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THE CONDITIONAL CAPM AND CROSS-SECTIONAL EVIDENCE OF RETURN AND BETA FOR ISLAMIC UNIT TRUSTS IN MALAYSIA

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ABSTRACT

The aim of this paper is to investigate the relationship between return and beta for Islamic unit trusts using the cross-sectional regression analysis. The estimation of return and beta without differentiating between positive and negative excess market returns produces a flat unconditional relationship between return and beta. Using the conditional CAPM and cross-sectional regression analysis, the evidence in this paper tends to support a significant positive relationship in an up-market and a significant negative relationship in a down-market. This paper suggests that beta could be used as a tool in explaining cross-sectional differences in Islamic unit trusts' returns and as a measure of market risk. Based on the adjusted-R^2 and standard error of the conditional relationship between returns we find that beta is higher in a down-market than in an up-market. Therefore, both statistics are appropriate measurements of conditional relationships.

JEL classification: G1, C2

Key words: Asset pricing; Cross-sectional models; Islamic unit trusts

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1. INTRODUCTION

The Capital Asset Pricing Model (CAPM) developed by Sharpe (1964), Lintner (1965) and Mossin (1966) has been one of the premier models in investigating the relationship between beta and financial asset return over the last three decades. Early tests of the CAPM, for example Black et al. (1972), were conducted within a single country by examining a single index return or many stocks return. In the international context, the test of CAPM as conducted by Ferson and Harvey (1994), pointed out that the mean-variance efficiency test may lack power and documented a weak cross-sectional relationship between return and beta. Other studies, such as Heston et al. (1999), explored the cross-sectional relationship between the size, beta and return in the stock of 12 European countries using individual securities. The result found a significant positive relationship between average stock return and beta, and a negative relationship with size.

Although, there has been a substantial amount of research focusing on the validity of CAPM, considerable controversy still exists. As reported by Fama and French (1992), they investigated the US stock returns and found that there is a flat relationship between return and beta.[1] Strong and Xu beta.1 Strong and (Xu (1997) also produced a similar finding on the insignificant relationship between beta and return in the UK stock market.

Later, Pettengill et al. (1995) proposed the conditional relationship between beta and return as a potential explanation of the observed weak relationship between beta and return in the US stock returns.[2] The result can be viewed in terms of whether beta has a role to play in explaining cross-sectional differences in country index returns. The above result is supported by Fletcher (2000) who examined the conditional relationship between return and beta in international stock returns. Fletcher used the model proposed by Pettengill et al. (1995) and the result found a significant positive relationship between beta and return in up-market months and a significant negative relationship in down market months. Both authors also suggested that beta is a useful tool in explaining cross-sectional differences in country index returns. Similar findings of a significant relationship between beta and return is reported in a study by Hodoshima et al. (2000) who investigated the relationship between beta and return using cross-sectional regression analysis.[3]

Although the test of CAPM has been extensively used to examine the return on stocks, its application in unit trusts was only reported by

a few researchers such as Sharpe (1966), Jensen (1969), Firth (1977 and 1978), Koh, Kee and Chin (1987), Fletcher (1997) and Hodoshima and Kunimura (2000). In Malaysia, to the authors' knowledge, the study on 54 unit trusts performance was conducted by Shamsher and Anuar (1996). They found that the average returns on investments in unit trusts were well below the market returns, the degree of diversification of the portfolio was below the expectations and, hence, the performance was not consistent over time.

The introduction of Islamic unit trusts opens a new dimension in economic activity and capital market in Malaysia. The mobilization of Islamic unit trusts is aimed to increase the equity among Muslim holders in Malaysia. The first Islamic unit trust[4] was launched in 1971, known as Asia UT Amanah Bakti Fund and managed by Asia Unit Trusts Berhad. As at the end of June 2001, there are about 15 Islamic unit trusts. Table 1 (see Appendix) shows the number and fund size of Islamic unit trusts in Malaysia from 1971 until June 2001. In 1971, there was 1 Islamic unit trust with total funds of about RM1,770.72 million and 80.377 million units in the market. At the end of June 2001, there were 15 Islamic unit trusts with total funds of about RM1,770.72 million and 3458.108 million units. The trend can be clearly seen in Figure 1.

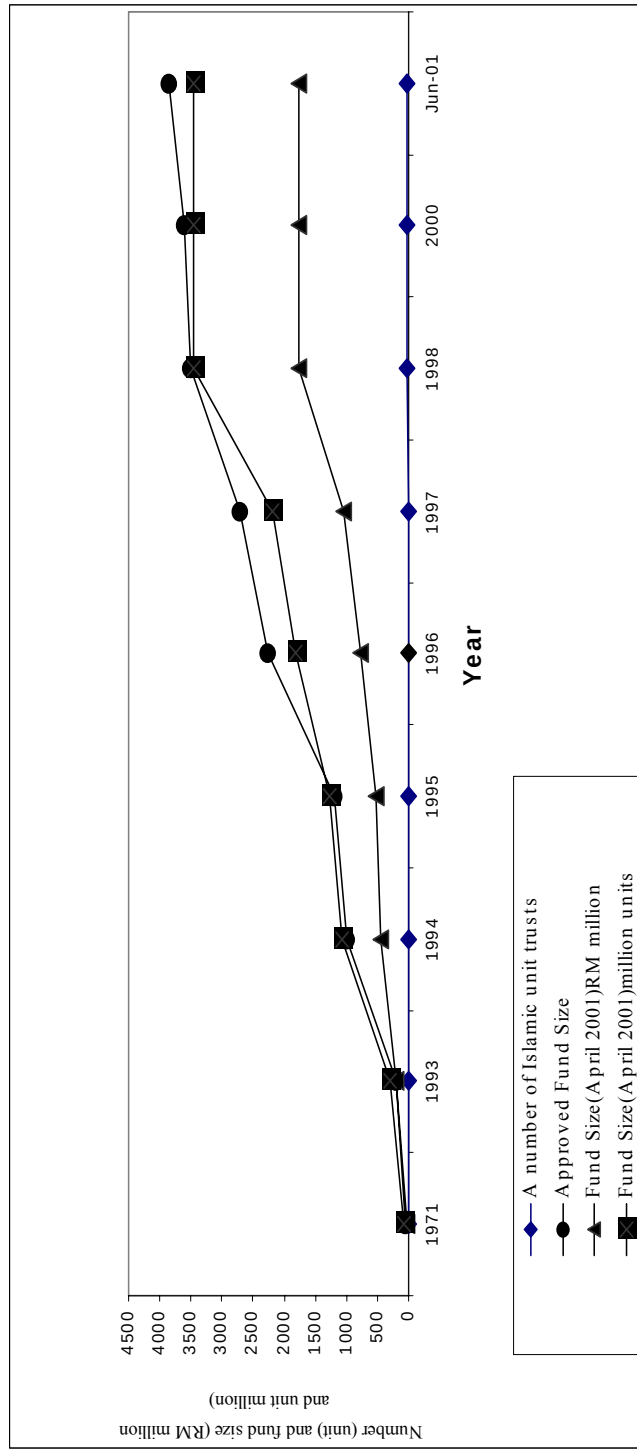
The objective of this paper is to investigate the conditional relationship between beta and return of 12 Islamic unit trusts using the *Shar¥c ah* index as a proxy of market index return. In addition, this paper also examines whether beta has a role to play in explaining cross-sectional differences in Islamic unit trusts returns. Furthermore, the results of both unconditional and conditional relationships will be compared to identify the role of beta.

2. LITERATURE REVIEW

Modern portfolio selection, as proposed by Markowitz, started in 1952. He proposed a technique of portfolio selection that maximizes expected utility to a combination of portfolio return and risk. This combination can be arranged systematically to form a linear relationship. This theory was later expanded by Treynor (1961), Sharpe (1964), Lintner (1965) and Mossin (1966) who introduced a single index model or known as the Capital Asset Pricing Model (CAPM).[5]

The following studies have been done to prove empirically the relationship between portfolio return and portfolio beta. The empirical test of CAPM can be divided into two tests: first, the time series test of

FIGURE 1
Number and Fund Size of Islamic Unit Trusts
(1971- June 2001)



the CAPM and second, the cross-sectional tests of the CAPM. The pioneering works of the first and second tests were carried out by Sharpe (1964); and Black, Jensen and Sholes (1972) and Fama and MacBeth (1973), respectively. Black, Jensen and Scholes (1972) used the equally-weighted portfolio of all stocks traded on the New York Stock Exchange (NYSE) as their proxy for the market portfolio between 1926-1965. They calculated the relationship between the average monthly returns on the portfolio and the betas and the portfolios of stocks were created ranging from high beta to low beta. A cross sectional regression was run to see if the betas were able to explain the differences in the returns across securities and the results show that the beta was able to explain the differences in the returns across securities.

This was followed by Fama and MacBeth (1973) who examined stocks traded on the NYSE between 1926 and 1965 and took as their proxy for the market portfolio an equally weighted portfolio of all NYSE stocks. They focused on one implication of the CAPM that the relationship between the expected return and beta is linear. They concluded that the Sharpe-Lintner-Black CAPM (or static CAPM) proves the linear relationship between expected return and beta with an assumption that beta is constant over time. Further, the application of CAPM has been done by Fama and French (1992) to investigate a group of portfolios of similar betas and size. These variables are constructed from all non-financial stocks traded on the NYSE, NASDAQ and AMEX between 1963 and 1990. Fama and French concluded that firm size and other accounting ratios were better predictors of observed returns than beta.

Fama and French (1992) also found a flat and insignificant relationship between beta and return. This result is against the CAPM hypothesis. The study also produced a controversial finding on the validity of the CAPM: first, as the main model in investigating the beta-return relationship; and second, on the role of beta in explaining financial asset returns. Other studies related to static CAPM are reported in Banz (1981), Reinganum (1981),[6] Gibbons (1982), Basu (1983). Chan, Chen and Hsieh (1985), Shaken (1985), Bhandari (1988), and Jagannathan and Wang (1996). They found that the static CAPM was unable to explain the cross-sectional variation of average returns.

Nevertheless, Pettengill et al. (1995) made a successful attempt to explain the weaknesses of a flat relationship between beta and return. He employed the conditional CAPM between beta and return in up-markets and down-markets. The results showed a significant relationship

between beta and return in the total sample and in period 1 (1936-1990) and an insignificant relationship in period 2 (1951-1970) and period 3 (1971-1990) at the 5 percent significance level. The results also found a positive relationship between beta and return during up-markets and a negative relationship during down-markets, thus supporting the continued importance of beta as a measure of market risk. The study can be further extended because no study has directly examined the ability of the conditional CAPM to explain the cross-sectional variations in average returns on a large collection of stock portfolios.

In subsequent studies, Jagannathan and Wang (1996) and Fletcher (2000) examined the relationship between beta and returns in international stock returns using the model of Pettengill et al. (1995). The aim of these studies was to determine whether beta has a role to play in explaining cross-sectional differences in countries' returns index. These studies support the model proposed by Pettengill et al. (1995). In up-market months, there is a significant positive relationship between beta and return. In down-market months, there is a significant negative relationship between beta and return. In addition, the relationship is symmetric between up-market and down-market months. A related study on the conditional CAPM has also been done by Hodoshima, Gomez and Kunimura (2000) that investigated the relationship between beta and return in the Nikkei stock market. The result shows a significant conditional relationship between beta and return.

Although the above studies focused on the stock returns, there are many empirical studies that used the unit trust returns as a sample. Among the pioneers are Sharpe (1966), Jensen (1969) and Firth (1977). Sharpe (1966) used the CAPM model to examine 34 unit trusts' returns for the periods of 1954-1963. The study found a highly significant relationship between beta and expected return. In addition, the linearity test implied that both variables were highly correlated. Therefore, the relationship between beta and expected portfolio return was assumed to be linear.

Further, Jensen (1969) used the CAPM model to analyze the performance of 115 unit trusts in the U.S. between 1955 and 1964. The objective of the study was to evaluate the performance of unit trusts using the security market line. The study found that many unit trusts' performances are reported to be below the security market line.

By utilizing the data of 27 unit trusts in the U.K. for the period of 1965 until 1975, Firth (1977, 1978) investigated the investment performance of these unit trusts. He found that the managers of unit

trusts in the U.K. are able to forecast the share prices, thus enabling the unit trusts in the U.K. to outperform the market portfolio.

The empirical analysis of CAPM for unit trusts has also been extended to other countries. Koh, Kee and Chin (1987) examined 19 unit trusts in Singapore from January 1980 until December 1984. The result showed that the risk-return characteristics were not consistent with their objectives as stated in the prospectus, and unit trusts were poorly-diversified. The result also showed that the unit trusts' returns tend to underperform the market and the performance is not consistent over time during the sample period.

In Malaysia, the early studies on unit trust performance have been done by Shamsher and Anuar (1996). They utilized several benchmarks to measure the performance of unit trusts. However, a larger sample size and more recent methods are needed to establish the conditional relationship between beta and Islamic unit trust returns in Malaysia.

3. MODEL AND DATA

By adopting the model used by Pettengill et al. (1995), this study investigates the conditional relationship between return and beta of Islamic unit trusts. In addition, the CAPM cross-section regression method is used to examine the role of beta in explaining Islamic unit trusts' returns in Malaysia. The result is then analyzed to see if there is a linear positive relationship between Islamic unit trusts' returns and the estimated beta in an up-market and a negative relationship in a down-market. Statistics such as the *t*-test, adjusted-R^2 and standard errors are also reported to evaluate the difference in relationships between return and beta in both market conditions.

To construct the relationship between beta and return of Islamic unit trusts, the basic CAPM model can be written as follows:

$$(1) \qquad E(R_{pt} - R_{ft}) = B_p E(R_{mt} - R_{ft})$$

where R_{pt} and R_{mt} denote, respectively, the return on Islamic unit trusts and the market return for week t, R_{ft} denotes the risk-free rate for week t (interbank rate for 1 month as a proxy), $E(.)$ denotes the expectation operator, B_p is the covariance between R_{pt} and R_{mt} and variance R_{mt} ($\text{cov}(R_{pt},R_{mt})/\text{var}(R_{mt})$). Then, equation (1) can be rewritten as:

$$(2) \qquad E(R_{pt}) = \gamma_0 + \gamma_1 B_p$$

where $\gamma_0 = R_{ft}$ and $\gamma_1 = E(R_{mt} - R_{ft})$. Under a positive expected excess market return, equation (2) denotes a positive linear relationship between return and beta for Islamic unit trusts.[7]

In this study, our intention is to test whether positive and negative linear relationships between Islamic unit trusts' returns and estimated beta exist in up- and down-markets. Therefore, equation (2) can be rewritten in an estimated form as:

$$(3) \qquad E(R_{pt}) = \gamma_0 + \gamma_1 \hat{B}_p + e_p \qquad p = 1,...,N; t = 1,...,T$$

where e_{pt} denotes an error term with $E(e_{pt}) = 0$, and N and T are the number of portfolios and observations, respectively. The conditional relationship between return and beta in equation (3) is given by two relationships between return and beta, i.e., when the excess market return is positive and negative. In this paper, the cross-section estimation of the conditional relationship is as follows:

a. Let us say there are two sets of parameters, ($_{\text{up}}$, $\gamma_{1\,\text{up}}$) and ($\gamma_{0\,\text{down}}, \gamma_{1\,\text{down}}$), as the intercept and slope parameters of the conditional relationship between beta and return when the excess market return is positive and negative, respectively. The cross-section estimations of ($\gamma_{0\,\text{up}}, \gamma_{1\,\text{up}}$) and ($\gamma_{0\,\text{down}}, \gamma_{1\,\text{down}}$) are given by the average of weekly cross-section estimation of the intercept and slope in the up-market weeks when the excess market return is positive and in the down-market weeks when the excess market return is negative.[8]

b. Then, we estimate the relationship between Islamic unit trusts' returns and market returns using equation (1) to estimate beta. After that, we substitute the estimated beta into equation (3) which can be written as:

$$(4) \qquad R_p = \gamma_0 + \gamma_1 \hat{\beta}_p v_{pt} \qquad p = 1,...,N; t = 1,...T$$

where v_{pt} denotes e_{pt} ~ u_{pt} while u_{pt} denotes an estimation error in beta.

c. Equation (3) is estimated using a cross-section regression analysis in two situations, i.e., the unconditional and conditional relationships of cross-section regression between return and beta of Islamic unit trusts. The difference between the two relationships is the conditional relationship cross-section regression/conditional CAPM.

d. The cross-section regression estimates of γ_0 and γ_1 in Equation (2) are the average of all of the weekly cross-section intercept and slope estimates.

e. The cross-section regression estimates and the *t*-test of the conditional relationship can be obtained from the weekly regression coefficient estimates in the up and down market weeks.

The above model is estimated using the weekly price data for 12 Islamic unit trusts and the *Shar¥c ah* Index[9] for the period of 1 May 1999 until 31 July 2001. The data are compiled from two daily newspapers, *Utusan Malaysia* and *The Star*. For the risk-free rate, we use the weekly interbank rate for 1 month, obtained from the Central Bank website (www.bnm.gov.my).

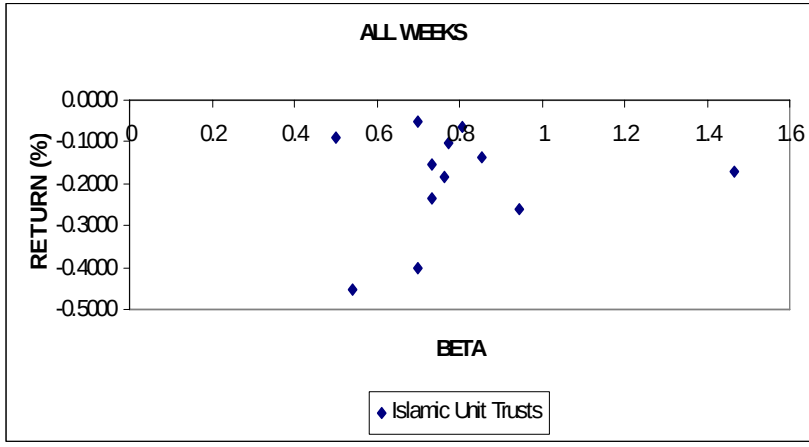
To estimate the relationship between beta and return for Islamic unit trusts in equation (3), the following steps are taken. First, we obtain the beta for each individual Islamic unit trust by estimating the unit trusts' returns as a function of risk-free rate and excess market return. Then, we use this estimated beta for the whole sample (Sample A), and two sub samples, i.e., Sample B (1 May 1999 – 23 June 2000) and Sample C (24 June 2000 – 31 July 2001). Second, we re-estimate the estimated beta for each Islamic unit trust using the average return of Islamic unit trusts. Then, we estimate this average beta and average return using the unconditional and conditional relationship of cross-sectional data.

Table 2 (see Appendix) presents the list of promoters and fund managers, the launching date and fund size of Islamic unit trusts in Malaysia. The summary statistics of the monthly market return and the excess market return are reported in Table 3 (see Appendix). Summary statistics of the *Shar¥c ah* Index as a proxy for market index return show 60 positive values and 58 negative values and the excess market return with the *Shar¥c ah* Index shows 96 negative values and 22 positive values.

Table 4 (see Appendix) presents the summary statistics of the time series average and standard deviation of beta and return for Islamic unit trusts. It shows a small positive average returns of 0.025335 for the market return and 0.019136 for the excess market return. Standard deviations of the market return and the excess market return also become smaller after distinguishing up-markets from down-markets. The standard deviation of market index return for total sample is 0.32917 and equal to 0.020641 in up-markets and 0.019751 in down-markets. The standard deviation of excess market return for total sample is 0.33040 and equal to 0.017404 in up-markets and 0.024860 in down-markets.

The summary statistics of 12 Islamic unit trusts using the *Shar¥c ah* Index as the market return index in Sample A and two sub-samples, Sample B and Sample C, are presented in Table 5 (see Appendix). The statistics provide the time series average and standard deviation of beta and returns for 12 Islamic unit trusts. Figure 2 shows the scatter diagram obtained from the average unit trusts' returns, as given in Table 5. Table 6 (see Appendix) shows a flat[10] relationship between average returns and average beta, and, it is not significant at the 5 percent level.

FIGURE 2
The Relationship Between Average Return and Average Beta for 12 Islamic Unit Trusts (Sample A)



The summary statistics of 12 Islamic unit trust returns, the *Shar¥c ah* Index, and risk-free asset for Sample A, Sample B and Sample C are reported in Tables 7 and 8 (see Appendix). Figures in Tables 7 and 8 show that the mean return for the 12 Islamic unit trusts are lower and around -0.000534 to -0.004510 for Sample A, 0.004876 to -0.00309 for Sample B and 0.000762 to -0.009003 for Sample C. The result also shows that the mean market return and mean excess market return are lower and takes negative values, -0.000173 and -0.028951 for Sample A, -0.003285 and -0.024855 for Sample B and -0.003741 and -0.033188 for Sample C. For risk-free assets, the mean return is lower and takes positive value for the Sample A (0.028782), Sample B (0.02814) and Sample C (0.029447).

Other statistical characteristics of our data are presented in column 3 (standard deviation), column 4 (skewness), column 5 (kurtosis) and column 6 (Jarque-Bera) of Tables 7 and 8. The results from these statistics show that the data are normally distributed to justify the reliability of our estimation.

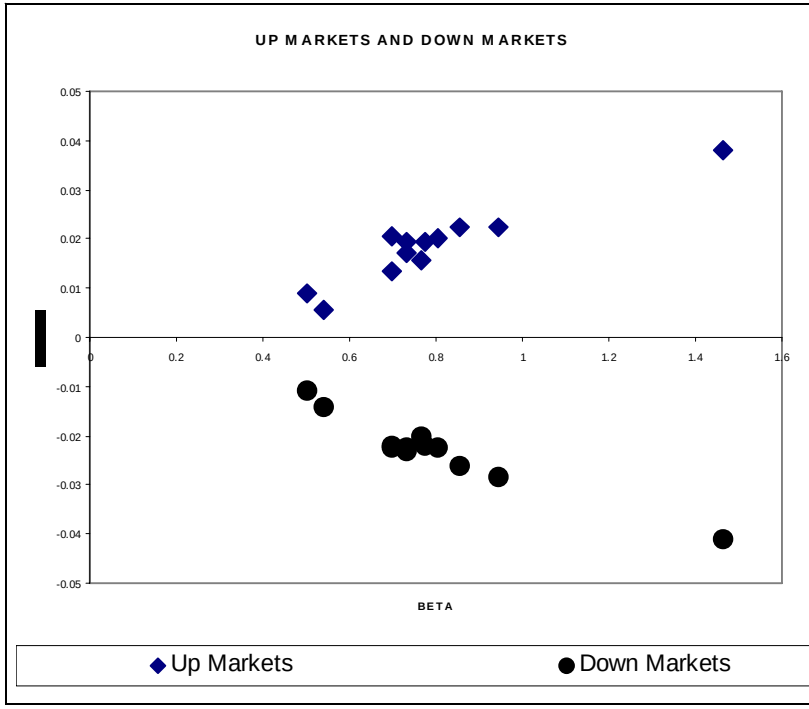
4. EMPIRICAL EVIDENCE

Table 9 (see Appendix) gives summary statistics for Sample A, Sample B and Sample C in up- and down-markets, while the scatter plot in Figure 3 are obtained from the average unit trusts' returns and the average unit trusts' betas in Sample A for both markets. We could easily recognize the positive (above the x-axis) and negative (below the x-axis) linear relationship between return and beta. By comparing Figures 2 and 3, it would naturally motivate us to differentiate the up- and down-markets in our empirical investigations of the relationship between return and beta.

We first show the cross-sectional results for the unconditional and conditional relationships of equation (3) for Sample A, Sample B and Sample C. Table 10 (see Appendix) provides the cross-section regression results for the unconditional relationships using the average return and average beta in Table 5. The results show that the coefficient of beta is not significant when the difference between up-markets and down-markets is not considered in our sample. All the estimated beta coefficients are positive and insignificant, except in Sample C and all the adjusted-R^2 are not very good.

The cross-section regression results for the conditional relationship are provided in Table 11 (see Appendix). The estimated beta coefficients

FIGURE 3
Relation Between Return and with the Difference of Up Markets and Down Markets (Sample A)



are significant at the 1 percent level and takes positive values in up-markets and negative values in down-markets for Sample A, Sample B and Sample C. These findings are similar to those reported in Hodoshima et al. (2000). This result implies a significant conditional relationship between beta and return.

The summary statistics of the adjusted R^2 values and the average standard error of equation (3) are much different in the unconditional and the conditional relationships. In the cross-section estimation of the unconditional relationships, standard error for Sample A (0.1318) is higher than the standard error of cross-section regression of the conditional relationships, i.e., 0.0028 in up-market and 0.0020 in down-market. In Sample B and Sample C, the standard error of the cross-section regression of the unconditional relationships becomes smaller, i.e., 0.0021 for Sample B and Sample C. In the cross-section regression of the conditional relationships, the values of the standard error are 0.0036 and 0.0044 for Sample B and Sample C in up-markets and

0.0030 and 0.0026 for the Sample B and Sample C in down-markets, respectively.

In the cross-section estimation of the conditional relationship, the adjusted-R^2 and standard error are much better in down-markets than in up-market conditions in Sample A, Sample B and Sample C. This shows that the conditional relationship is better in the down-market than in the up-market.[11]

The results imply that beta has a role to play in explaining cross-sectional differences in the 12 Islamic Unit Trusts and support the continued use of beta as a measure of market risk. Also, the adjusted-R^2 and standard error are the appropriate measurements of a conditional relationship.

5. CONCLUSION

The aim of this paper is to investigate the relationship between return and beta for Islamic unit trusts using cross-section regression analysis. In addition, this paper examines whether beta has a role to play in explaining cross-sectional differences in Islamic unit trusts returns. This paper also makes a comparison between unconditional and conditional relationships based on the adjusted-R^2 and standard error statistics. In this study, we find that for the *Shar¥c ah* Index return, up-market covers 60 weeks and down-market covers 58 weeks. For excess market return, over 80 percent of the weekly observations consist of negative weeks than positive weeks. The mixed negative (96) and positive (22) values of market return has resulted in a flat (and insignificant) relationship between return and beta for Sample A and ¯Sample B.

The OLS estimation of conditional CAPM tends to support the hypothesis of a significant positive relationship in up-markets and a significant negative relationship in down-markets. This finding suggests that beta could be used as a tool in explaining cross-sectional differences in Islamic unit trusts' returns and as a measure of market risk. The adjusted-R^2 and standard error of the conditional relationship is higher in down-markets than in up-markets. Thus, investors in Islamic unit trusts are risk averse because they choose to invest in Islamic unit trusts, which have a lower level of risk.

ENDNOTES

1. The flat relationship between beta and return happened when the CAPM test allows a variation in beta that is not related to size variable (by assuming

that beta is the only one explanatory variable). Hence, the result shows that there is no relationship between beta and average return.

2. Pettengill et al. (1995) believe that the excess market return is expected to be positive or negative. If the excess market return is positive (up-market), there should be a positive relationship and if the excess market return is negative (down-market), there should be a negative relationship.

3. Actually, the early test of cross-sectional CAPM had been done by Black et al. (1972) who investigated stock returns in NYSE using equally-weighted portfolio. They investigated the relationship between portfolio average return and beta from 1926-1965 and found a strong linear relationship between beta and portfolio average return.

4. A unit trust is an investment mechanism, which pools money from many investors who share the same financial objectives for raising Islamic pooled funds. Islamic unit trusts offer investors with the investment opportunities in diversified portfolio and it was managed by professional fund manager that invest pooled funds into a portfolio of investment in Malaysian equities excluding "non-*úalŒl* stocks" and interest-bearing money market instruments.

5. The major assumption of this model is that all the covariation of security returns can be explained by a single factor. This factor is called the market model, uses a market index as the factor that influence security returns. This single index model allows many securities to be analyzed compared to Markowitz model that needs more calculations if a number of securities were added.

6. The result shows that the estimated beta systematically has no relationship with the average return across securities.

7. Empirical evidence of equation (2), as reported by Fama and French (1992), finds the coefficient of γ_1, (the expected excess market return) to be not significantly different from zero.

8. Fama and MacBeth (1973) used equation (3) in cross sectional analysis by regressing stock returns on a constant and the market return to obtain the estimated beta.

9. The Kuala Lumpur Syariah Index (KLSI) is an index to measure the market return for *Shar¥¢ah*-approved firms (in main and second boards). The components of the KLSI are regulated by the *Shar¥¢ah* Advisory Council from time to time.

10. An insignificant relationship between average return and average beta.

11. Similar findings as in this study were obtained by Hodoshima and Kunimura (2000).

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APPENDIX

TABLE 1
Number and Fund Size of Islamic Unit Trusts in Malaysia
(1971-Jun 2001)

Year	Number of Islamic Unit Trusts	Approved Fund Size (million units)	Fund Size	
			RM million	Units (million)
1971	1	50	27.12	80.377
1993	2	200	189.66	287.661
1994	4	1002	457.50	1065.893
1995	5	1202	512.82	1265.893
1996	8	2252	758.66	1813.289
1997	10	2702	1033.08	2192.188
1998	13	3502	1757.00	3443.498
2000	14	3602	1770.72	3458.108
Jun 2001	15	3852	1770.72	3458.108

Source: Supplied by RHB Unit Trust Management Berhad, Malaysia and published in *The Edge*, July 2001.

TABLE 2
List of 12 Islamic Unit Trusts in Malaysia

Funds	Fund Promoters	Fund Managers	Launch Date	Fund Size (million units)
Abrar Investment Fund (ABRAR)	Abrar Unit Trust Managers	Abrar Unit Trust Managers	12 March 1996	250
Amanah Saham Bank Islam (ASBI)	Bank Islam Malaysia Berhad	BIMB Unit Trust Management Berhad	20 June 1994	302
Amanah Saham Darul Iman (ASDI)	PTB Amanah Saham Darul Iman	PTB Amanah Saham Darul Iman	31 October 1994	500
Amanah Saham Kedah (ASK)	Amanah Saham Kedah	Amanah Saham Kedah	27 February 1995	200
BBMB Dana Putra (BBMBDP)	BBMB Unit Trust Management	BBMB Unit Trust Management	15 June 1996	300
Dana Al-Aiman (AIMAN)	Mara Unit Trust	Mara Unit Trust	19 May 1997	150
Kuala Lumpur Ittikal Fund (ITTIKAL)	Kuala Lumpur Mutual Funds	Kuala Lumpur Mutual Funds	10 April 1997	300
Pacific Dana Aman (PACIFIK)	Pacific Mutual Funds Trust	Pacific Mutual Funds Trust	16 April 1998	200
RHB Mudarabah Fund (RHBMUDH)	RHB Unit Trust Management	RHB Unit Trust Management	9 May 1996	500
Tabung Amanah Bakti (TAB)	Tabung Amanah Bakti	Asia Unit Trust Berhad	14 May 1971	150
Amanah Saham Wanita (ASW)	Hijrah Managers Bhd	Hijrah Unit Trust Management Bhd	5 May 1998	400
RHB Islamic Bond Fund (RHBIBFUND)	RHB Unit Trust Management	RHB Unit Trust Management	25 August 2000	100

Note: Three Islamic unit trusts are unlisted funds, i.e., BHLB Al-Ihsan Fund, Tabung Ittikal Arab-Malaysian and Mayban Dana Yakin.

TABLE 3
Summary Statistics of the Market Return and the Excess Market Return from 1 May 1999 to 31 July 2001

Variables	Total Sample	Up-Weeks	Down- Weeks
Market return (mr)	118	60	58
Excess market return (emr)	118	22	96

TABLE 4
Summary Statistics of Market Returns and Risk-Free Rate with the Difference of Up-Markets and Down-Markets
(1 May 1999 to 31 July 2001)

	Total Sample		Up-Weeks		Down-Weeks	
Variables	Average	SD	Average	SD	Average	SD
Market return (mr)	-0.000169	0.32917	0.025335	0.020641	-0.026552	0.019751
Excess market return (emr)	-0.028951	0.33040	0.019136	0.017404	-0.039986	0.024860
Risk-free rate (mr)	0.028782	0.001182	0.028657	0.001201	0.028912	0.001159
Risk-free rate (emr)	0.028782	0.001182	0.028455	0.001262	0.028872	0.001166

TABLE 5
Summary Statistics of 12 Islamic Unit Trusts Using *Shar¥ᶜah* Index as the Market Return Index
(1 May 1999 to 31 July 2001)

	ISLAMIC UNIT TRUSTS											
	ABRAR	ASBI	ASDI	ASK	ASW	BBMBDP	AIMAN	ITTIKAL	PACIFIK	RHB MUDH	TAB	RHB IBFUND
RETURN AVERAGE												
Sample A 1 May 99 – 31 July 01	-0.000624	-0.001558	-0.001370	-0.000534	-0.004017	-0.002622	-0.002356	-0.004510	-0.001839	-0.001019	-0.000890	-0.001706
Sample B 1 May 99 – 23 June 00	0.004876	0.002613	0.002342	0.001939	0.000884	0.003459	0.000798	-0.003086	0.001315	0.001375	0.002107	NA
Sample C 24 June 00 – 31 July 01	-0.006218	-0.005801	-0.005147	-0.003051	-0.009003	-0.008807	-0.005565	-0.005762	-0.005046	-0.003454	-0.002802	0.000762
STANDARD DEVIATION												
Sample A 1 May 99 – 31 July 01	0.043805	0.034116	0.033250	0.035027	0.038373	0.037863	0.030443	0.041083	0.032656	0.030047	0.031029	0.474782
Sample B 1 May 99 – 23 June 00	0.045302	0.040850	0.036304	0.037442	0.034598	0.041481	0.033802	0.045481	0.036947	0.034400	0.040396	NA
Sample C 24 June 00 – 31 July 01	0.041877	0.025186	0.029665	0.032520	0.041575	0.033008	0.026508	0.037148	0.027576	0.024925	0.023400	0.549853

TABLE 5 (continued)

	ISLAMIC UNIT TRUSTS											
	ABRAR	ASBI	ASDI	ASK	ASW	BBMBDP	AIMAN	ITTIKAL	PACIFIK	RHB MUDH	TAB	RHB IBFUND
BETA AVERAGE												
Sample A 1 May 99 – 31 July 01	0.806	0.732	0.854	0.698	0.698	0.946	0.734	0.542	0.764	0.774	0.502	1.465
Sample B 1 May 99 – 23 June 00	0.800	0.905	0.900	0.649	0.723	1.001	0.698	0.805	0.701	0.768	0.400	0.000
Sample C 24 June 00 – 31 July 01	0.813	0.559	0.808	0.746	0.674	0.891	0.771	0.279	0.828	0.780	0.605	2.930
STANDARD DEVIATION												
Sample A 1 May 99 – 31 July 01	0.319	0.261	0.154	0.185	0.419	0.144	0.120	0.378	0.236	0.196	0.278	3.472
Sample B 1 May 99 – 23 June 00	0.330	0.163	0.020	0.125	0.159	0.103	0.171	0.293	0.104	0.051	0.369	0.000
Sample C 24 June 00 – 31 July 01	0.382	0.232	0.229	0.251	0.642	0.179	0.051	0.253	0.341	0.305	0.160	4.869

TABLE 6
The Estimation Results Between Average Return and Average Beta for 12 Islamic Unit Trusts (Sample A)

Dependent Variable: AVERAGE RETURN				
Method: Least Squares				
Included observations: 12 after adjusting endpoints				
Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
AVERAGEBETA	0.0749	0.1631	0.4589	0.6561
Constant	-0.2514	0.1348	-1.8644	0.0919
R-squared	0.0206	Mean dependent var		-0.1920
Durbin-Watson stat	1.6633	Prob (F-statistic)		0.6561

TABLE 7
Descriptic Statistics of Islamic Unit Trusts, *Shar¥c ah* Index and Risk-Free Asset

Islamic Unit Trust	Average	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
Sample A					
ASK	-0.000534	0.035027	-0.66199	5.924277	50.23354
					(0.000000)
ABRAR	-0.000624	0.043805	0.056895	6.292016	52.89529
					(0.000000)
TAB	-0.000890	0.031029	-2.185074	14.41188	591.0951
					(0.000000)
RHBMUDH	-0.001019	0.030047	-0.28239	3.995748	6.388642
					(0.040994)
ASDI	-0.001370	0.03325	-0.261997	3.024372	1.341422
					(0.511345)
ASBI	-0.001558	0.034116	0.079256	3.322384	0.629157
					(0.730096)
RHBIBFUND	-0.001706	0.474782	0.033172	23.93577	876.6221
					(0.000000)
PACIFIK	-0.001839	0.032656	-1.562971	8.957902	220.6821
					(0.000000)
AIMAN	-0.002356	0.030443	-0.46197	4.100971	10.07079
					(0.006504)

TABLE 7 (continue)

Islamic Unit Trust	Average	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
BBMBDP	-0.002622	0.037863	0.089259	4.224389	7.463607 (0.02395)
ASW	-0.004017	0.038373	-0.732855	5.508789	41.15635 (0.000000)
ITTIKAL	-0.004510	0.041083	-3.91682	25.30253	2537.742 (0.000000)
Shar¥c ah Index (mr)	-0.000169	0.032917	0.036320	3.456475	1.050423 (0.591430)
Shar¥c ah Index (emr)	-0.028951	0.033040	0.047887	3.422362	0.922181 (0.630595)
Risk-Free Asset	0.028782	0.001182	-0.398483	1.818544	9.985728 (0.006786)
Sample B					
ABRAR	0.004876	0.045302	-0.30076	4.930862	10.05472 (0.006556)
BBMBDP	0.003459	0.041481	-0.15813	3.613225	1.170312 (0.557019)
ASBI	0.002613	0.04085	-0.11552	2.865987	0.175369 (0.91605)
ASDI	0.002342	0.036304	-0.41706	2.778049	1.831488 (0.400219)
TAB	0.002107	0.040396	-2.45381	12.99549	191.1584 (0.00000)
ASK	0.001939	0.037442	-0.94929	6.095596	32.41874 (0.00000)
RHBMUDH	0.001375	0.0344	-0.4094	3.993129	4.072835 (0.130495)
PACIFIK	0.001315	0.036947	-1.07615	5.283642	24.20819 (0.000006)
ASW	0.000884	0.034598	-0.02384	2.373946	0.969116 (0.615969)
AIMAN	0.00080	0.033802	-0.22926	2.844887	0.575994 (0.749764)
ITTIKAL	-0.00309	0.045481	-2.54076	14.67529	344.5351 (0.00000)

TABLE 7 (Continued)

Islamic Trust Units	Average	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
RHBIBFUND	NA	NA	NA	NA	NA
Shar¥c'ah Index (mr)	-0.003285	0.037487	0.060599	2.806601	0.130230 (0.936960)
Shar¥c'ah Index (emr)	-0.024855	0.037429	0.049271	2.781883	0.143215 (0.930896)
Free-Risk Asset	0.02814	0.001103	0.53522	2.240283	4.307523 (0.116047)
Sample C					
RHBIBFUND	0.000762	0.549853	0.015365	17.99489	337.2715 (0.000000)
TAB	-0.002802	0.023400	-0.979941	5.357803	22.71757 (0.00001)
ASK	-0.003051	0.032520	-0.292673	5.744311	19.0285 (0.0001)
RHBMUDH	-0.003454	0.024925	-0.183580	2.763406	0.46106 (0.79411)
PACIFIK	-0.005046	0.027576	-2.951471	18.439220	660.2677 (0.00000)
ASDI	-0.005147	0.029665	-0.167972	3.518758	0.92309 (0.63031)
AIMAN	-0.005565	0.026508	-1.176080	6.415508	41.5627 (0.00000)
ITTIKAL	-0.005762	0.037148	-6.044448	43.238950	4266.178 (0.000000)
ASBI	-0.005801	0.025186	0.072695	2.538372	0.566078 (0.753490)
ABRAR	-0.006218	0.041877	0.451707	8.807052	83.466840 (0.000000)
BBMBDP	-0.008807	0.033008	0.266227	5.732982	18.735700 (0.000085)
ASW	-0.009003	0.041575	-1.052283	6.398559	38.616890 (0.000000)
Shar¥c'ah Index (mr)	-0.003741	0.027275	-0.383982	4.229599	5.079066 (0.078903)
Shar¥c'ah Index (emr)	-0.033188	0.027471	-0.357235	4.193526	4.676182 (0.096512)
Free-Risk Asset	0.029447	0.000853	-1.832212	6.402163	60.423220 (0.000000)

Notes: Figure in parentheses is the probability value for Jarque-Bera, mr = market return, emr = excess market return

TABLE 8
Descriptive Analysis of 12 Islamic Unit Trusts (1 May 1999 – 31 July 2001)

Islamic Unit Trust	Mean	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
RHBIBFUND	0.114682	0.515226	4.129087	18.05058	245.5979 (0.000000)
ASDI	0.022855	0.0212290	0.189071	2.693008	0.583202 (0.747067)
BBMBDP	0.022736	0.029040	0.981370	4.044618	12.15296 (0.002296)
ASK	0.021006	0.021803	0.295217	2.248321	2.246015 (0.325300)
ABRAR	0.020638	0.031754	1.096830	3.965644	14.12218 (0.000858)
ASBI	0.019729	0.026231	0.660045	3.528872	4.971592 (0.083259)

TABLE 8 (continue)

Islamic Unit Trust	Mean	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
RHBMUDH	0.019701	0.020654	0.449663	3.022284	1.989492 (0.369817)
AIMAN	0.017400	0.022053	-0.195160	4.422041	5.345770 (0.069053)
PACIFIK	0.016084	0.026700	-2.516458	16.86099	534.5825 (0.000000)
ASW	0.013715	0.033819	-0.935470	5.219731	20.71789 (0.000032)
TAB	0.011146	0.037114	-3.309354	17.61539	514.8339 (0.000000)
ITTIKAL	0.006423	0.054673	-3.987183	19.80320	763.9464 (0.000000)

TABLE 8 (continue)

Islamic Unit Trusts	Mean	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
TAB	-0.013183	0.015952	-0.745062	2.557212	4.732372 (0.093838)
ITTIKAL	-0.014857	0.016245	-1.236703	5.107832	24.64162 (0.000004)
PACIFIK	-0.020070	0.027822	-2.736424	13.62704	345.3081 (0.000000)
ASW	-0.022055	0.034298	-1.136610	8.734079	91.94737 (0.000000)
RHBMUDH	-0.022096	0.022515	-1.248630	6.488287	44.47743 (0.000000)
ABRAR	-0.022252	0.043991	0.411486	9.253252	96.13608 (0.000000)

TABLE 8 (continue)

Islamic Unit Trust	Mean	Standard Deviation	Skewness	Kurtosis	Jarque-Bera
ASK	-0.022446	0.032316	-0.686965	9.695557	112.9022 (0.000000)
AIMAN	-0.022453	0.024004	-1.357415	5.677542	35.13720 (0.000000)
ASBI	-0.023212	0.026876	-0.160260	3.407575	0.649723 (0.722628)
ASDI	-0.026014	0.023733	-0.960112	3.413304	9.323692 (0.009449)
BBMBDP	-0.028417	0.026773	-1.243367	5.327045	28.03087 (0.000001)
RHBIBFUND	-0.084840	0.434038	-4.982165	25.89467	727.3626 (0.000000)

TABLE 9
Relationship Between Return and Beta with the Difference of Up-Markets and Down-Markets

Islamic Unit Trust	Sample A			Sample B			Sample C		
	Beta	Up-return	Down-return	Beta	Up-return	Down-return	Beta	Up-return	Down-return
TAB	0.502	0.0089	-0.0107	0.400	0.0117	-0.0137	0.605	0.01062	-0.0130
ITTIKAL	0.542	0.0057	-0.0143	0.805	0.0139	-0.0237	0.279	-0.00190	-0.0087
ASK	0.698	0.0207	-0.0224	0.649	0.0235	-0.0273	0.746	0.01766	-0.0187
ASW	0.698	0.0135	-0.0221	0.723	0.0187	-0.0234	0.674	0.00692	-0.0211
ASBI	0.732	0.0194	-0.0232	0.905	0.0289	-0.0331	0.559	0.0289	-0.0157
AIMAN	0.734	0.0171	-0.0225	0.698	0.0202	-0.0257	0.771	0.01353	-0.0200
PACIFIK	0.764	0.0158	-0.0201	0.701	0.0204	-0.0246	0.828	0.01028	-0.0167
RHBMUDH	0.774	0.0194	-0.0221	0.768	0.0222	-0.0270	0.780	0.01628	-0.0184
ABRAR	0.806	0.0203	-0.0223	0.800	0.0245	-0.0218	0.813	0.01544	-0.0226
ASDI	0.854	0.0225	-0.0260	0.900	0.0270	-0.0312	0.800	0.01717	-0.0221
BBMBDP	0.946	0.0224	-0.0284	1.001	0.0301	-0.0327	0.891	0.01279	-0.0252
RHBIBFUND	1.465	0.0382	-0.0410	0.000	NA	NA	2.93	0.11468	-0.0848

Note: The average return and average beta when the excess market return is positive and negative are given for 12 Islamic unit trusts.

TABLE 10
Cross-Sectional Regression Average Estimates for the Unconditional Relationship

	Number of Weeks	γ_0	t-statistic	γ_1	*t*-statistic	Adjusted-R^2	Standard Error
Total Sample							
Sample A	118	-0.2514	-1.8644***	0.0749	0.4589	-0.0773	0.1318
Sub-sample							
Sample B	60	-0.0001	-0.0789	0.0021	0.8733	-0.0221	0.0021
Sample C	58	-0.0073	-6.8464*	0.0026	2.6455**	0.3529	0.0021

Notes: * Significant at the 1% level; ** Significant at the 5% level; *** Significant at the 10% level.

TABLE 11
Cross-Sectional Regression Average Estimates for the Conditional Relationship

	Number of Weeks	γ_0	*t*-statistic	γ_1	*t*-statistic	Adjusted-R^2	Standard Error
Total Sample							
Sample A							
Up-Market	60	-0.0062	-2.1716***	0.0313	9.0871*	0.8812	0.0028
Down-Market	58	0.0003	-0.1416	-0.0293	-11.7688*	0.9259	0.0020
Sub-sample							
Up-market							
Sample B	35	0.000	0.0139	0.0288	7.1510*	0.8201	0.0036
Sample C	25	-0.0202	-9.3452*	0.0453	22.8522*	0.9793	0.0044
Down-market							
Sample B	25	-0.0030	-0.6562	-0.0300	-5.0396*	0.7093	0.0030
Sample C	33	0.0023	1.7947***	-0.0295	-24.8292*	0.9824	0.0026

Notes: * Significant at the 1% level; ** Significant at the 5% level; *** Significant at the 10% level.