Syrian Banks' risk Attitudes from a Behavioral Perspective

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Abstract

The aim of this study is to analyze bank's risk-taking from a behavioral perspective. The paper examines Kahneman and Tversky's prospect theory (1979,1992) in the commercial banking industry in Syria. This theory emphasized the role of reference, or target, return levels in analyzing risky choices. For returns below target, a large majority of individuals appear to be risk seeking; for returns above target, a large majority appear to be risk averse. In this respect, this paper uses rates of return and the capital ratios of 7 Syrian commercial banks over the period 2007 through 2012. we consistently found a negative risk-return association for banks having returns below target levels and a positive association for banks with returns above target but always with weak or no statistical significance. These results support, to some extent, the basic propositions of prospect theory in the Syrian banking industry.

KEYWORDS: Bank risk-taking, Prospect theory.

INTRODUCTION

The relationship between risk and return has received considerable attention from researchers in business administration, economics, and finance. Conventional economic wisdom suggests that risk and return are positively correlated.

Several research studies have largely supported a positive risk-return association. However, Bowman (1980) discovered that risk and return were negatively correlated within most industries and he argued that firms' risk attitudes may influence risk-return profiles and that more troubled firms may take greater risks (Bowman, 1982).

Another research in behavioral decision theory and prospect theory (Kahneman & Tversky, 1979) has suggested that individuals use target, or reference, points in evaluating risky choices. Further, individuals are not uniformly risk averse but adopt a mixture of risk-seeking and risk-averse behaviors. Indeed, the evidence suggests that when returns have been below target, most individuals are risk seeking and that when returns have been above target, most are risk averse.

This study is motivated by the perception of risk in the commercial banking industry in Syria from a behavioral perspective based on the prospect theory. It is an attempt to examine whether the results of experiments on individuals' attitudes toward risk and risky choice behaviors can be translated into the world of the banking industry organizational behavior in Syria. In fact, the application of behavioral finance features to explain the determinants of bank's risk-taking decisions have received little attention in the literature especially in the case of Syrian banking industry.

This paper is organized in the following manner: the introduction is followed by a brief literature review; subsequently, the methodology used is described, and the empirical results obtained are discussed; and finally, the conclusion is offered.

LITERITURE REVIEW

According to Fishburn (1977), the risk perception is more associated to the extent to which decision makers find themselves operating below the target than to the dispersion of outcomes about the mean. Fishburn respecified the concept of risk by suggesting that risk was not necessarily a measure of dispersion about an expected value, but rather a function of distance from a target outcome.

Following Fishburn's concept of risk, Kahneman and Tversky (1979) announced that the prospect theory can be a main factor influencing the decision of bank's risk-taking in the commercial banking industry. According to this theory, the decision makers become risk-seeking below target and risk-averse above target. The prospect theory suggests that a combination of lower expected return and lower variance may be selected when all outcomes are above the target level, i.e., risk aversion will be exhibited. However, when operating below target, a combination of lower expected return and higher variance may be preferable, i.e., there may be less risk aversion. The decision maker's exhibited behavior, not his utility function, may change. Studies by Payne et al. (1980 and 1981) confirm the Kahneman and Tversky results. Thus, based on prospect theory, and in relation to target outcome, an individual can exhibit different degrees of risk aversion over time.

Fiegenbaum and Thomas (1988) studied the risk/return characteristics of a number of industries, including commercial banking, using rate of return on equity (ROE) and variance of ROE as return and risk measures, respectively, from 1960 through 1979. Their objective was to determine whether prospect theory could satisfactorily explain previously noted associations of high return/low variance and low return/high variance. Within an industry, each firm's average annual ROE for the relevant time period was computed. Fiegenbaum and Thomas then ranked all firms in the industry according to their respective mean ROEs, assigning a high (H) value for those above median ROE (target return) and a low (L) value for those below. Similarly, variances of ROE were calculated, the firms ranked, and H or L values assigned, where a composite label of HL implied high ROE and low variance. A negative association ratio, (HL + LH)/(HH + LL), was constructed for each industry. A ratio greater than one suggests a negative association between risk and return for a particular group of firms. Their results show negative association ratios higher than one for all firms with below-median ROE and ratios less than one for firms with above-median ROE. These results are consistent with prospect theory.

Following Fiegenbaum and Thomas (1988), Jegers (1991) analyzed the relationship between risk and return using Belgian accounting data for several industries over the period 1977-1982. His methodology consists in calculating each firm's time average return, ranking the firms according to these values, and then dividing the firms into two groups: those with below target returns and those with above target returns. Then, they calculate the Spearman's rank correlation between return and risk. Their results suggest that risk is positively associated with return.

Following Fishburn (1977) and Fiegenbaum and Thomas (1988), Johnson (1994) centered his analysis on the bank's risk-taking decisions in a behavioral finance framework. His objectives were to explain the association between the distance from target and the outcome variability,

and to obtain an appropriate target for the commercial banking industry. His sample consists of the US commercial banks over the period 1970- 1989. He defined 'risk' as the standard deviation of outcome and he used standard measures of return like ROA, ROE and primary capital ratio. He further defined 'target' as the median value of return variables, and classified banks into two groups according to this target and computed the correlation between distance to target and standard deviation. He computed Kendall's correlation coefficient, and showed that below target, the results confirm Fishburn's measure of risk and the prospect theory. He further suggested that the rates of return may be the operative target outcomes. The below-target results also suggest possible differences due to the region and size. Above target, the distance from target is generally found to be not related to the dispersion from the mean.

This study builds on the Fiegenbaum and Thomas framework. The contributions of this study are that it:

1. Concentrates on the banking industry in Syria over the period 2007 through 2012, a period of significant change in the industry,

2. Measures the relationship between distance from target and outcome variability, and,

3. Examines the question of an appropriate target for the commercial banking industry

RESEARCH METHODOLOGY

Hypotheses:

According to prospect theory, the risk-return relationship has a nonlinear functional form (Figure I). Below the target return level, decision makers are risk seeking, and above the target level, decision makers are risk averse. Therefore, assuming individual decision maker's and firm's risk preferences are in one-to-one correspondence, we can state our broad formal research hypotheses.

Hypothesis 1: A negative association between risk and return exists for banks

below target return levels.

Hypothesis 2: A positive association between risk and return exists for banks above target return levels.
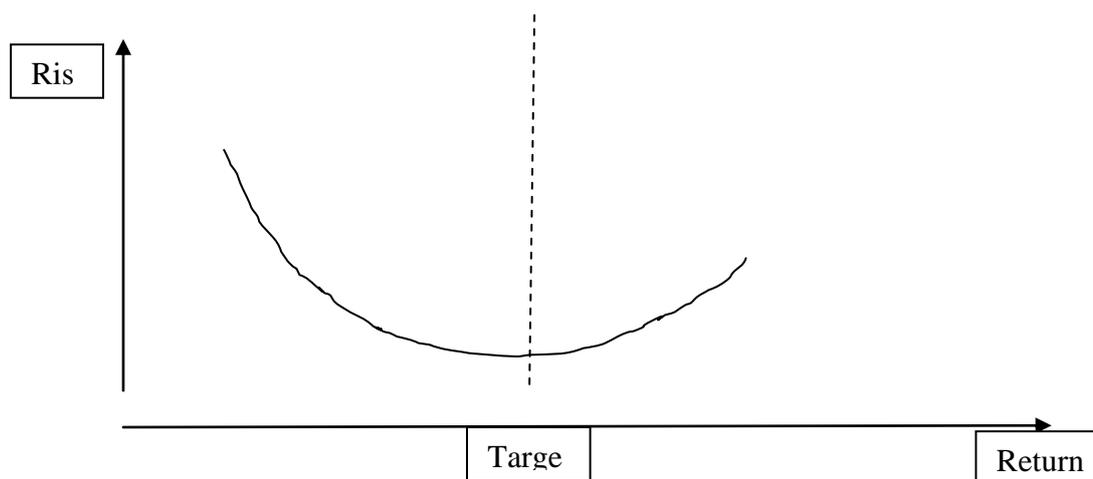

Figure I

Variables

A number of researchers have modeled the decision making process of the commercial bank in terms of rates of return on assets or equity [Hart and Jaffee, Blair and Heggestad, Edwards and Heggestad]. Also, capital ratios have received increasing attention by regulators and financial markets [International Monetary Fund, Brewer and Lee]. In fact, these three measures are related:

$$ROA = E/TA \times ROE$$

where:

ROA = return on assets, net income to total assets

E/TA = the equity or capital ratio, equity to total assets

ROE = return on equity, net income to equity

In this study each of these is investigated as a possible industry target. The measure of risk is standard deviation of outcome.

Data

The data for the study are obtained from annuals reports of 7 commercial banks listed in Damascus stock exchange for the period 2007 through 2012. However, no bank with less than 4 years of data was retained. For each bank, the annual rates of return on assets and equity and the primary capital ratio were computed as follow:

$$ROA_{in} = Ni_{in} / TA_{in}$$

$$ROE_{in} = Ni_{in} / E_{in}$$

$$CR_{in} = E_{in} / TA_{in}$$

where:

ROA_{in} = rate of return on assets for bank i in year n

Ni_{in} = net income for bank i in year n

TA_{in} = total assets for bank i in year n

ROE_{in} = rate of return on equity

E_{in} = equity for bank i in year n

CR_{in} = capital ratio

Test design

An important issue in operationally defining prospect theory is to identify a measure for the target return level. There is no general rule that defines an appropriate target for each situation, although Tversky and Kahneman (1981) and Laughhunn, Payne, and Crum (1980) drew a close analogy between a target return level and a reference point. In this study, the traditional literature of financial statement analysis provided a basis for setting an appropriate return target. Lev (1969: 290) suggested that firms adjust their performance to the industry average. He

emphasized "the desirability of adjusting the firm's financial ratios to predetermined targets which are usually based on industry wide averages." Lev also performed an empirical study on 900 major U.S. firms, in which he confirmed the hypothesis that firms periodically adjusted their financial ratios to their industry means. Frecka and Lee (1983) used another data set for a study of financial ratios, and their results support Lev's hypothesis that firms adjust

financial ratios in a dynamic fashion to targets that appear to be industry-wide averages of those ratios. Therefore, an average performance (return) level may serve as an appropriate proxy for e given firm's target level.

Since the purpose of this study was to test the nature of the association between risk and return, we used the industry's median of the relevant variable.

Our tests rely on time average and their standard deviations measures, as well as median of these variables. The medians of the employed measures represent the target levels – the reference points for the bank. We work with 3 zones which are: Zone 1 – ROE, Zone 2 – ROA, Zone 3 – CR

The Fishburn's measures of risk are the distance of the variable from the target level. For each zone, we split the sample in 2 areas: ABOVE and BELOW, corresponding respectively to banks above and below the target level – the median of the variable corresponding to the zone.

The Fishburn measure of risk and prospect theory suggest that decision makers are more willing to accept variability the further below target they find themselves. Thus, the standard deviation of outcome should be related to distance from target when decision makers are below target. Distance from target is defined as follows:

$$DTROA_i = MEROA_i - MEDMROA$$

$$DTROE_i = MEROE_i - MEDMROE$$

$$DTPCR_i = MEPCR_i - MEDMPCR$$

where $MEROA_i$, $MEROE_i$, $MEPCR_i$ = time series median ROA, ROE, and PCR, respectively, for bank i. Standard deviation of outcome is designated by the following variables.

(Time series)

Variable	Name Standard Deviation of Banks
$SDROA_i$	Rate of return on assets (ROA)
$SDROE_i$	Rate of return on equity (ROE)
$SDCR_i$	Capital ratio (CR)

Kendall's is used to measure the correlations between these variables within the relevant groups (all banks, regional groups, and size groups). The possible values of Kendall's range from +1 (perfect positive correlation) to -1 (perfect negative correlation). However, if Kendall's is consistently negative below target, such results would tend to support the Fishburn measure of risk and prospect theory.

RESEARCH RESULTS

The descriptive statistics of the variables is provided in Table 1. Descriptive statistics indicate that the mean of the rate of ROA is about 0.42, implying that the average net income of Syrian banks is around 0. 42% of their total assets. Moreover, the mean of the rate of ROE is about 5.16%, and the mean of the ratio of capital is about 10.98%, which shows that on average the Syrian banks' capital is about 10.98% of their total assets.

Table 1: Descriptive statistics			
	ROA	ROE	CR
Mean	0.0042 09	0.051 657	0.1098 44
Standard Deviation	0.0055 28	0.077 623	0.2019 55
Maxi mum	0.1139 65	0.194 369	0.8667
Minim um	- 0.0471	- 0.138 8	0.0288

Table 2 shows cross-sectional median values used as targets:

Table 2: cross-sectional median values		
MEDMROA	MEDMROE	MEDMCR
0.005428	0.068593	0.109844

Legend:

Cross-Sectional Median	Based On Individual Time Series Bank Median
MEDMROA	Return On Assets
MEDMROE	Return On Equity
MEDMCR	Capital Ratio

Table 3 shows the allocation of banks above and below the target. There are 30 banks both below and above the target. Banks whose (time series) median outcome equals or exceeds the target outcome (cross-sectional median) have a classification of 1, i.e., above-target. Below-target banks have a classification of 2. When no subsets are formed, there is a total of 60 banks both above and below targe t .

Table 3: banks classifications			
	Total	1- Above Target	2- Below Target
ROA	60	30	30
ROE	60	30	30
CR	60	30	30

Table 4 contains the Kendall's correlations for each group of tests. Generally, the correlations are not significant above target. Results are mixed below target.

Table 4: Kendall's correlations			
	Total	1- Above Target	2- Below Target
ROA	60	0.451	0.000
ROE	60	0.619*	-0.048
CR	60	0.056	-0.6*

Kendall τ correlation coefficients between the standard deviation and the distance to median are shown for each zone, *: statistically significant at 10% level.

Concerning the correlation results between distance from target and standard deviation for above target outcomes, we observe significant and positive Kendall's coefficients for ROE only. This indicates that banks located above target levels in terms of ROE exhibit risk-averse behavior, as the relationship between the distance from the median and the standard deviation of this return measure is significantly positive at 10% level. Moreover, we observe a non-significant positive Kendall's correlation coefficients for the above target outcomes for ROA and CR.

Concerning the relationship between distance from target and standard deviation for below target outcomes, we find all of the below-targets are negative but only the CR is statistically significant at the 10% level. Only the CR supports the prospect theory and Fishburn's measure of risk among the below-target level banks, which implies that the decision makers will be risk-seeking if they perceive themselves to be operating below the target.

CONCLUSION

Preliminary results of this paper tend to offer a modest support both for Fishburn's measure of risk and Kahneman and Tversky's prospect theory. Banks operating below the target level tend to exhibit risk-seeking behavior, while those above the target level exhibit risk-averse behavior. Further contributions are needed in order to strength our conclusion in term of the number of observations.

It should be noted that commercial bank managers do have the ability to effect certain changes in all three ratios used in this study. If it is true that rates of return serve as management targets instead of capital ratios, there may be important implications for commercial bank regulators. This is particularly true since there is strong national and

international emphasis on improving bank capital ratios. Bank managers that are operating below target may be less concerned with capital ratios and more concerned with achieving desired rates of return. Moreover, the further below target the bank operates, the greater the variability of rates of return. At a minimum, the results of the study at least suggest that bank managers operating below target will not necessarily be risk averse and that perhaps greater variability of rates of return should be expected when banks operate below target.

From a practical standpoint, bank regulators will be better equipped to monitor the banking system if they understand that bank managers may become less risk-averse when they operate below target and that this tendency increases as operating results worsen. If bank regulators are cognizant of these relationships, perhaps the oversight function can be made more effective.

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