers. Liquidity and financial strength of a financial organization is directly influenced by the quality of the portfolio. As a result, financial analysts (investment ventures) must carefully analyze the quality of financial organizations portfolio based on accessibility and loan loss reserve provision. ADB offers the following ratios to measuring liquidity (ADB, 2002:16):

- The ratio of loans by deposits:

$$(\%) \text{the ratio of loans by deposits} = \frac{\text{loans}(\text{short} - \text{term loans and tradable securities}) \times 100}{\text{customers' deposits}}$$

- The ratio of loans by general and long term deposits:

$$(\%) \text{the ratio of loans by general and long term deposits} = \frac{\text{general and long term loans} \times 100}{\text{general and long term deposits}}$$

Research hypotheses

The main hypothesis

1. There is a significant difference between the public and private banks in five dimensions of CAMEL model.

Sub hypothesis

- 1) There is a significant difference between the public and private banks in capital adequacy.
- 2) There is a significant difference between the public and private banks in asset quality.
- 3) There is a significant difference between the public and private banks in management quality.
- 4) There is a significant difference between the public and private banks in earning performance.
- 5) There is a significant difference between the public and private banks in liquidity.

2. MATERIALS AND METHODS

2.1. Sample preparation

This study is an applicable and descriptive research. The statistical population is all of public and private banks of Qom in which we choose 4 banks as our sample. These four are Melli and Agriculture as public and Parsian and Pasargad as private bank. In order to collecting data for measuring five dimensions of CAMEL model; we refer to the banks' financial statements like balance sheets, profit and loss statements, explanatory notes of financial statements, tables which refer to loans, bank's debits and doubtful receivable. Since the data in this study have been collected from audit and official financial statements and documents of banks; so these data have adequate reliability and validity.

3. RESULTS AND DISCUSSION

3.1. The K-S test:

To investigate whether the data follow a normal distribution for each of the five models; the Kolmogorov-Smirnov test was used. The H₀ and H₁ are described as follow:

- H₀= Data have normal distribution
- H₁= Data don't have normal distribution

Table2) the result of K-S test

The CAMEL dimensions					
Liquidity	Earning performance	Management quality	Asset quality	Capital adequacy	
0/594	0/855	0/811	0/598	0/227	sig
AcceptH ₀	Result				

Based on table 2 which shows the result of K-S test; the significances of all dimensions are more than 0.05 so the H₀ hypothesis is accepted. Regarding to this table; with 95% confidence, we claim that the data for all dimensions have normal distribution.

3.2. Testing the main hypothesis:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in performance

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in performance

Table3: the result of t-test for the main hypothesis

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Accept H_0	0/472	Accept H_0 The variances are equal	0/286

Based on table 3 which shows the result of t-test; the significance is 0.472. The sig is more than 0.05 so with 95% confidence the hypothesis H_0 is accepted and we concluded that there is no significant difference between public and private bank in performance based on CAMEL dimensions.

Testing the sub hypotheses:

- The sub hypothesis 1:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in capital adequacy

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in capital adequacy

Table4: the result of t-test for the sub hypothesis 1

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Accept H_0	0/315	Reject H_0 The variances are not equal	0/047

In order to answer this question “Is there any significant difference between public and private bank in capital adequacy?” we use independent sample t-test. Based on table 4 which shows the result of t-test; the significance is 0.315. The sig is more than 0.05 so with 95% confidence the hypothesis H_0 is accepted and we concluded that there is no significant difference between public and private bank in capital adequacy.

- The sub hypothesis 2:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in asset quality

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in asset quality

Table5: the result of t-test for the sub hypothesis 2

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Accept H_0	0/225	Accept H_0 The variances are equal	0/175

In order to answer this question “Is there any significant difference between public and private bank in asset quality?” we use independent sample t-test. Based on table 5 which shows the result of t-test; the significance is 0.225. The sig is more than 0.05 so with 95% confidence the hypothesis H_0 is accepted and we concluded that there is no significant difference between public and private bank in asset quality.

- The sub hypothesis 3:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in management quality

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in management quality

Table6: the result of t-test for the sub hypothesis 3

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Reject H_0	0/004	Accept H_0 The variances are equal	0/693

In order to answer this question “Is there any significant difference between public and private bank in management quality?” we use independent sample t-test. Based on table 6 which shows the result of t-test; the significance is 0.004. The sig is less than 0.05 so with 95% confidence the hypothesis H_0 is rejected and we concluded that there is a significant difference between public and private bank in management quality.

- The sub hypothesis 4:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in earning performance

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in earning performance

Table7: the result of t-test for the sub hypothesis 4

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Reject H_0	0/000	Accept H_0 <i>The variances are equal</i>	0/221

In order to answer this question “Is there any significant difference between public and private bank in earning performance?” we use independent sample t-test. Based on table7 which shows the result of t-test; the significance is 0.000. The sig is less than 0.05 so with 95% confidence the hypothesis H_0 is rejected and we concluded that there is a significant difference between public and private bank in earning performance.

- The sub hypothesis 5:

H0: $\mu_1 = \mu_2$: There is no significant difference between public and private bank in liquidity

H1: $\mu_1 \neq \mu_2$: There is significant difference between public and private bank in asset liquidity

Table8: the result of t-test for the sub hypothesis 5

Result (for t-test)	Sig (for t-test)	Result (for variances)	Sig (for variances)
Reject H_0	0/021	Accept H_0 <i>The variances are equal</i>	0/138

In order to answer this question “Is there any significant difference between public and private bank in liquidity?” we use independent sample t-test. Based on table 8 which shows the result of t-test; the significance is 0.021. The sig is less than 0.05 so with 95% confidence the hypothesis H_0 is rejected and we concluded that there is a significant difference between public and private bank in liquidity.

The result of testing the main hypothesis and sub-hypotheses and their interpretation are summarized in the following table:

Table9: Summary of Results

Interpretation	Result	Hypothesis
There is no significant difference between public and private bank	Reject	The main hypothesis: There is a significant difference between the public and private banks in five dimensions of CAMEL model.
There is no significant difference between public and private bank	Reject	The sub hypothesis1: There is a significant difference between the public and private banks in capital adequacy.
There is no significant difference between public and private bank	Reject	The sub hypothesis2: There is a significant difference between the public and private banks in asset quality.
The performance of public banks is better than private banks	Accept	The sub hypothesis3: There is a significant difference between the public and private banks in management quality.
The performance of private banks is better than public banks	Accept	The sub hypothesis4: There is a significant difference between the public and private banks in earning performance.
The performance of private banks is better than public banks	Accept	The sub hypothesis5: There is a significant difference between the public and private banks in management liquidity.

4. CONCLUSION

Economic development of any country is affected by the amount of banking industry growth in that country. This study was conducted with the aim of evaluating the performance of Melli, Agriculture, Parsian and Pasargad banks based on CAMEL model. The comprehensive literature review and study of research background show better performance of private banks in comparison with public banks. Also the result of most domestic and international research confirm it consider the privatization as a good process to improve the performance and efficiency of the banks. But the results of this study show there is no significant differences in the performance of public and private banks.

The results show although the mean of capital adequacy ratio in private bank is a little better than public banks but this difference is not significant and private banks should efforts more in this field. Capital adequacy ratio shows the financial strength of an organization especially their ability to resistance and exceptional operating. So the private banks should increase this ratio in order to have a good financial strength. The denominator of this ratio is weighted assets by risk; and different types of assets have different risk. In order to increase this ratio; banks need to increase capital and change in the composition of assets (for this purpose they can reduce the assets that have a high risk factor such as delayed receivables, demands from governmental and nongovernmental organizations etc.). (All items are fully described in Chapter Two). So some solutions are:

A) Increasing the first class capital stock

- B) Reducing the risky assets
- C) Reducing the credit risk of interbank

Although private banks and public banks were not significantly different in terms of asset quality but as the table 5 shows the mean of asset quality in public banks is better than private banks. It shows private banks are in bad situation in this field. As mentioned before; increasing in outstanding receivables is a reason of decreasing asset quality. The private banks should seek to reduce and even eliminate their outstanding receivables with an appropriate planning and management. The guidelines to reduce outstanding receivables are:

- A) Controlling and monitoring the financial life of the borrower
- B) Promoting scientific and technical skill of employees
- C) Establishing of rating agencies for customer credit
- D) The need to create a special unit to investigate related claims in court
- E) Requiring courts to give priority to the examination of bank records

It was also found that private banks have poorer performance in one case which is management quality. Management quality in this study is calculated by the ratio of cost of per unit of money which is lent. It shows in these banks the operating costs is more than loan paid. Banks, especially private banks should revise their operating costs. So they should find its reason and reduce it in order to increase the efficiency and profitability. However, in most developing countries which inflation is more than 20%; bank operating expenses and the gap between lending rates and deposits are extremely high. So the problem is inflation and decreasing it is the best solution.

On the earnings performance dimension; although the performance of private banks is better than public banks but the profit margin was negative and this situation is worse in private banks. This represents the poor performance of banks in this ratio. Banks, especially private banks should try hard to increase their profit margins. A higher profit margin requires better quality or reducing costs. To increase revenue, banks can invest in lucrative sectors. But the banks cannot do anything about interest expense because of fixed rate of interest. But in other financial expenses they can use the competitive advantage of productivity and technology in order to decreasing their costs.

About liquidity as was stated private banks were functioning properly but the performance of public banks was not good in both ratio used to calculate this dimension. But the public banks are not freedom in this context. Public banks should be properly planned to adjust their ratio of loans by general and long term deposits to reduce their liquidity risk.

REFERENCES

- 1) Central Bank of the Islamic Republic of Iran, the administration and regulation of bank, capital adequacy regulations, circulars enclosed 1966/1967 (Tehran: Iranian Central Bank, 2004/2/18).
- 2) Haghghat, J., and Nasiri, N. (2004). "Bank Efficiency by data envelopment analysis (case study Agricultural Bank)," *Economic Journal*, No. 9 and 10, pp. 171-135.
- 3) Abassgholi Pour, M. (2010). "Factors affecting the performance of banks", *Journal of banking and finance*, No. 106, pp. 24-35.
- 4) Kazemi, R. (2008). "The analysis of the financial performance of state bank of Iran and the Persian Gulf countries with Islamic banks", Accounting MSc Thesis, School of Management, Tehran University.
- 5) Vakili, S. (2007). "Capital adequacy requirement of modern banking ", *Journal of Bank*, pp. 24-30.
- 6) Sadri, MB (1386). "Capital adequacy, an important indicator of banks, the Export Development Bank of Iran Journal ", No. 43, pp. 4-5.
- 7) ADB (2002). «Guidelines for the Financial Governance and Management of Investment Projects Financed by the ADB». *Section of Financial Institutions*, PP.1-22.
- 8) Babar, Haseeb Zaman & Zeb, Gul. (2011). « *CAMELS Rating System for Banking Industry in Pakistan* ». Master Thesis. Umea School of Business. PP:1-90.
- 9) Baral, Keshar J. (2005). «Health Check-up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal». *The Journal of Nepalese Business Studies*, Vol. II, NO.1, pp.41-55.
- 10) Dincer, Hasan & Gencer, Gulsah & Orhan, Nazife & Sahinbas, Kevser (2011). « A Performance Evaluation of the Turkish Banking Sector after the Global Crisis via CAMELS Ratios ». *Procedia Social and Behavioral Sciences*, Vol 24, PP: 1530–1545.
- 11) Fethi, Meryem Duygun & Pasiouras, Fotios (2010). «Assessing bank efficiency and performance with operational research and artificial intelligence techniques: A survey». *European Journal of Operational Research*, Vol.204, pp.189–198.
- 12) Hays, Fred H. & Lurgio, Stephen A. De & Gilbert, Jr. & Arthur H (2010). « Efficiency Ratios and Community Bank Performance ». *Journal of Finance and Accountancy*, pp.1-15.

- 13) Hunjak, Tihomir & Jakovčević, Drago (2001). «AHP BASED MODEL FOR BANK PERFORMANCE EVALUATION AND RATING». *Proceedings – 6th ISAHP Berne, Switzerland*, pp: 149-158.
- 14) Jegarasasingam, Anandakumar (2006). « Malaysian rating corporation berhad». *Journal of financial institution rating*, No. 364803 V.p:1-8.
- 15) Kaur, Harsh Vineet (2010). «Analysis of Banks in India-A CAMEL Approach». *GLOBAL BUSINESS REVIEW*, Vol.11, No.2, pp.257–280.
- 16) Kouser, Rehana & Saba, Irum(2012).« Gauging the Financial Performance of Banking Sector using CAMEL Model: Comparison of Conventional, Mixed and Pure Islamic Banks in Pakistan». *International Research Journal of Finance and Economics*, Issue 82, pp.67-88.
- 17) Nimalathasan, B. (2008). «A Comparative Study Of Financial Performance Of Banking Sector In BANGLADESH – An Application Of CAMELS Rating System». *Annals of University of Bucharest, Economic and Administrative Series*, Nr. 2, pp.141-152.
- 18) Shar, Amir Hussain & Shah, Muneer Ali & Jamali, Hajan(2011). «Performance evaluation of pre- and postnationalization of the banking sector in Pakistan: An application of CAMEL model». *African Journal of Business Management*, Vol. 5(3), pp. 747-761.
- 19) Türker Kaya, Yasemin (2001) CAMELS Analysis for Turkish Banking Sector. *MSPD Çalışma Raporları*, No.6, pp.1-20.
- 20) Yang,Shaomei & Zhao, Junyan (2009). «Study on Commercial Banks Credit Risk Based on AGA and Camel Rating System». *Second International Workshop on Knowledge Discovery and Data Mining*, PP.562-565.
- 21) Teker, Suat &Teker, Dilek & Kent, Oya(2011). «Measuring Commercial Banks’ Performances in Turkey: A Proposed Model». *Journal of Applied Finance & Banking*, vol.1, no.3, 97-112
- 22) Jha, Suvita & Hui, Xiaofeng (2012). «A comparison of financial performance of commercial banks: A case study of Nepal». *African Journal of Business Management* Vol. 6(25), pp. 7601-7611
- 23) Hays, Fred H. & Lurgio, Stephen A. De & Gilbert, Jr., Arthur H. (2009). «Efficiency Ratios and Community Bank Performance». *Journal of Finance and Accountancy*, vol 9,pp15-1
- 24) Jaffar, Muhammad & Manarvi, Irfan(2011). «Performance comparison of Islamic and Conventional banks in Pakistan». *Global Journal of Management and Business Research*, Vol 11(1), pp 60-66
- 25) Sangmi, Mohi-ud-Din & Nazir, Tabassum(2010). «Analyzing Financial Performance of Commercial Banks in India: Application of CAMEL Model». *Pak. J. Commer. Soc. Sci*, Vol. 4 (1), 40-55