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LEVERAGE IMPACT ON STOCK RETURNS IN SAUDI ARABIA

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ABSTRACT

The study aimed to investigate impact of market portfolio, stock returns size, value and leverage toward stock returns in Saudi Arabia between January 2010 and December 2015. The result showed that leverage had impact on two company's stock returns, size on one company and firm's value on three companies while market portfolio was main determinant of Saudi stock return variation. This study was used secondary data obtained from Bloomberg database. This study had applied regression analysis for model test using last six years (2010-2015) monthly data. In additions, this study used t-test and test significant of impact of independent variable on dependent variable test statistic (T-statistic) was used. The result suggested that explanatory power of four factor model used in this study varied from 17.94% to 69.72%.

INTRODUCTION

The stock returns in the stock market reflect a company performance comparing to other companies in the market [1]. Leverage is an important risk factor that has a significant impact on the stock returns. An Increase in the leverage leads to an increase in the cost of capital. Therefore, the value of a firm will be affected due to higher financial and bankruptcy risk. As a result, the required rate of return will be affected.

The stock returns used market risk (CAPM). Meanwhile, Fama et al. [2] added size and book-to market factors. In this study, leverage will be a risk factor on the stock returns.

There were several previous studies had examined the relationship between leverage and stock return in respect to other factors. Modigliani et al. [3], Hamada [4], Bhandari [5], Westerfield et al. [6] and Bhayani [7] found positive relationship between leverage and stock return to other factors [3-7]. In contrast, Penman et al. [8] and Acheampong et al. [9] showed leverage was related negatively to the stock returns.

The Saudi stock market was established formally in 1984 and still very young market comparing to other stock market. Meanwhile, Saudi stock market was one of main emerging market in the Arab region. It's important to understand the factor that determines stock return of companies that exist in Saudi market. The study was aimed to determine leverage, size, value and market portfolio impact on stock returns in Saudi Arabia.

METHODOLOGY

This study was used secondary data obtained from Bloomberg database. The data of the 1 firms' size, book to market, leverage and Saudi stock market returns were obtained from Bloomberg Professional Database. Each company had different data set between year 2010 and 2015 monthly data. Risk-free rate obtained from FRED database (The Federal Reserve St. Louis). SASEIDX index (Tadawul All-Share TASI Index) used as proxy for Saudi Arabia stock market. This study had applied regression analysis for model test using last six years (2010-2015) monthly data. Regression analysis used to estimate the relationship between two variables x and y to estimate actual outcomes and check whether model fit or not. $Y=F(X)$ described the relationship and variation of X or more independent variables (predictor) on Y dependent variable (response).

In additions, this study used t-test and test significant of impact of independent variable on dependent variable test statistic (T-statistic) was used. Test statistic compared parameter value stated by null hypothesis with an estimate of parameter from sample data.

RESULT AND DISCUSSION

Result

Table 1 tabulates the Descriptive Statistic of the selected companies. The value of mean, standard error, median, standard deviation, sample variance, kurtosis, and Skewness for each company were executed.

Table 1: Descriptive Statistic

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Al Jouf	1180.04	29.88	1190.10	215.45	46420.52	-0.35	-0.001
Al Qassim Agricu	680.55	63.41	496.25	358.71	128675.70	0.40	1.36
Alabdullatif Inv	2780.15	66.14	2644.69	561.18	314917.61	-1.27	0.27
Almarai Co	32327.62	1333.20	27147.96	11312.60	127974845.6	-0.97	0.72
Alsorayai Group	752.97	12.75	749.25	106.67	11377.81	0.44	0.33

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Anaam Internatio	625.45	16.49	624.55	139.95	19587.18	-1.07	-0.14
Ash-Sharqiyahde	274.72	4.92	267.75	20.29	411.52	-0.41	0.78
Halwani Bros Co	1793.85	69.39	1764.29	500.40	250399.06	-1.39	-0.02
Jazan Developmen	865.41	22.60	819.50	191.80	36787.09	1.55	1.21
National Agricul	1968.14	58.94	1785.00	500.13	250127.81	-0.08	1.01
Red Sea Housing	1871.16	86.80	1597.50	736.55	542502.13	0.96	1.39
Saudi Fisheries	1433.13	511.62	1527.69	437.97	191817.25	-0.89	0.16
Saudi Paper Manu	1326.44	36.13	1265.63	306.56	93981.86	1.13	0.71
Savola	24708.26	1205.09	20175.00	10225.52	104561164.87	-0.98	0.63
Tabuk Agricultur	627.21	18.29	649.25	155.20	24087.61	-0.81	-0.27
Wafrah For Indus	791.48	54.19	780.80	236.22	55800.55	-0.77	0.52

ASH-SHARQIYAH DE Company had lowest mean value of 274.72 and ALMARAI had highest mean of 32327.62. Meanwhile, ASH-SHARIYAH De had lowest standard deviation of 20.29 and ALMARAI had highest standard deviation of 11312.60. ASH-SHARQIYAH DE had lowest variance value of 411.52 and ALMARAI had highest variance of 127974845.60.

TABUK AGRICULTUR had lowest skewness of -0.27 and REA SEA HOUSING had highest skewness of 1.39. In additions, 4 out of 16 companies had negative skewness and 12 companies had positive skewness. According to Kurtosis values, normal curve was lower than standard normal curve. Moreover, Table 2 demonstrates the descriptive statistic of market portfolio.

Table 2: Descriptive statistic of market portfolio

Rm-Rf	
Mean	0.55
Standard error	0.64
Median	1.62
Standard deviation	5.42
Sample variance	29.33
Kurtosis	1.16
Skewness	-0.56
Range	30.11
Minimum	-17.00
Maximum	13.11

The mean was 0.55, standard deviation was 5.42 and variance of 29.33. The skewness had value of -0.56 which indicated normal curve was lower than standard normal curve. Next, Table 3 demonstrates the descriptive statistic of the leverage.

Table 3: Descriptive statistic of the leverage

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Al Jouf	4.49	0.21	5.06	1.50	2.26	0.07	-1.00
Al Qassim Agricu	0.82	0.27	0.37	1.50	2.25	6.91	2.90
Alabdullatif Inv	20.99	0.81	23.08	6.87	47.18	-0.29	-0.66
Almarai Co	42.39	0.34	42.33	2.90	8.38	-0.11	0.50
Alsorayai Group	38.02	0.36	37.06	2.97	8.85	-0.21	0.84
Anaam Internatio	11.28	0.60	8.29	5.11	26.15	-1.01	0.77
Ash-Sharqiyahde	4.08	0.66	4.02	2.73	7.43	-1.78	-0.33
Halwani Bros Co	10.78	1.00	7.96	7.23	52.33	-0.67	0.71
Jazan Developmen	4.59	0.13	4.68	1.13	1.28	-0.88	-0.55
National Agricul	43.63	0.50	42.96	4.23	17.92	-1.19	0.10
Red Sea Housing	19.50	0.55	19.02	4.63	21.48	-0.75	-0.20
Saudi Fisheries	18.89	0.65	17.97	5.54	30.64	0.42	0.29
Saudi Paper Manu	52.72	0.48	54.49	4.08	16.64	-0.72	-0.70
Savola	32.73	0.36	32.79	3.09	9.52	-1.02	0.46
Tabuk Agricultur	3.90	0.25	4.35	2.12	4.50	-0.69	-0.19
Wafrah For Indus	7.96	0.58	6.91	2.52	6.35	-1.36	0.32

AL QASSIM AGRICU had lowest mean of 0.82 and SAUDI PAPER MANU had highest mean of 52.72. AL-QASSIM AGRICU had lowest standard deviation of 1.50 and HALWANI BROS CO had highest standard deviation of 7.23. JAZAN DEVELOPME had lowest variance of 1.28 and HALWANI BROS CO had highest variant of 52.33. AL JOUF had lowest skewness of -1.00 and AL QASSIM AGRICU had high skewness of 2.90. Meanwhile, 7 companies had negative skewness and 9 companies had positive skewness. AL QASSIM AGRICU had skewness of 6.91 which the peak was higher than standard normal curve. In addition, Table 4: tabulates the descriptive statistic of the value.

Table 4: Descriptive statistic of the value

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Al Jouf	0.59	0.01	0.57	0.08	0.007	1.16	0.83
Al Qassim Agricu	0.68	0.04	0.77	0.24	0.059	-1.00	-0.75
Alabdullatif Inv	0.47	0.01	0.48	0.07	0.005	-1.22	-0.03
Almarai Co	0.27	0.00	0.27	0.03	0.001	-1.05	-0.03
Alsorayai Group	0.62	0.01	0.64	0.09	0.008	0.64	0.09
Anaam Internatio	0.26	0.01	0.27	0.07	0.005	0.97	0.74
Ash-Sharqiyahde	0.30	0.01	0.31	0.02	0.001	-1.09	-0.59
Halwani Bros Co	0.34	0.01	0.32	0.09	0.008	-0.73	0.66

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Jazan Developmen	0.71	0.02	0.70	0.16	0.027	-0.27	0.10
National Agricul	0.58	0.01	0.59	0.09	0.008	-0.43	-0.59
Red Sea Housing	0.48	0.01	0.47	0.12	0.015	-0.74	-0.19
Saudi Fisheries	0.17	0.01	0.17	0.05	0.003	-0.56	-0.11
Saudi Paper Manu	0.51	0.01	0.51	0.13	0.016	1.04	0.65
Savola	0.45	0.01	0.48	0.13	0.016	-1.25	-0.02
Tabuk Agricultur	0.68	0.02	0.63	0.20	0.041	-0.82	0.58
Wafrah For Indus	0.28	0.02	0.27	0.07	0.005	-1.07	0.41

SAUDI FISHERIES had lowest mean of 0.17 and JAZAN DEVELOPME had highest mean of 0.71. ASH-SHARQIYAH De had lowest standard deviation of 0.02 and TABUK AGRICULTU had highest standard deviation of 0.20. ASH-SHARQIYAH DE had lowest variance of 0.001 and AL QASSIM AGRICU had highest variance of 0.059. RED SEA HOUSING had lowest skewness of -0.19 and AL JOUF had highest skewness of 0.83. There were 8 companies had negative skewness and 8 companies had positive skewness. All companies had Kurtosis less than 3, normal curve was lower than standard normal curve. Besides that, Table 5 demonstrates the descriptive statistic of the stock return.

Table 5: Descriptive statistic of the stock return

Company name	Mean	Std. Error	Median	Std. D.	Sample variance	Kurtosis	Skewness
Al Jouf	1.14	1.07	0.32	7.74	59.96	1.42	-0.002
Al Qassim Agricu	3.48	3.15	-0.38	17.80	316.95	8.24	2.38
Alabdullatif Inv	0.36	0.82	0.79	6.92	47.93	0.40	-0.54
Almarai Co	1.46	0.63	1.94	5.39	29.02	0.80	0.17
Alsorayai Group	-0.19	1.15	-0.71	9.61	92.29	1.47	0.55
Anaam Internatio	-0.16	1.47	-1.32	12.48	155.63	5.31	1.01
Ash-Sharqiyahde	0.86	1.35	1.43	5.59	31.21	-0.28	0.20
Halwani Bros Co	2.06	1.45	2.09	10.47	109.62	1.78	0.79
Jazan Developmen	0.80	1.25	1.70	10.63	113.05	0.62	0.31
National Agricul	0.59	0.92	-0.69	7.82	61.19	0.02	0.32
Red Sea Housing	0.32	1.19	-0.22	10.06	101.21	0.29	-0.23
Saudi Fisheries	-0.01	1.57	-0.63	13.36	178.57	14.01	2.56
Saudi Paper Manu	-0.15	1.39	-1.23	11.76	138.35	2.20	0.94
Savola	1.17	0.85	1.52	7.22	52.19	0.09	-0.05
Tabuk Agricultur	0.22	1.36	0.77	11.56	133.69	6.94	1.21
Wafrah For Indus	-4.51	2.65	-4.66	11.56	133.65	0.30	0.16

WAFRAH FOR INDUS had lowest mean value of -4.51 and AL QASSIM AGRIC had highest mean of 3.48. There were 5 companies had negative mean and 11 companies had positive value. ALMARAI had lowest standard deviation of 5.39 and AL QASSIM AGRICU had highest standard deviation of 17.80. ALMARAI had lowest variance of 29.02 and AL QASSIM AGRICU had highest variance of 316.95. ALABDULLATIF INV had lowest

skewness of -0.54 and SAUDI FISHERIES had highest skewness of 2.56, Meanwhile, 4 companies had negative skewness and 12 companies had positive skewness.

In additions, SAUDI FISHERIES had Kurtosis of 14.01, TABUK AGRICULTUR had 6.939, ANAAM INTERNATIONAL had Kurtosis value of 5.31 and AL QASSIM AGRICU had Kurtosis of 8.24. The peal of normal curve was higher than standard normal curve. Furthermore, Table 6 tabulates the regression estimation of leverage and market portfolio for all companies.

Table 6: Regression estimation of leverage and market portfolio for all companies

Company name		Leverage	Market portfolio	Size	Value
Al Jouf	Coef.	-0.8406	0.6642	-0.0065	-36.1607
	t-test	-1.2510	(4.0572) ***	-0.9259	(-2.1010) ***
Al Qassim Agricu	Coef.	1.0542	1.4907	-0.0220	-44.8005
	t-test	0.5070	(2.5119) ***	-0.7349	-1.0347
Alabdullatif Inv	Coef.	0.0682	0.8656	-0.0051	-43.7423
	t-test	0.6997	(7.5970) ***	-1.2652	(-1.3545)
Almarai Co	Coef.	0.2516	0.6229	-0.00003	-55.1282
	t-test	1.2606	(6.8093) ***	-0.6114	(-2.5238) **
Alsorayai Group	Coef.	0.1977	1.0304	0.0150	4.7800
	t-test	0.5990	(5.6791) ***	0.8917	0.2462
Anaam Internatio	Coef.	-0.778	1.2672	0.0278	9.0731
	t-test	0.5990	(5.6791) ***	(1.8710) *	0.3606
Ash-Sharqiyahde	Coef.	1.2323	0.5793	-0.4124	-554.3217
	t-test	1.5072	(2.8308) ***	(-1.4313)	(-1.9925) *
Halwani Bros Co	Coef.	-0.3502	0.6930	-0.0028	-44.9275
	t-test	-1.0166	(2.5951) ***	-0.2406	-0.7905
Jazan Developmen	Coef.	-0.6572	0.8562	0.0085	0.9905
	t-test	-0.3982	(3.8288) ***	0.5485	0.0439
National Agricul	Coef.	0.0230	0.9352	0.0014	-7.8063
	t-test	0.0869	(7.0704) ***	0.2536	-0.3053
Red Sea Housing	Coef.	-0.0329	1.2864	0.0005	-3.3988
	t-test	-0.1451	(7.7107) ***	0.1762	-0.1830
Saudi Fisheries	Coef.	0.3162	1.0635	-0.0011	-29.7562
	t-test	1.0572	(3.7745) ***	-0.3015	-0.9478
Saudi Paper Manu	Coef.	0.0440	1.3615	0.0069	8.5027
	t-test	0.1267	(6.3574) ***	0.6553	0.3567
Savola	Coef.	-0.1781	0.8450	-0.0002	-18.4977
	t-test	-0.5950	(6.7611) ***	-0.6314	-0.8742
Tabuk Agricultur	Coef.	-2.2744	0.8578	0.0132	-17.7279
	t-test	(-2.4662) **	(3.7115) ***	1.0191	-1.6583
Wafrah For Indus	Coef.	1.3941	1.3779	-0.0129	-61.7555
	t-test	1.2185	(6.3880) ***	-0.688	-0.8369

DISCUSSION

For leverage, there was an impact on the stock returns of two companies included ANAAM INTERNATIONAL and TABUK. Meanwhile, another 14 companies found that leverage had no impact on stock returns. Besides, market portfolio had impact on the stock returns. The coefficient was from lowest value of -2.2744 to highest value of 1.3941. There were 7 companies had negative leverage coefficient value and 9 companies had positive values but only 2 companies were significance. The study result was similar with previous study by Acheampong et al. [9] which found leverage had positive coefficient in certain companies and negative coefficient in some companies in same sector.

Meanwhile, market portfolio had impact on the stock returns with 1% significance. The coefficient range of market portfolio varies from lowest value of 0.5793 to highest value of 1.4907. All companies' coefficient had positive value and meant market portfolio had positive and significant impact on Saudi stock return.

Besides, the firm size showed an impact only occurred with ANAAM INTERNATIONAL stock returns. There were 15 companies found firm size did not had impact on stock returns. The coefficient range varies from lowest values of -0.00003 to highest value of 0.0278. In additions, 9 companies had negative coefficient values and 7 companies had positive values.

Furthermore, the firm value which had an impact on the stock return of 3 companies which impacted on ALMARAI stock return with 1% significance, ALJOUF company with 5% significance and 10% significance with ALSHAQIAH. The coefficient range was from lowest value of 554.3217 to highest value of 9.0731. Twelve companies had negative coefficient values and 4 companies had positive values meant negative impact on Saudi stock return but only 3 were significance. The result also suggested that explanatory power of four factor model variable explained the stock returns variation of these companies by 17.94% to 69.72%.

CONCLUSION

In conclusions, leverage, size and value did not have strong impact stock return in Saudi Arabia compared to the market portfolio. The market portfolio was only factor relevant which implied that CAPM was god proxy for return in Agriculture and Food sector. Market portfolio was more relevant in this sector but the application of the four-sector model giving the importance of leverage should be used in other sectors.

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