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Management

FINANCIAL RISK MANAGEMENT- A COMPARATIVE STUDY BETWEEN IRANIAN BANKS

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Abstract

Undoubtedly financial risk management due to its high impact on stockholders wealth is always considering by Banks. Risk management methods and its accomplishment leads to shareholder consent or dissatisfaction. Present research, examine this issue by three instruments of Financial risk management includes interest rate risk, capital risk and risk of natural hedging. Thus, the main problem in this content is to some extent financial risk management methods can effect on stockholders' wealth. We separate banks into private sector and public sector and examine hypothesis for each group by regression models. Return on Equity (ROE) changes is a reliable criterion for shareholders wealth. Results show that public banks are more successful in using risk management tools in compared with private banks. In other word, we have found more meaningful relationship between financial risk management tools and shareholder wealth in public banks.

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1. Introduction

Financial Risk may cause different form of losses to an entity through unexpected fluctuations in income cash flow and capital changes. Although, we should consider financial markets structure in each economy (Durnbusch, 2004). Thus, it should be noted financial markets such as Banks, financial intermediaries and stock exchange markets can play important role in world's financial ravages. Many financial researchers believe that financial risk must be managed and its elimination is not logical method (Saunders & Cornett, 2006; Dubofsky, 1992; Das, 2006). Therefore, risk management in each economy is a controversial issue (Sander, 2006), but risk management can be different in each business environment with its characteristics. Thus, financial risks in an enterprise should be evaluated by different tools and then management can

have a plan to control its unexpected and negative effects. Also, risk can highly affect the future profits and interests (Neveu, 1986).

We have reliable measures to evaluate these profits such as ROE in the Du-Pont equation (Ehrhardt & Brigham, 2013). Profit issue and its impact on stockholders wealth and also cost of capital, are main variables in an entity success (Ogden, 2003). Financial institutions can have an important role in risk management and its financial consequences (COSO, 2004). Many researches consider financial risk management in Banks as a one of the most common influential financial organization (Saunders & Cornett, 2006; Ruda, 2009; Leea, 2000; Greuning & Sonja, 1999). In present study we evaluate banks stock and ROE reactions to different risk variables. Then, we examine the effects of financial risk management tools on ROE in private and public Iranian banks.

Credit risk refers to legal obligations or changes in credit quality which can affect the value of financial instruments (Das, 2006). Operating risk is directly related to organizations structure, its employers and financial systems performance or external variables. Market risk is highly affected by exchange rate, interest rate, stock price and its ultimate impact is on organization assets. (Jones, 2009) and the most common definition of capital risk is lack of the capital.

2. Literature Review

In 1989, the Actuarial Standards Board adopted the original (ASOP) No. 12, then titled Concerning Risk Classification. The original ASOP No. 12 was developed as the need for more formal guidance on risk classification increased as the selection process became more complex and more subject to public scrutiny. In light of the evolution in practice since then, as well as the adoption of a new format for standards, the ASB believed it was appropriate to revise this standard in order to reflect current generally accepted actuarial practice.

Over time the researchers provided different and diverse classification of risk. These categories of risk have its own applied. In present study we consider following classifications. Fathi (2012) has classified the risk into several branched figure (Figure 1). We can consider many classifications for risk (Figure 2) such as, financial risk and non-financial risk (Raee, 2009). Das (1999) elaborate different levels of risk in the banking system.
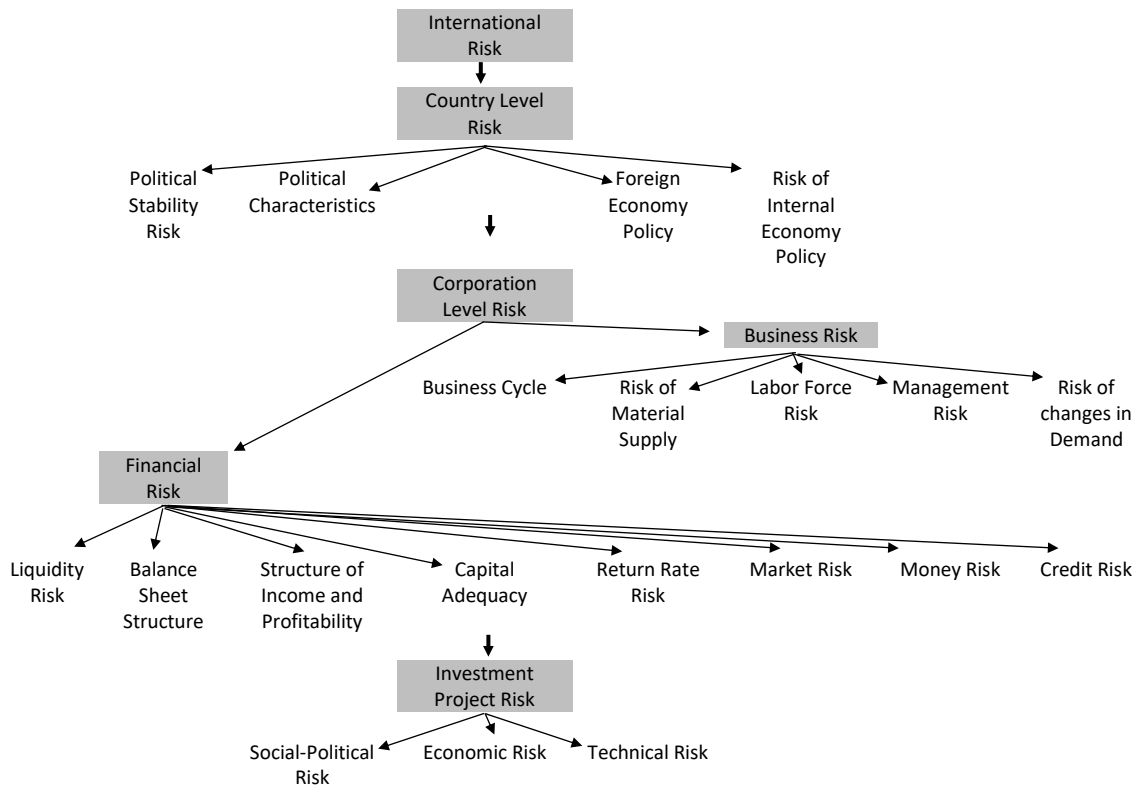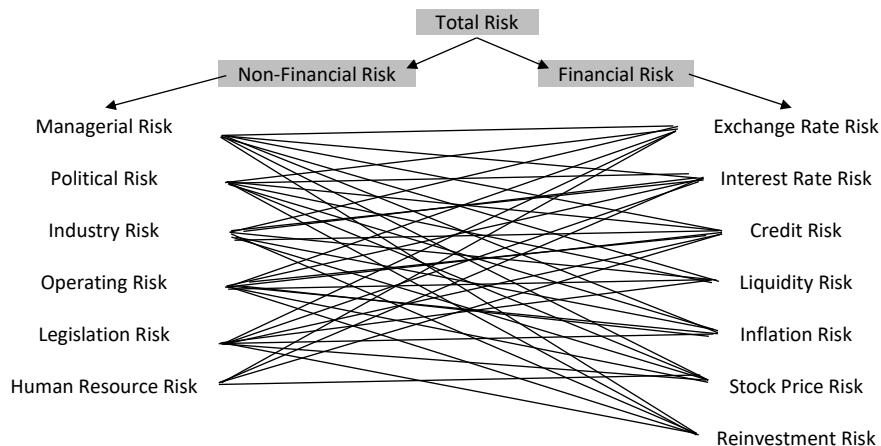
Figure 1: Risk model

Figure 2: financial and non-financial risk classification

3. Research Model

Rudra (2009) presented a comprehensive framework for evaluating banks' performance considering risk management and measure of ROE by Du-Pont equation. Hence, effectiveness level of ROE in our sample study can proposed as below (equation 1).

$$ROE = \frac{Profit\ after\ Tax}{Total\ Assets} \times \frac{Total\ Assets}{Equity} \tag{1}$$

In equation 2, ROA is separated into the following parts.

$$ROA = \frac{Interest\ Income - Interest\ Expense}{Total\ Assets} + \frac{Non - interest\ Income - Non - interest\ Expense}{Total\ Assets} - \frac{Provisions}{Total\ Assets} \qquad (2)$$

Thus, equation 2 could be rewrite as follow.

$$ROA = Net\ interest\ margin + Non\ interest\ margin - Provision\ to\ total\ assets \qquad (3)$$

With integration of 1 and 3 equation, we can show the ROE as below.

$$ROE = (Net\ Interest\ Margin + Non\text{-}Interest\ Margin - Provisions) \times (Equity\ Multiplier) \qquad (4)$$

The last equation shows that financial institutions includes banks can maximize stockholders' wealth through managing and increasing, Net Interest Margin (NETIM), Non Interest Margin (NONIM) and Equity Multiplier (EM) and by decreasing Provisions (PROV) which is ROE with regard to assets. Thus, banks' ability and their sufficiency in risk management can be evaluated by using these four variables.
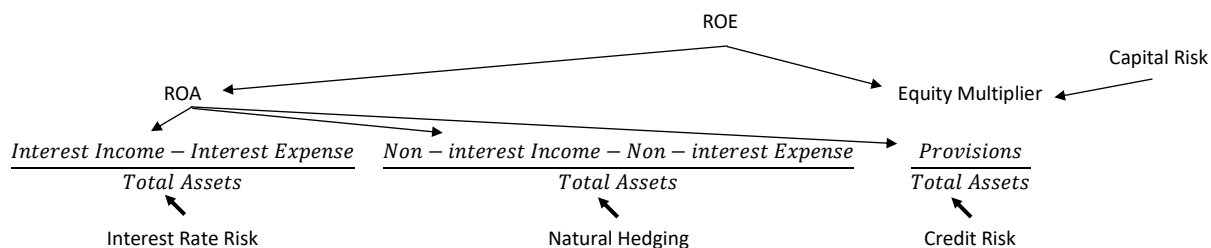

Figure 3: Conceptual Model (Bill, 2004)

Changes in interest rate risk may leads to reduction of net income. Subsequently, the interest rate affects the Net Interest Margin (NETIM) and also ROA. These changes finally lead to change in stockholders' wealth. Any changes in the interest rate can affect the NETIM. Banks use many financial tools such as swap and future contracts in order to control decrease in interest rate. The Net Interest Margin (NETIM) represents financial institution behaviors towards interest rate risk. Income ratio can explain financial institution capabilities in risk management.

Credit introduces the amount of money that will be paid in the future, and credit risk exists because the expected payments may not be paid. Therefore, by credit risk we mean potential losses received by the customer of credit, but repayment has encountered refusal by the customer or there has been no financial capability of complete or timely repayment (Rudra, 2009). Delayed repayments lead to reduction of banks' assets and provision of total assets (PROV) is also decreased. As a result, ROA and ROE will be reduced. Thus, there is a reverse relationship between credit risk and ROE (Rudra, 2009).

Capital to assets ratio shows the ability of financial units to overcome unexpected losses and indirectly backing the profits of actual investors. If this ratio is higher than usual they may face to reduction in ROE ratio. Hence, ROE growth is depend on meaningful relationship between ROA and EM. Increasing in EM, improve the ROE. On the other side, abnormal increase in EM lead to decrease in capital to asset ratio and bankruptcies. So the stockholders prefer lower capital risk ratio (Anderson, 2003). Banks can apply different strategies in order to face with

financial risks (Bill, 2007). For instance, controlling risk of non-interest incomes which enhance ROA without increasing risk (Bill, 2004).

4. Research Hypothesis

H1: There is a meaningful correlation between interest rate risk and ROE in public banks.
H2: There is a meaningful correlation between natural hedging risk and ROE in public banks.
H3: There is a meaningful correlation between capital risk and ROE in public banks.

Regression model for public bank is as follows:

ROE $_{Public\ Banks}$ = X1 + X2* Capital Risk + X3* Natural Hedging + X4* Interest Rate Risk

H4: There is a meaningful correlation between interest rate risk and ROE in private banks.
H5: There is a meaningful correlation between natural hedging risk and ROE in private banks.
H6: There is a meaningful correlation between capital risk and ROE in private banks.

Regression model for private bank is as follows:

ROE $_{Private\ Banks}$ = X1 + X2* Capital Risk + X3* Natural Hedging + X4* Interest Rate Risk

5. Research Methodology

Present research study is based on regression model for each study groups. According to this, the regression model examines linear or non-linear correlations among financial ratios and stocks return and in order to examine auto-correlation variables use Durbin Watson test. The regression models estimate by E-views statistical software.

Data collect from Tehran Stock Exchange (TSE) data source, during 2010 to 2015. We choose eight public banks and eight private banks (table 1) considering the accessibility of quarterly data.

Table 1: Public and Private Banks

No.	Public Banks	No.	Private Banks
1	Meli	1	EN
2	Sepah	2	Parsian
3	Export Development	3	Pasargad
4	Industry & Mine	4	Saderat
5	Agriculture	5	Saman
6	Maskan	6	Tejarat
7	Post	7	Sarmaye
8	Tosee Taavon	8	Melat

6. Findings

Table 2 and 3 show the statistical results for diversification risk (X3) and credit risk (X4) in both groups, which are lower than 1% in public banks and 5% in private banks; thus we have significant relationship between variables related to interest rate, diversification risk and ROE (as

dependent variable) in both group, but in public banks we have found more meaningful correlation.

Table 2: Statistics model results (Public Banks)

Variables	Coefficient	Standard Error	T-Statistic	Probability
X_1	2.265942	1.352218	1.235549	0.0224
X_2	-0.012569	0.012547	-0.641581	0.0433
X_3	10.26589	2.431388	4.021359	0.0008
X_4	1.745692	0.685479	1.917546	0.0109
R-Squared	0.722659	Mean dependent VAR		0.697321
Adjusted R-Squared	0.568914	S.D. dependent VAR		5.331917
S.E. of Regression	4.371259	Akaike information criterion		5.221168
Sum Squared Reside	325.2265	Schwarz criterion		5.254879
Log Likelihood	-48.12568	D-W statistic		2.341568

R^2 is equal to 72% for public banks and 51% for private banks. There is no auto-correlation among error tools in both groups. The value of F statistic means prove rejection of H_0, it means model coefficients are equal to zero.

As a result, capital risk, natural hedging and interest rate risk have more significant effects on ROE in public banks. Since β is positive, natural hedging and interest rate risk have a positive correlation with ROE. Also, the correlation between capital risk and ROE is negative.

Table 3: Statistics model results (Private Banks)

Variables	Coefficient	Standard Error	T-Statistic	Probability
X1	4.009845	1.003346	2.327746	0.1678
X2	-0.66358	0.056784	-0.445612	0.4259
X3	10.36548	3.111106	5.221587	0.0422
X4	2.481929	1.265948	2.654872	0.0316
R-Squared	0.516548	Mean dependent VAR		0.638945
Adjusted R-Squared	0.324581	S.D. dependent VAR		6.164579
S.E. of Regression	5.002691	Akaike information criterion		4.365948
Sum Squared Reside	364.2346	Schwarz criterion		4.225948
Log Likelihood	-52.17542	D-W statistic		3.754822

7. Conclusion

Nowadays in all economic forms governments and financial systems are trying to have an appropriate reciprocal services and financial assistance. Banks are one of most important part of each economy which can create many profitable and investment opportunities for their country. On the other hand the governments help them by applying proper financial legislation and also facilitate fiscal and monetary policies.

Since the beginning of Iranian banks establishment less than hundred year ago, all of them owned by governments. Independent private banks in Iran economic structure still have not its

actual position. Hence, we always witness close collaborations between governments and public banks. Indeed governments help them in internal and external contract and public banks help the governments in supplying financial sources.

Another important point is people and public trust. In Iran most of the people are more confidence to public banks. Thus, public banks have better opportunities to absorb people's monetary capitals. As our results indicate, public banks are more successful in create wealth for their shareholders and the private banks in Iran still should strive to achieve this status.

References

[1]   Anderson, T.W., 2nd edition. New York: An Introduction to Multivariate Statistical Analysis. Wiley, Hoboken publishing; 2003, 742.

[2]   Baele, L., Vander Vennet, R., Van Landschoot, A. Bank Risk Strategies and Cyclical Variation in Bank Stock Returns, Working Paper, Faculty of Economics and Business Administration. Ghent University, Ghent, 2003.

[3]   Baele, L., Vander Vennet, R., Van Landschoot, A. Does the stock market value bank diversification? Journal of Banking & Finance. 31(7), 2007, 1999-2023.

[4]   COSO. Enterprise Risk Management Integrated Framework. Committee of Sponsoring Organizations of the Treadway Commission, 2004.

[5]   Das, A. Profitability of public sector banks: a decomposition model. Reserve Bank of India, Occasional Papers. 20(1), 1999, 55-77.

[6]   Das. S., 3nd edition. Risk Management (The Swap and Financial Derivatives Library). Singapore: John Willey & Sons publishing; 2006, 1327.

[7]   Dornbusch, R., Fischer, S., and Startz, R., 19nd edition. The Principle of Macroeconomics. McGraw-Hill publishing; 2011, 528.

[8]   Dubofsky, D.A., 3nd edition. Options and Financial Futures. NY: McGraw-Hill publishing; 1992, 699.

[9]   Ehrhardt, M.C., Brigham E.F., 5nd edition. Corporate Finance: A Focused Approach. South-Western publishing; 2013, 840.

[10]   Fathi, S., Zarei, F., Esfahani, S.S. Studying the Role of Financial Risk Management on Return on Equity, International Journal of Business and Management. Vol. 7, No. 9; 2012, 215-221.

[11]   Greuning, H.V., Sonja, B. B., 3nd edition. Analyzing Banking Risk: A Framework for Assessing Corporate Governance and Risk Management. World Bank publishing; 1999, 367.

[12]   Leea, J.H. Embedded Options and Interest Rate Risk for Insurance Companies. Banks and Other Financial Institutions. The Quarterly Review of Economics and Finance. 40, 2000, 169–187.

[13]   Neveu, R.P., 3nd edition. Fundamentals of Managerial Finance. Cincinnati, Ohio: South Western Publishing; 1986, 225.

[14]   Ogden J.P., Jen F.C., O'Connor P.F., 1nd edition. Advanced Corporate Finance: Policies and Strategies. NJ: Prentice Hall Publishing; 2003, 702.

[15]   Raee. R., Saeedi. A., 1nd edition. Principles of Financial Engineering and Risk Management. Samt Publishing; 2008,778.

[16]   Rudra S. Are bank stocks sensitive to risk management? The Journal of Risk Finance. 10(1), 2009, 7–22.

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