

Actual and Required Return on Stocks Evidence from Jordan

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Abstract: The purpose of this study is to determine whether the actual returns on stocks are deferent from or close to the required returns relative to the level of risk calculated by the CAPM so that, the investors could actively manage their portfolios and hence, identify the overpriced or underpriced stocks or to assist in predicting market trends. To analyze this relationship, actual and required returns of a sample of 40 stocks from among 220 stocks listed in Amman Stock Exchange-ASE (first and second markets) were selected and analyzed, this sample represents all ASE market sectors for the period (2000-2016). Results showed that required returns of stocks are positively correlated to the systematic risk expressed by beta coefficients before and after 2008 the beginning of world financial crisis (to avoid the adverse effect of financial crisis on returns), negative co-relation of actual returns of stocks with beta coefficients and negative correlation of actual returns with required returns. So, relying on CAPM, the investors could not get benefit from this variation in returns and could not predict the mispriced stocks and then no capital gain will be obtained on this basis. This conclusion due to the fact that the stock market in Jordan is emerging market and is highly affected by rumors.

Key words: Actual return, required return, systematic risk, CAPM, affected, emerging, market

INTRODUCTION

Modern finance owes much of its accomplishment to the Capital-Asset Pricing Model (CAPM), a model that defines the relationship between the risks and returns on financial assets. During the past three decades not many economic models have done better than the CAPM in bridging the gap between theory and practice. Recently, the increasing assimilation of world financial markets is requiring economists to study more meticulously the theory itself. Despite of its many practical uses, the theory itself is far from dependable, the largest shortcoming being its dependence on the conception of a “market portfolio”. Theoretically, this should be the entire set of assets available in the world. Although, it is a global model, economists have until recently, almost ignored its global implications. In testing the theory’s legitimacy, many researchers have looked only at US markets while others have examined several countries but have centered primarily on bonds and shunned equities. As global markets become more integrated, recent empirical research has focused more on international markets and the application of CAPM to those markets, specifically in Asia and Europe.

Literature review: Capital Asset Pricing Model (CAPM) introduced for the first time by Markowitz (1959) who clarified the portfolio problem in terms of expected return and variance of return. Sharpe (1964) continued this job to

portfolio theory by offering concepts of systematic and unsystematic risk. Lintner (1965) analyzes the model for the years 1954-1963 in terms of yearly returns of 301 stocks, resulting a positive risk-return correlation but also positive residual returns. In another study, Fischer (1972) use the CAPM with monthly returns of stocks for the years 1926-1966, Black put the stocks into 10 balanced beta-ranked portfolios, the study finds a positive correlation coefficient between risk and return. Fama and MacBeth (1973) sort portfolios by betas calculated for single time periods. The results of the research supported CAP Model.

Black and FM, researches presented some irregularities which lead to the conclusion that beta is not the only measure of risk. Reinganum (1981) find different relationships between risk and return at different periods of time. He assured that beta coefficients are not systematically related to average returns on stocks for daily and monthly returns. Tinic and West (1984) also find a negative risk return correlation for part of the year, rejecting the CAPM. Lakonishok and Shapiro (1984, 1986) concluded strong correlation between market capitalization and returns. After few years, Fama and French (1992) show an immaterial relationship between risk and return and the same result appear after considering the size and book-to market ratio as controllers.

The discussion about CAPM continues as we see that conclusions of researches in the past and

present are very similar and discuss the same problems. Wong and Tan (1991) test the market in Singapore finding a negative risk-return relationship. Bark (1991) find the same conclusions in Korean markets. Cheung *et al.* (1993) investigate the markets in Korea and Taiwan for the period 1980-1988, he find weak risk-return relationship in both markets. Lam (2001) use the Fama and MacBeth (1993) method finding comparable results to Pettengill *et al.* (1995)'s research. Test results define strong relationship between positive betas and returns in up markets and also between negative betas and return in down markets. Huang (1997) analyze the Taiwan market for the period 1971-1993 finding a negative risk-return relationship. This contradicts the CAPM prediction. Hussein and Devinaga (2013) find that realized return exceeded the required return. However, the technology index, trading and services index, property index and construction index arenegatively associated with return during investigation period. Mollik and Bepari (2015) report a statistically significant positive relationship between risk and return both at the individual security level and at the portfolio level, confirming the theoretical predictions and empirical findings on this issue in developed markets.

MATERIALS AND METHODS

Theoretical framework

CAPM: Risk of assets is divided into systematic and unsystematic. Systematic risk is the market risk the portfolio face. When returns of the market move, each stock return will move with or against the market and is more or less influenced to the degree that any stock is affected by such market movements, Chou (2000) define unsystematic risk as the risk that can be diversified.

Bodie *et al.* (2013) state that the market will compensate investors for taking systematic risk but not the diversifiable risk. When an investor holds the market portfolio-through diversification the investor's risk is only the systematic risk of the market portfolio. Systematic risk can be measured using beta. The required return of a portfolio is beta multiplied by the market risk premium plus the risk free rate.

Risk and return: Fixed income securities such as bonds and money market securities offer lower risk and reward than stocks. Equities produce the higher returns but will also fluctuate in value more than other types of investments, Mausser and Rosen (2003). The amount of risk the investor is satisfied with depends on his willing to hold risk. If stability in returns and prices are more

important than growth, the risk will be low and better oriented to lower-risk investments and vice-versa (Eric and Pedro, 2004).

Statistics and results

Statistics: To test the relationship between actual and required returns on stocks, the following statistical tests are needed: single-linear regression between average returns on all stocks listed is ASE as independent variable and the (monthly returns of 40 stocks) as dependent variables in order to calculate the Beta for each stock in the sample and then using the CAPM to calculate the return required to the level of Betas of the sample.

Single-linear correlation between Betas for the 40 stocks as independent variable and return required to the level of Betas from one side and actual returns of the sample from other side for the same periods.

Single-linear correlation between return required to the level of Betas and actual returns of the sample for the same periods in order to find out any variation in returns.

RESULTS AND DISCUSSION

As shown in Table 1, the beta coefficients for the sample stocks are calculated. Using the CAPM, the return required to the level of systematic risk for each stock in the sample is also calculated. Actual returns of stocks are obtained from the reports of Amman Stock Exchange (ASE) for the years (2000-2016).

Table 2 shows the negative correlation coefficient between Betas and actual returns for the two periods, before the beginning of the world crisis and after 2008. And positive correlation coefficient of Betas with returns required to the level of risk.

Table 1: Required returns, betas and actual returns of stocks

Stock	Required Returns (RR) (%)	Stock beta	Actual Return (R) (%)
1	7.90	0.491	-0.330
2	7.00	0.343	2.780
3	6.30	0.220	3.000
4	1.11	1.040	4.100
5	6.70	0.286	8.330
6	8.90	0.659	3.370
7	9.00	0.670	17.56
8	9.50	0.758	25.00
9	6.30	0.218	-6.20
10	5.30	0.053	5.000
11	4.10	-0.147	19.60
12	3.60	5.251	7.300
13	8.20	0.549	10.50
14	7.30	0.387	-22.50
15	5.40	0.068	13.10
16	-2.20	-2.100	49.90
17	3.00	-0.339	-7.330
18	1.50	-0.598	-38.70
19	6.40	0.239	-15.25
20	-1.60	-1.121	7.700

Table 1: Countinue

Stock	Required Returns (RR) (%)	Stock beta	Actual Return (R) (%)
21	4.90	-0.025	3.800
22	7.30	0.388	26.330
23	10.30	0.903	10.800
24	1.90	-0.533	15.220
25	3.90	-0.182	15.000
26	6.60	0.276	8.330
27	4.50	-0.082	0.800
28	6.60	0.275	14.800
29	8.30	0.567	2.110
30	6.40	0.234	3.900
31	6.50	0.262	-8.000
32	5.70	0.119	13.220
33	8.00	0.500	-2.700
34	3.80	-0.204	-9.110
35	10.20	0.875	13.110
36	4.40	-0.098	12.000
37	5.90	0.146	-10.200
38	4.90	-0.011	8.000
39	9.10	0.698	-4.800
40	2.50	-0.431	25.500

Table 2: Correlation between betas and (R), (RR)

Values	Correlation (2000-2007) β	Correlation (2009-2016) β
Actual Returns (R)	-0.114	-0.30
Required Returns (RR)	0.390	0.55

Table 3: Correlation between (R) and (RR)

Correlation	(RR) (2000-2007)	(RR) (2009-2016)
(R)	-0.10	-0.321

This means that investors can predict expected positive returns on stocks if actual returns are negative as illustrated in Table 3 which shows the negative correlation between actual returns (R) and returns required to the level of risk.

CONCLUSION

Analyzing different studies conducted starting with Sharpe (1964) to Fama and French (1992), we see very mixed results on the applicability of the CAPM. Recent empirical evidence from 1995-2001 provides a similar picture. Early studies conducted in the US provide little insight into the CAPM; numerous studies show strong support while others present inconsistencies, discrepancies and outright reject the CAPM. In recent years, we observe the same conclusions. The beta debate still exists and negative risk-return relationships are presented while many studies provide support for CAPM using the Fama and MacBeth two-step approach. After using different methodologies, controlling of certain factors and variables and allowing variables to change, the inconclusiveness of the CAPM continues. The main strength of the CAPM is its predictability in determining the required rate of return related to securities where the main weakness is that estimated betas may not be systematically connected to stocks average rate of return

and not every required rate of return can be earned, so a negative risk-return relationship may exist. Such weakness resulted in this study where the correlation coefficient between risk and return was (-0.114) (-0.321): a negative risk-return relationship of stocks recorded in Amman Stock Exchange and inverse relationship between required rate of return and actual rate of return is illustrated also in this study, this may be attributed to the fact that Amman Stock Exchange still immature and inefficient market.

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REFERENCES

- Bark, H.K.K., 1991. Risk, return and equilibrium in the emerging markets: Evidence from the Korean stock market. *J. Econ. Bus.*, 43: 353-362.
- Bodie, Z., A. Kein and A. Marcus, 2013. *Essentials of Investment*. 9th Edn., McGraw-Hill Education, New York, USA., ISBN:9780077148249, Pages: 743.
- Cheung, Y.L., K.A. Wong and Y.K. Ho, 1993. The pricing of risky assets in two emerging Asian markets-Korea and Taiwan. *Appl. Financial Econ.*, 3: 315-324.
- Chou, P.H., 2000. Alternative tests of the zero-beta CAPM. *J. Financial Res.*, 23: 469-493.
- Eric, G. and S.C. Pedro, 2004. There is a risk-return trade off after all. National Bureau of Economic Research, Cambridge, England.
- Fama, E.F. and J.D. MacBeth, 1973. Risk, return and equilibrium: Empirical tests. *J. Political Econ.*, 81: 607-636.
- Fama, E.F. and K.R. French, 1992. The cross-section of expected stock returns. *J. Finance*, 47: 427-465.
- Fischer, B., 1972. Capital market equilibrium with restricted borrowing. *J. Bus.*, 45: 444-455.
- Huang, Y.S., 1997. An empirical test of the risk-return relationship on the Taiwan Stock Exchange. *Appl. Financial Econ.*, 7: 229-239.
- Hussein, A.S. and R. Devinaga, 2013. An empirical study on performance and risk-return relationship of industries within bursa Malaysia. *Aust. J. Basic Appl. Sci.*, 7: 156-165.
- Lakonishok, J. and A.C. Shapiro, 1984. Stock returns, beta, variance and size: An empirical analysis. *Financial Anal. J.*, 40: 36-41.
- Lakonishok, J. and A.C. Shapiro, 1986. Systematic risk, total risk and size as determinants of stock market returns. *J. Banking Finance*, 10: 115-132.

- Lam, K.S., 2001. The conditional relation between beta and returns in the Hong Kong stock market. *Appl. Financial Econ.*, 11: 669-680.
- Lintner, J., 1965. The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Rev. Econ. Stat.*, 47: 13-37.
- Markowitz, H., 1959. *Portfolio Selection: Efficient Diversification of Investments*. John Wiley & Sons, New York, USA., Pages: 344.
- Mausser, H. and D. Rosen, 2003. Efficient risk: Return frontiers for credit risk. *Algo Res. Q.*, 4: 35-43.
- Mollik, A.T. and M.K. Bepari, 2015. Risk-return trade-off in emerging markets: Evidence from Dhaka stock exchange Bangladesh. *Aust. Accounting, Bus. Finance J.*, 9: 71-88.
- Pettengill, G.N., S. Sundaram and I. Mathur, 1995. The conditional relation between beta and returns. *J. Financial Quant. Anal.*, 30: 101-116.
- Reinganum, M.R., 1981. Misspecification of capital asset pricing: Empirical anomalies based on earning's yields and market values. *J. Financial Econ.*, 9: 19-46.
- Sharpe, W.F., 1964. Capital asset prices: A theory of market equilibrium under conditions of risk. *J. Finance*, 19: 425-442.
- Tinic, S.M. and R.R. West, 1984. Risk and return: January vs. the rest of the year. *J. Financial Econ.*, 13: 561-574.
- Wong, K.A. and M.L. Tan, 1991. An assessment of risk and return in the Singapore stock market. *Applied Financial Econ.*, 1: 11-20.