Volatility in Returns of Islamic and Commercial Banks in Pakistan

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January 18, 2011

Non-Linear Time Series Analysis
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Introduction

- Islamic banking has experienced global annual growth rate of 10-15 % during the last decade (Sole 2007)

- According to the survey of The Bankers "Top 500 Islamic Financial Institutes", Islamic finance has grown by 8.85% from 2009 to 2010. The growth was 28.64% from 2008 to 2009. Islamic finance has held a compound annual growth rate (CAGR) of 23.46% from 2006 to 2010.

- About 1100 Islamic Financial Institutes are present in 51 Countries. These countries also include Non-Muslim countries like UK, USA, Germany and Switzerland.

- On March 4, 2009 The Vatican said banks should look at the rules of Islamic finance to restore confidence amongst their clients at a time of global economic crisis.

> "The ethical principles on which Islamic finance is based may bring banks closer to their clients and to the true spirit which should mark every financial service," (Bloomberg)

History of Islamic Banking:

- The history of Islamic finance goes back to 8th century.

- The first modern experiment with Islamic banking was undertaken undercover, without tagging Islamic image in Egypt in 1963.

- Islamic Development Bank established in 1975 to support projects of Islamic banking in member countries.

- Dubai Islamic Bank was the first modern commercial Islamic bank, opened its doors in 1975.

Volatility:

- The measure of the range of an asset's price about its mean level over a fixed amount of time.

- It is linked to the variance of an asset's price.

- The greater the volatility, the greater is the risk.

Data:

Karachi stock exchange (KSE 100 index), from the web site "brecorder.com"

The banks are divided into two groups based upon the market capitalization. Group 1 consists of the largest banks of each of three subdivisions. Group 2 include the second largest banks of the subdivisions.

Group 1:

- Meezan Bank (Islamic)
- Habib Bank (Islamic + Conventional)
- Allied Bank (Conventional

Group 2:

- Bank Islami (Islamic)
- MCB Bank (Islamic + Conventional)
- United Bank (Conventional

Methodology:

EGARCH model introduced by Nelson (1991) is used to measure the volatility in the stock returns.

Advantages of EGARCH:

- Capture the asymmetry in the effects of good and bad news (Leverage effect)

- No restriction of non-negativity on parameters

- Captures the persistence of the shock

- Reduce the effects of outliers.

Methodology:

EGARCH (p, q)

Mean Equation:

$$RE_t = \alpha_0 + \sum_{i=1}^{k} \alpha_i RE_{t-i} + \varepsilon_t \sigma_t^{1/2}$$

Conditional Variance Equation:

$$\log(\sigma^2) = \omega + \sum_{j=1}^{q} \beta_j \log(\sigma_{t-j}^2) + \sum_{i=1}^{p} \rho_i \left| \frac{\varepsilon_{t-i}}{\sigma_{t-i}} \right| + \sum_{k=1}^{r} \gamma_k \frac{\varepsilon_{t-k}}{\sigma_{t-k}}$$

Results

Group 1

	Meezan Bank	Habib bank	Allied bank
α	-0.001499 (-2.05)*	-0.000286 (-0.56)	-0.0000531 (-0.13)
ω	-1.41023 (-8.75)*	-1.190979 (-10.91)*	-1.299324 (-8.67)*
ρ	0.217332 (7.04)*	0.408165 (12.46)*	0.400436 (8.80)*
γ	0.023821 (1.04)	0.035592 (1.52)	-0.022635 (-0.84)
β	0.023821 (41.20)*	0.878785 (63.87)*	0.86529 (51.79)*
AIC	-4.489631	-4.68642	-4.700812

* Significant at 1%

Group 2

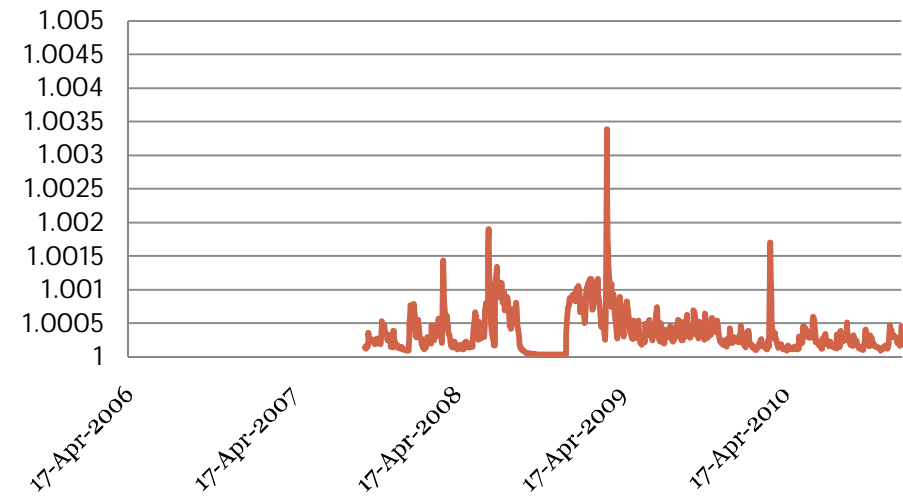|	Bank Islami	MCB Bank	United Bank
α	-0.002268 (-4.09)	-0.000063 (-0.12)	-0.0000686 (-0.14)*
ω	-0.95503 (-10.09)*	-1.332617 (-6.62)*	-1.018503 (-7.76)*
ρ	0.341228 (10.43)*	0.399788 (7.25)*	0.33975 (9.25)*
γ	-0.069745 (-3.06)*	-0.061546 (-2.71)*	0.016863 (0.80)*
β	0.896874 (78.57)*	0.862177 (38.37)*	0.895716 (59.04)*
AIC	-4.122172	-4.652787	-4.637204

* Significant at 1%

Results

Group 1
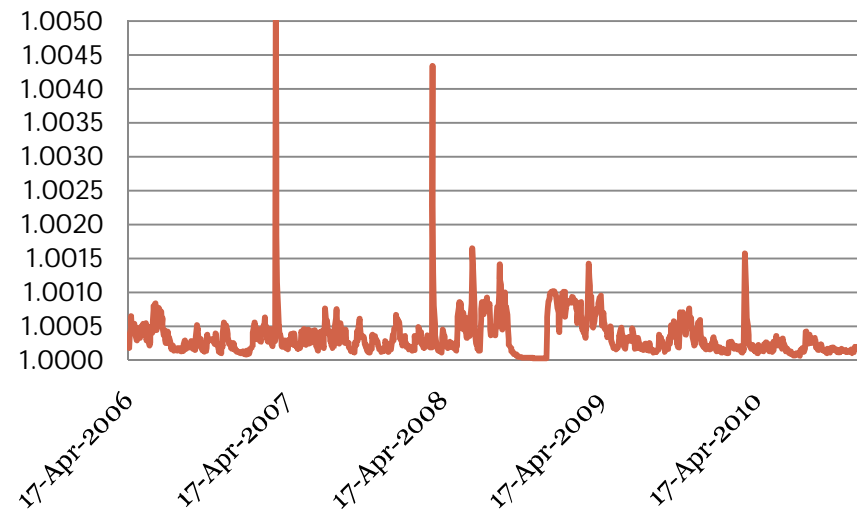
Meezan Bank
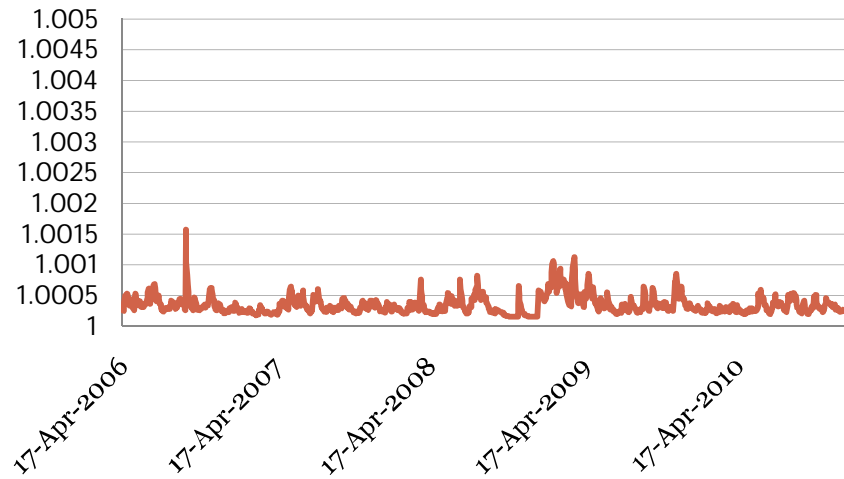

Habib Bank

Alied Bank

Results

Descriptive Statistics: Group 1

|	Meezan Bank	Habib bank	Allied bank
Mean	1.000349	1.000365	1.000346
Median	1.000309	1.00028	1.000255
Maximum	1.001578	1.00339	1.005557
Minimum	1.000153	1.000031	1.000033
Std.Dev.	0.000144	0.000311	0.000328
Skewness	2.118391	2.767649	6.420547
Kurtosis	11.02469	18.2414	82.018
Jarque-Bera	3956.034	8720.838	307886.4
Probability	0	0	0
Sum	1153.402	796.2906	1153.399
Sum Sq. Dev.	2.39E-05	7.70E-05	0.000124
Observations	1153	796	1153

Results

Group 2

Bank Islami
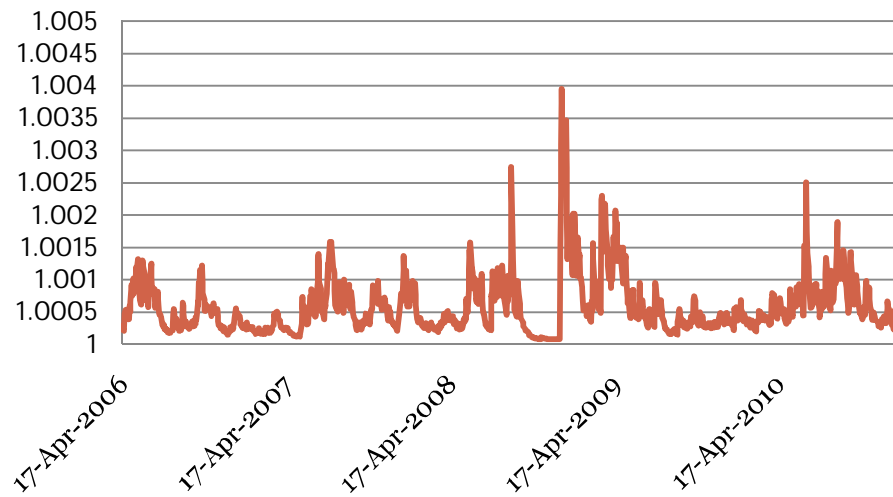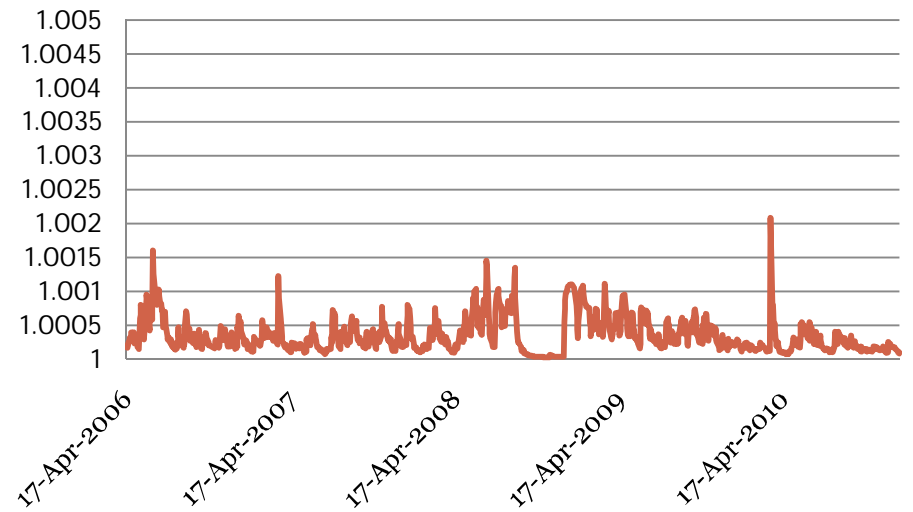
MCB Bank
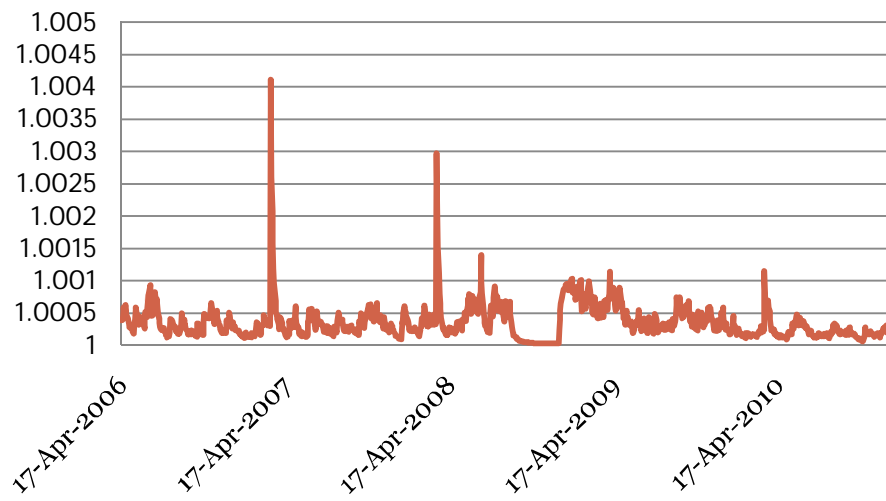
United Bank

Results

Descriptive Statistics: Group 2

	Bank Islami	MCB bank	United bank
Mean	1.000594	1.000353	1.000354
Median	1.000466	1.000278	1.000289
Maximum	1.003956	1.002084	1.004111
Minimum	1.000078	1.000032	1.00003
Std.Dev.	0.000446	0.000252	0.000274
Skewness	2.303739	1.587639	4.547157
Kurtosis	11.77865	6.532687	47.13761
Jarque-Bera	4718.088	1083.929	97564.71
Probability	0	0	0
Sum	1152.685	1153.408	1153.409
Sum Sq. Dev.	0.000229	7.34E-05	8.63E-05
Observations	1152	1153	1153

Results Discussion and Conclusion

- For the group 1 conventional bank has the lowest mean but has high dispersion as compared to other two banks. Islamic bank in this group has the lowest dispersion in volatility.

- For group 2 Conventional bank has the lowest dispersion in volatility.

- If we compare all the six banks then the Islamic bank of group 1 has the lowest volatility and conventional bank of group 2 is second in low volatility.

- The Islamic bank of group 2 is the last one according to the above ranking.

- It can be said that it depends upon the individual banks rather than the type of bank.

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Thank You