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A COMPARATIVE STUDY OF BANKING STOCKS WITH

MSM 30 SHARE INDEX

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WORKING PAPER

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ABSTRACT

The research will highlight the banking stock in general, the influence of stock prices of GCC and other countries and then a comparison of the 30 share MSM index with that of the banking stock in Oman and the indices of the chosen country's stock markets. The comparative impact to the banking share index listed in the Muscat Securities Market will be highlighted. The reason for choosing the research topic is that the banking sector is the most crucial sector in any economy and it affects the whole country and businesses directly and indirectly. As banks deal with interest, inflation, capital and short term funds, it becomes a critical area of interest for the researchers. The researcher has used other indices of chosen countries as a benchmark. The researcher has used the models emphasized by Markowitz (1952), Markowitz (1959) and Konno, H., and H, Yamazaki. (1991). The main rationale of the research project is to investigate and compare the banking share prices with that of the MSM 30 share index. The research will be useful for economic conditions of Oman based on the findings.

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1. Introduction:

During the past years, stock exchanges across the world have observed some strategic alliances or mergers. The study is focusing the banking stocks and its performance with that of the MSM 30 share index. MSM or Muscat Securities Market is the stock exchange of Oman. The stock exchange has a 30 share index that constitute 30 companies from various sectors such as banking, telecommunications, construction, FMCG, etc. The research emphasizes a period of five to six years of MSM trading. This research is primarily based on the secondary data collected from the Muscat Securities Market. Banking stocks are compared with that of the MSM 30 share index. Keywords: Muscat Securities Market,

2. Literature Review:

Mihajat (2016) underlines that the stock market is a public market for trading of shares and derivatives of companies at a price fixed by some mechanism. The size of the stock market depends on the number of companies traded and their market capitalization. Most of the trading is done through online or through virtual mode. The revenue and index of the stock market depends on the market capitalization and the volume of businesses. The revenue components of a typical stock market is from data dissemination, IT services, trading revenue, service revenue, etc.

Table 1 :

World Federation of Exchanges (WFE) members: Total Revenue Breakdown (2008 to 2012)

Percentage of Revenue	2008	2009	2010	2011	2012
Listing revenues	6.20%	6.30%	6.30%	6.40%	6.30%
Trading revenues	52.40%	53.90%	62.30%	60.90%	61.00%
Other Services revenues	33.30%	32.40%	24.90%	23.20%	25.80%
Financial income	4.00%	2.90%	2.90%	6.50%	4.90%
Others	4.20%	4.50%	3.50%	2.90%	2.00%

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

2.1 GCC :

GCC is referred to the Gulf Cooperation Council that has six countries as members namely Oman, Kuwait, Qatar, Saudi Arabia Bahrain and the UAE. These six countries have majorly oil based revenue and the same is often reflected in its stock market performances due to the global oil price changes.

2.2 Stock Exchange :

A stock exchange is categorized under the capital market which gives investors and companies to look for equity and debt instruments. Seccareccia (2017) states that the economic condition of a country is often reflected in the form of the stock market and its trading. A company's market capitalization is often reflected in the stock market and is a direct implication of the economic condition of a country. The same is applicable for a bank and its banking stock.

Benefits of the stock exchange : Farooqi & Iqbal (2017) argues that the advantage of the stock market is to take advantage of synergies that is being created with mergers between listed companies. For example, Muscat Securities Market plays a wider role for companies in same industries for their mergers or acquisitions. The market capitalization plays a vital role in this type of scenario. As the technological changes are seen in various sectors, stock market dealings, buying and selling is also done through the use of internet. The researcher adds that the use of new technology has increased the investment potential of the customers. The trading systems are wide and therefore volume traded have increased substantially. Farooqi & Iqbal (2017) emphasizes that the saving potential of the Omani investors have increased with the help of investments done in the banking stocks through the MSM market.

Economies of Scale & Scope : Yuan-Duen, Chiu-Chuan, Min-Tzu & Chen-Fen (2017) underlines that the Muscat Securities Market provides economies of scale in terms of demand and supply side of the investment. The supply side of economies of scale is pertinent to the banking industry stock traded in the MSM market, and the higher fixed cost is concerned with the information technology whereas the MSM provides a single trading platform lowering the average unit cost of the traded volumes. Raut, Cheikhrouhou & Kharat (2017) underlines that the impact of the trading fees and liquidity aspects have a higher influence on the investors of banking stock. The bid ask spread has reduced considerably whereas the liquidity potential of these stocks is high.

Benefits of Banking Stocks : Mihajat (2016) outlines that the banking stocks has enhanced liquidity in the MSM market. The ability to execute timely orders is an advantage for the banking stocks. The trading volumes of the banking stock is high in the MSM market and therefore reduced bid ask spread is apparent in the market.

Arab Stock Markets : Sharma & Sharma (2017) states that the Arab emerging market exchanges have grown with the help of cross border consolidations. However, there is weak regulatory framework and macroeconomic instability for the international investors. The researcher adds that this is the reason why the Arab exchanges are limited in size and liquidity. In UAE, there are three stock exchanges and they are the mirrors for the regional US exchanges. ADX and DFM are monitored by the Securities and Commodities Authority whereas the NASDAQ Dubai is regulated by the Dubai Financial Services Authority (Mihajat, 2016).

3. Analysis & Discussions :

3.1 Trading :

The trading activity of the MSM market should commence with proper price and volume measures.

Table 2 : Yearly Stock Value Traded in the GCC Stock Markets (in Million U.S. $)

	2010	2011	2012	2013	2014	Average	Rank
Abu Dhabi Securities Exchange	9115.70	6644.59	6049.40	23 092.59	39 597.84	16 900.02	5
Bahrain Bourse	283.26	245.92	251.73	549.58	680.16	402.13	7
Qatar Stock Exchange	17 726.54	21 589.79	17 719.41	19 883.61	52 468.25	25 877.52	3
Dubai Financial Market	18 473.25	8693.29	13 245.55	43 529.01	102 614.06	37 311.03	2
Kuwait Stock Exchange	42 772.42	20 844.91	22 997.87	40 313.99	21 051.83	25 385.84	4
Muscat Securities Market	3365.40	2535.17	2716.03	5770.28	5628.02	4002.98	6
Saudi Stock Exchange	192 445.39	286 945.15	501 417.19	361 867.54	561 198.23	380 774.70	1
Total	284 181.96	347 498.82	564 397.18	495 006.60	783 238.39	494 864.59	

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The researcher highlights that the MSM market has a considerable presence in the GCC stock exchange. However, the Saudi Stock Exchange is ranked at top whereas the MSM comes at the 6th position. Omani economy is dominated by Oil and gas exports but since few years the economy is diversifying. More emphasis is placed in the agriculture, service and tourism sector. The growth in these sectors will influence the banks and the banking stocks as well.

Table 3 : Yearly Stocks Value Traded in the GCC Stock Markets (in US $ Million)

	2010	2011	2012	2013	2014	Average	Rank
Bahrain Bourse	283.26	245.92	251.73	549.58	680.16	402.13	6
Qatar Stock Exchange	17 726.54	21 589.79	17 719.41	19 883.61	52 468.25	25 877.52	3
Kuwait Stock Exchange	42 772.42	20 844.91	22 997.87	40 313.99	21 051.83	29 596.20	4
Muscat Securities Market	3 365.40	2 535.17	2 716.03	5 770.28	5 628.02	4 002.98	5
Saudi Stock Exchange	192 445.39	286 945.15	501 417.19	361 867.54	561 198.23	380 774.70	1
Combined ADX & DFM	27 588.95	15 337.88	19 294.95	66 621.60	142 211.90	54 211.06	2
Total	284 181.96	347 498.82	564 397.18	495 006.60	783 238.39	494 864.59	

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The above table also reflects that annual stock values of the mentioned stock exchanges. Muscat Securities Market is ranked at 5th position whereas the Saudi Stock Exchange is at the 1st position.

Table 4 : Yearly Volume of Share Traded in the GCC Stock Markets (in Million)

	2010	2011	2012	2013	2014	Average	Rank
Abu Dhabi Securities Exchange	17 111.97	15 601.53	16 343.68	51 455.36	58 522.27	31 806.96	4
Bahrain Bourse	610.12	486.57	561.14	1791.67	1096.87	909.27	7
Qatar Stock Exchange	2012.25	2162.66	2190.22	1848.73	4248.49	2492.47	6
Dubai Financial Market	37 578.17	25 018.05	40 462.90	127 180.36	158 898.20	77 827.54	1
Kuwait Stock Exchange	73 682.50	37 877.47	27 195.08	129 921.34	54 659.79	64 667.24	3
Muscat Securities Market	2990.60	2341.97	4247.54	8033.08	6411.16	4804.87	5
Saudi Stock Exchange	31 555.34	47 640.18	83 653.14	51 916.56	68 420.65	56 637.17	2
Total	165 540.95	131 128.43	174 653.7	372 147.10	352 257.43	239 145.52	

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The above table also reflects that the yearly volume of shares traded in various GCC stock markets are increased since 2010. Muscat Securities Market holds 5th position whereas the Dubai Financial Market is at the 1st position. Dubai Financial Market has a large portion of derivative contracts that makes it an attractive market for the institutional buyers and suppliers.

Table 5 : Annual Number of Transactions in the GCC Stock Markets

	2010	2011	2012	2013	2014	Average	Rank
Abu Dhabi Securities Exchange	352 879	278 474	257 719	555 046	863 908	461 605	5
Bahrain Bourse	19 375	9940	8612	12 861	13 570	12 872	7
Qatar Stock Exchange	1017 570	1045 587	769 263	915 347	197 4551	1144 464	2
Dubai Financial Market	777 326	442 069	621 421	1337 857	2388 581	1113 451	4
Kuwait Stock Exchange	1237 908	608 585	319 669	2252 744	1226 739	1129 129	3
Muscat Securities Market	536 135	353 121	322 074	449 807	398 104	411 848	6
Saudi Stock Exchange	16 108 992	11 296 213	10 764 105	11 770 244	1 112 8667	12 213 644	1
Total	20 050 185	14 033 989	13 062 863	17 293 906	17 994 120	16 487 013	

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The largest number of transactions are attributed to the Saudi Stock Exchange whereas MSM has ranked 6th in the GCC pertaining to the number of transactions.

Table 6 : Market Capitalization of Banking Stock (in Million U.S. $)

	2010	2011	2012	2013	2014	Average	Rank
Abu Dhabi Securities Exchange	71 268.62	71 059.08	76 568.42	116 909.90	133 964.72	93 954.15	4
Bahrain Bourse	19 902.66	16 513.32	15 423.58	18 466.25	21 058.17	18 272.80	7
Qatar Stock Exchange	123 316.64	128 439.21	130 677.09	152 588.80	185 855.18	144 175.38	2
Dubai Financial Market	54 722.23	49 548.92	50 050.85	70 713.08	87 863.73	62 579.76	5
Kuwait Stock Exchange	124 919.97	100 927.95	104 210.28	110 275.46	102 923.48	108 651.43	3
Muscat Securities Market	21 712.05	19 697.72	22 265.96	27 407.95	27 327.52	23 682.24	6
Saudi Stock Exchange	353 419.01	33 8791.41	373 404.62	459 452.22	494 245.34	403 862.52	1
Total	769 261.18	724 977.61	772 600.80	955 813.66	1053 238.14	855 178.28	

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The market capitalization of the banking stock also reflects a higher turnover of Saudi Stock Exchange as compared to other six stock exchanges in the GCC region. The banking stocks in MSM is at the 6th position as compared to its counterparts in the GCC region.

Table 7 : Number of Days Traded every year

	2010	2011	2012	2013	2014	Average	Rank
Abu Dhabi Securities Exchange	244	245	250	248	251	248	2
Bahrain Bourse	246	245	247	246	245	246	3
Qatar Stock Exchange	244	233	224	232	236	234	7
Dubai Financial Market	247	250	252	249	249	249	1
Kuwait Stock Exchange	242	243	250	247	244	245	4
Muscat Securities Market	245	242	243	242	237	242	6
Saudi Stock Exchange	238	243	244	245	245	243	5

Sources: Compiled from AMF, ADX; BHB; QSE; DFM; KSE; MSM and Tadawul.

The GCC stock markets reflects that the Dubai Financial Market has the highest number of traded days in a year as compared to other markets. Muscat Securities Market stands at the 6th position for the same.

3.2 Portfolio risk of banking Stock of MSM :

Seccareccia (2017) underlines that the portfolio risk plays a critical role in the stock market for the banking stocks. The risk assessment and management is an important factor for portfolio optimization of banking stocks. There are many alternative risk measures to overcome the drawbacks of the variance. The first mathematical model given by Markowitz considers both the aspects, viz minimization of risk and maximization of returns (Farooqi & Iqbal, 2017). This model is highlighted in a linear optimization model where the returns of the portfolio are multivariate and is equivalent to the mean variance model. This is based on the absolute deviation. The researcher paper will investigate and compare the banking stocks with that of the MSM 30 share index. The effects of changes in the stock markets will also be indicated. The researcher has taken the historical data as the basis for the analysis.

3.3 The Pedagogy :

The research work is based on two steps, viz

    a. To choose important indicators that influences the stock market index.

    b. To use the chosen indicator for analysis (minimization of risk at an optimum level of return).

The inputs will be indicators of the banking stocks in the Muscat Securities Market. The output will be the stock market and the economy as a whole. The following formula will be used for the stock market index:

$$R_i\left(t_n\right) = \left(P_i\left(t_n\right) - P_i\left(t_{n-1}\right)\right) / P_i\left(t_{n-1}\right)$$

For each of the asset, the returns expectations for n assets are indicated by

$$E(r_P) = \sum_{i=1}^{n} w_i E\left(r_i\right)$$

Where

        n   =   the number of banking securities

        w_i =   the ratio of funds invested in the security i.

        r_i, r_p =   these are the returns on i^{th} security and p portfolio

$$E() \quad = \quad \text{the variable expectation in ()}$$

$$P_i \quad = \quad \text{the price of the } i^{th} \text{ security and p portfolio}$$

Assume that the portfolio has n assets with the returns in terms of R_i, where i is 1 …. n.

Risk Measures – Mean Variance

Markowitz has emphasized on the mean variance as the measure of risk. The Markowitz model recognizes the theory of financial economies. The mode describes the following equation :

$$Min \ \sigma_X^2 \ = \ \sum_{i=1}^{n} \sum_{j=1}^{n} w_i w_j \rho_{ij} \sigma_i \sigma_j$$

subject to

$$\sum_{i=1}^{n} w_i E(R_I) = E$$

$$\sum_{i=1}^{n} w_i = 1.0$$

Where

R_i	=	the return on asset i
W_i	=	the weighted aspect of the asset I
W_j	=	the weighted component of the asset J
P_{ij}	=	the correlation coefficient between return on securities i and r_i;
		the rates of return on security j, r_j.
σ_i	=	standard deviation of r_i
σ_j	=	standard deviation of r_j
n	=	number of banking securities
E	=	the target expected return

In the above equation, the first constraint refers to the expected return on the given portfolio and the second constraint refers to the weights of the chosen banking securities in the portfolio.

Mean Absolute Deviation :

The researcher has used the model emphasized by Konno and Yamazaki linear programming model for the portfolio optimization whereby the risk measure is the mean absolute deviation or MAD. The give model calculates the minimized MAD of the portfolio subject to the lower returns.

$$\min_{w_i} \frac{1}{N} \sum_{n=1}^{N} \left| \sum_{i \in s} w_i (R_i(t_n) - \bar{R}_i) \right|$$

The chosen variables are same as in the earlier model.

Conditional Value at Risk (CVAR) :

The risk reduction technique uses the probability that the portfolio will be exposed to huge losses. This is often referred to as Mean Excess Loss, Mean Shortfall or the CVAR. This model was presented by Rockafellar and Uryasev. It calculates the value at risk (VaR). The following equation reflects the model :

$$CVaR_\alpha(x) = \frac{1}{1-\alpha} \int_{f(x,y) \geq VaR_\alpha(x)} f(x,y)p(y)dy$$

Where:

α = the probability level such that $0 < \alpha < 1$.

$f(x,y)$ = the loss function for a portfolio x and asset return y.

$p(y)$ = the probability density function for asset return y.

VaR_α = the value-at-risk of portfolio x at probability level α.

The alpha α for the model is 0.9 or 0.95.

3.4 Model Analysis :

The chosen data was taken from the daily stock market indices for a duration of 664 days starting on 21st December 2014 until 15th June 2017. The chosen stock market is the Muscat Securities Market.

The banking stocks chosen for the model are :

    a. Bank Muscat – conventional bank with Islamic window banking

    b. Bank Sohar - conventional bank with Islamic window banking

    c. Bank Dhofar - conventional bank with Islamic window banking

    d. HSBC Bank Oman – conventional bank

    e. National Bank of Oman - conventional bank with Islamic window banking

    f. Al Izz Bank – Islamic bank

    g. Bank Nizwa – Islamic bank

3.5 The Algorithm of the Model :

Model 1 :

Step 1 : firstly find the mean, standard deviation and the variance of the chosen indicates (banking stock) and that of the 30 share index of MSM.

Step 2 : Start with the portfolio weight

Step 3 : Compute the portfolio general stock market index, mean variance and standard deviation

Step 4 : Calculate the minimum variance portfolio

Model 2 : MAD

Step 1 : calculate the mean, standard deviation and the variance of the banking indices and the 30 share index of the MSM. Calculate correlation coefficient and covariance.

Step 2 : assume portfolio weights

Step 3 : compute the minimum variance portfolio

Step 4 : calculate the range of portfolio weights of the risky assets to range the optimized level

Model 3 : CVAR

Step 1 : calculate mean, standard deviation and variance of the banking indices and the 30 share index of MSM

Step 2 : assume portfolio weights

Step 3 : compute minimum variance portfolio

Step 4 : range the portfolio weights and highlight the risky assets to reach the optimized level.

4. The Results :

Portfolio Risk with Assuming fixed returns

Country : Oman; Stock Market : Muscat Securities Market

models	MV	MAD	CVaR
	0.7051 (BSE)	0.7132 (BSE)	0.6954 (BSE)
	0.0282 (Brazil)	0.0283 (Brazil)	0.0265 (Brazil)
	0.0171 (CAC40)	0.0153 (CAC40)	0.0253 (CAC40)
	0.0847 (Mexico)	0.0809 (Mexico)	0.0885 (Mexico)
	0.0069 (India)	0.0043 (India)	0.0065 (India)
	0.0195 (South Korea)	0.0181 (South Korea)	0.0157 (South Korea)
	0.0771 (Indonesia)	0.0782 (Indonesia)	0.0777 (Indonesia)
	0.0613 (China)	0.0616 (China)	0.0644 (China)
expected return	0,0005	0,0005	0,0005
portfolio std.deviation	0,0049	0,0049	0,0049

country	Japan			India			Muscat Securities Market		
models	MV	MAD	CVaR	MV	MAD	CVaR	MV	MAD	CVaR
	0.1548 (ADSM)	0.1539 (ADSM)	0.1570 (ADSM)	0.0265 (ADSM)	0.0268 (ADSM)	0.0258 (ADSM)	0.0615 (ADSM)	0.0632 (ADSM)	0.0638 (ADSM)
	0.1140 (DSM)	0.1159 (DSM)	0.1131 (DSM)	0.0111 (DSM)	0.0094 (DSM)	0.0106 (DSM)	0.0483 (DSM)	0.0444 (DSM)	0.0483 (DSM)
	0.1097 (CASE30)	0.1076 (CASE30)	0.1072 (CASE30)	0.2697 (MSM)	0.2671 (MSM)	0.2727 (MSM)	0.4279 (KSE)	0.4277 (KSE)	0.4340 (KSE)
	0.0455 (Norway)	0.0458 (Norway)	0.0464 (Norway)	0.2882 (KSE)	0.2901 (KSE)	0.2984 (KSE)	0.0175 (CAC40)	0.0207 (CAC40)	0.0167 (CAC40)
	0.1326 (FTSE100)	0.1418 (FTSE100)	0.1329 (FTSE100)	0.1865 (Canada)	0.1886 (Canada)	0.1770 (Canada)	0.1111 (Mexico)	0.1170 (Mexico)	0.1106 (Mexico)
	0.0985 (Singapore)	0.1031 (Singapore)	0.0926 (Singapore)	0.0236 (CAC40)	0.0169 (CAC40)	0.0290 (CAC40)	0.0489 (Norway)	0.0457 (Norway)	0.0516 (Norway)
	0.1285 (SWISS)	0.1158 (SWISS)	0.1308 (SWISS)	0.0117 (Mexico)	0.0148 (Mexico)	0.0161 (Mexico)	0.2122 (Malaysia)	0.2138 (Malaysia)	0.2081 (Malaysia)
	0.1122 (Australia)	0.1089 (Australia)	0.1160 (Australia)	0.0269 (Singapore)	0.0323 (Singapore)	0.0221 (Singapore)	0.0062 (India)	0.0063 (India)	0.0045 (India)
	0.1025 (China)	0.1029 (China)	0.1040 (China)	0.1267 (Malaysia)	0.1272 (Malaysia)	0.1253 (Malaysia)	0.0084 (South Korea)	0.0037 (South Korea)	0.0037 (South Korea)
	0.0015 (Tasi)	0.0042 (Tasi)	0 (Tasi)	0.0290 (China)	0.0268 (China)	0.0261 (China)	0.0589 (China)	0.0585 (China)	0.0588 (China)
expected return	0,0003	0,0003	0,0003	0,0007	0,0007	0,0007	0,0005	0,0005	0,0006
portfolio std deviation	0,007	0,007	0,007	0,0047	0,0047	0,0047	0,0066	0,0066	0,0066

5. Discussion and Conclusion :

1. The concept of expressing 30 share index of Oman in terms of banking indicators is identified.

2. This research takes into consideration three different models for comparing banking stock with that of 30 share index of MSM and chosen country indices.

3. The research has introduced a new mechanism to calculate the risk level of the banking stock and to optimize their returns.

4. The main conclusion is that the three models chosen are having approximately the same results.

5. The researcher recommends that the use of simplest model propounded by Markowitz (MV) is more applied and practical.

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