The Impact of Unit Trust Management Company Fund Investment on Investors' Risk

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Abstract
Investors in Malaysia tend to invest in unit trusts in a single Management Company because of the limited number of Management Companies. This study evidences that unit trust returns are more closely correlated within the funds of the company than across different companies. An increase in asset correlation lowers the diversification benefits for investors. Hence, investing in funds managed by the same Management Company increases the total portfolio risk and reduces diversification. This finding is in tandem with the U.S. evidence. It is concluded that Malaysian unit trust investors should avoid investing their money in funds in the same Management Company, even though by doing so they are able to enjoy a very low switching fees benefit and easier management of funds. Additionally, investors are also advised to diversify their portfolio by integrating their investment of conventional funds with Islamic funds. It is also noted that Money Market funds stand out as good diversification due to their low correlation with the other funds.

Keywords: Correlation, Common holdings, Diversification, Islamic, Malaysia, Risk, Unit Trusts Companies

JEL Classification: G11

1. Introduction

This study concerns an area of interest in the unit trust investors' risk when investing in funds managed by the same Unit Trust Management Company. The Unit Trust Management Company is also known as Fund Family or Fund Complex in academic literature. This paper aims to

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examine the impact of Unit Trust Company's Fund investments on investor risk. The specific objectives of this study are: (1) to examine whether total portfolio risk reduction can be achieved through diversifying investment in unit trust funds across different Fund Companies; (2) to examine the extent of common stockholdings of funds within a Fund Company, as compared with across different companies; and (3) to examine whether total portfolio risk reduction can be achieved through diversifying investment in unit trust funds across Islamic and conventional funds. This study is significant as the tendency for the Malaysian investors to invest in funds managed by the same Unit Trust Company is very high. This study provides an insight into the possible risk reduction opportunity for investors by taking into account the Cross Fund Family investment, the mixture of Islamic and conventional funds in the portfolio, and investment across Money Market Funds and other funds. The findings have important implications for the investors, the Unit Trusts Management Companies and the regulators. This paper is organised as follows: Section 2 discusses the background of this research; Section 3 describes the hypothesis development, data set and the methodology; Section 4 reports the findings of the study; Section 5 discusses the implications for investors, and concludes.

2. Background

Unit Trusts play an important role as they are one of the essential investment vehicles in the Malaysian economy. A notable development in the Unit Trust industry is the vast growth of funds that are managed by a few Fund Management Companies. The number of registered Unit Trust Management Companies increased from 13 (thirteen) in year 1992 to 39 (thirty-nine) in year 2009 (Federation of Investment Managers Malaysia, 2010). The top five (ten) Fund Management Companies, or Fund Families, have dominated nearly 60 (80) per cent of the total approved fund size. The unit trust investors in Malaysia have limited choice in choosing funds managed by different Unit Trust Management Companies compared with investors in developed markets. For this reason, investors in Malaysia often end up investing in funds managed by the same Unit Trust Management Company. Besides, investors tend to invest in funds in a single large Management Company for ease of management. In addition, investors are able to easily switch their funds from one objective to another with the payment of a minimum fee. Thus, for simplicity, convenience and economic reasons, investors invest their monies in funds managed by one large Unit Trust Company. This very noticeable characteristic of the common Fund Family structure and the

tendency of Malaysian investors to invest in funds in one company provide an opportunity to explore the risk of investing all of one's money in a single Unit Trust Company.

Unit trusts are widely known to offer the advantages of diversification, high liquidity, and professional management. It has also been claimed by large Unit Trust Management Companies that they are able to take advantage of bulk purchases and thereby reduce the transaction cost for investors. To a certain extent, it is true that large Unit Trust Companies are valuable to investors as they offer economies of scale and scope derived from their sharing of research resources and information, lower marketing, distribution costs, etc. Several studies (Latzko, 1999; Rea, *et al*., 1999; and Malhotra *et al*., 2001) found that, in general, operating expenditure ratios drop when asset growth and operating expenditure ratios of large funds are significantly lower than those of small funds. This finding supports the theory that a substantial majority of equity fund shareholders appears to have benefited from economies of scale. Investors tend to invest in funds in a single large Management Company for the benefits claimed (as discussed above), and for ease of management. According to Sirri and Tufano (1998), investors often limit their investment in one Unit Trust Company to save search costs. In addition, local investors are able to switch funds from one objective to another with just a small fee charged for the service, while investors in the U.S. enjoy the free switching option given by the Unit Trust Families (Massa, 2003). Elton *et al*. (2006) also documented that the exemption of load fees offers benefits to investors when funds are switched within a Family, as this encourages investors to stay within the Family.

In contrast, investing in funds in the same Family might not bring the best benefits to the investors. Investment concentrated in a single Management Company may decrease the portfolio diversification, as the unit trust return correlations increase. Elton *et al*. (2007) found that funds with the same objective are more closely correlated within the Fund Families than across the other Fund Families. They reported that investors would require an additional risk of 50 to 70 basis points to justify the same Shape measure of fund returns between the two groups in study. In addition, Elton *et al*. (2007) also commented that investing 'in-family' increases the risk and reduces diversification. The risk profiles of many funds that are managed by one company are very similar, even though they have different names with different objectives and they fall under different categories of funds with different growth potentials. Elton *et al*. (2007) attributed the cause to the Fund Family's unique style or manager's preference for certain stocks. Investors are

advised to select funds from various Families to reduce their total portfolio risk.

A number of recent studies examine mutual fund Families (Guedj and Papastaikoudi, 2005; Gasper *et al*., 2006; Massa, 2003; Nanda *et al*., 2004; Park, 2009). Some of these (Massa, 2003; Park, 2009) evidence the disadvantages of investing in funds within themselves. According to Gasper *et al*. (2006), Families transferred resources across member funds within the Family to favour those funds that were likely to increase the overall value within the Family. In addition, Families exploited different strategies such as opening new funds if there was a great potential to generate additional income (Zhao, 2004). By employing such strategies, Fund Families attracted both new investors as well as the existing investors, by providing them with more choice. Furthermore, Families also started new funds intentionally within which they already had good performing existing funds (Khorana & Servaes, 1999). According to Nanda *et al*. (2004) and Zhao (2004), Families were often successful in drawing new cash flows with the existence of a few star-performing funds, although many of their other funds were poor-performers. Guedj and Papastaikoudi (2005) concluded that Fund Families with at least one top-performing fund were able to attract assets into all the other funds they sell. Moreover, Families that concentrated on their core activities tended to perform better than those that did not.

A study in Hong Kong by Cheng *et al*. (2003) conjectured that a strategy of differentiating the mutual funds portfolio resulted in higher ex-post returns. This implied that the higher the commonality of stock investments of the fund portfolio, the lower the fund returns. Similarly, from the viewpoint of investors, investment returns could be increased by investing in funds that pursue distinct portfolio strategies. However, investing in funds within a Management Company that are highly correlated, may increase the investors' risk. The relatively higher correlation within a Management Company suggests a substantial degree of commonality in Unit Trust Management Companies. This commonality of the funds is possibly due to the common stock holding and the common management structure of funds in the Management Company (Park, 2009). In inspecting the effects of the increased correlation, Elton *et al.* (2007) discovered that two-thirds of this increase was due to the common stock holdings, i.e. the different funds in a Family - although with different investment objectives - held similar stocks.

An interesting issue that arises here is whether investing in funds in the same Unit Trust Management Company gives rise to a higher risk than investing across different Management Companies. This relates to the reduction in benefit of diversification.

The major aim of this research is to establish the implication of 'portfolio risk' of investing in the same Management Company. Such investment is done in the Malaysian context and from the perspective of an emerging market rather than a matured one. The majority of the Malaysian unit trusts studies focus on particular unit trust funds, rather than assessing them from the Fund Family perspective (Shamsher and Annuar, 1995; Leong and Aw, 1997; Abdullah *et al*., 2002; Low and Ghazali, 2005). Due to the lack of research and attention to Unit Trust Families in Malaysia, this research extends the Malaysian Unit Trust literature. This research therefore examines whether 'risk reduction benefit' can be achieved through diversifying investment in unit trust funds across different Management Companies. The 'fund return correlations' and the 'common stock holding of funds' are used in this study to measure the degree of diversification in Fund Families.

Furthermore, Islamic unit trust funds have gained importance of late. This greater interest is due to the fact that Islamic mutual funds are highly correlated with the Syariah principles of equity (Nik Mohammad and Mokhtar, 2008). It also provides an avenue for investors who are sensitive to Shariah compliance. The total net asset value of Islamic unit trusts in Malaysia stood at RM22.45 billion (USD6.54 billion), 11.3 per cent of total net asset value of RM198.217 billion (USD58.15 billion), as at 28 February 2010. Islamic financing is becoming popular both among the Muslim and non-Muslim population. Muslim investors can be divided into two groups. The first group of investors invests solely in the Islamic products and is sensitive to Shariah principles. The second group is indifferent to Shariah compliance but looks for maximum performance. However, according to Dr Mohamad Akram Laldin (the CEO and Executive Director of International Shariah Research Academy for Islamic Finance, ISRA), the non-Muslims are the majority investors of Islamic products in Malaysia (Remo-Listana, 2009). Thus, another issue of interest in this research is to examine whether this Shariah restriction has any implication on the diversification of unit trust investments.

In the second part of this research, the feasibility of diversifying investment in funds across the conventional and Islamic combination is examined. Hence, the second aim of this paper is to investigate whether 'risk reduction benefit' can be achieved through mixing the investments across the Islamic funds and the conventional funds.

This study follows the methodology of Elton *et al.* (2007) with respect to the degree of diversification in Unit Trust Families. The 'fund return correlations' and 'common stock holding of funds' are used as a proxy for the level of diversification in Fund Families. The returns correlation of funds within Malaysian Unit Trust Families and the returns correlation between Families are determined and compared.

This analysis contributes to the potential of risk reduction benefits by investing in funds across different Malaysian Unit Trust Fund Management Companies.

Additionally, the possibility of risk reduction through the mixing of conventional and Islamic funds is investigated by comparing the 'fund returns correlation' across investments in the conventional and Islamic objective group versus investments solely in the Islamic objective group. The 'common portfolio holding of funds' within Unit Trust Families, as compared with across different companies in Malaysia, is also examined. Likewise, the possibility of risk reduction through the mixing of conventional and Islamic funds is studied by comparing the funds' common holdings in the conventional and Islamic objective group versus the Islamic objective group.

This research contributes to the extant literature in two ways. Firstly, it offers new insights into the 'portfolio risk' of investment in the Malaysian Unit Trust Management companies. Secondly, it provides evidence of further diversification benefits that can be achieved through holding a portfolio that includes both Islamic funds and conventional funds.

3. Hypothesis, Data and Research Method

3.1 Development of Hypotheses

The hypotheses for the research proposed focus on the return correlation and common holdings within and across Malaysian fund companies. Four hypotheses are developed in this research. They are expressed in the alternative forms.

Elton, Gruber and Green (2007) and Park (2009) explained that Fund Families, in order to make money, try to capture as much of the investors' capital as possible, by offering distinct sets of funds with dissimilar objectives. These funds usually have higher correlation than the randomly selected funds across a Family due to the common management of funds. The higher risk resulting from the higher correlation, leads us to expect that unit trust investors would require an additional return to add funds within the same Family instead of adding funds outside the Family, to justify the extra risk of investing in funds within the Family. Therefore, this research postulates that the correlation of fund returns within a Fund Family is significantly higher than between Fund Families. The following hypothesis is formulated:

Hypothesis 1

H_a1: The correlations of the returns of funds within a Fund Family are greater than those across Fund Families.

Fund Managers in the same Family are likely to have access to an identical pool of research resources produced by the same internal research team or by the same external resources provider. A similar perception on the performance of individual stocks will lead to holding similar stocks in the fund portfolio, which belongs to the same Family. This commonality is especially great when a Portfolio Management team manages funds in the same company, as suggested by Elton *et al.* (2007). Another reason to expect that stock holdings of funds in a Fund Family are similar, is as per the suggestion of Khorana and Servaes (2003), who stated that product proliferation is effective in capturing market share, which leads to a large number of similar funds being offered in a single Fund Family. Thus, it is expected that the common stock holding in Equity Unit Trusts within the Unit Trust Family is higher than between Fund Families. This leads to the formation of the following hypothesis:

Hypothesis 2

H_a2: The common stock holdings of funds within a Fund Family are greater than those across Fund Families.

Due to the increase in popularity of Islamic Funds, we are compelled to also investigate if Islamic Funds are any different from the conventional funds in their composition. One would speculate that due to the Shariah restrictions, Islamic funds would contain more similar stocks compared to conventional funds. By including a combination of Islamic and conventional funds in a fund investors' portfolio, the investor risk can be reduced as a result of the reduction of return correlation and common stock holding. This is because conventional funds are found to hold a slightly better diversification level than the Islamic funds (Abdullah, Hassan and Mohamed, 2007). Thus, another issue of interest in this research is to examine whether this Shariah restriction has any impact on the diversification of unit trust investment. Therefore, hypothesis 3 and hypothesis 4 are postulated as follows:

Hypothesis 3

$H_a3(a)$: The mean return correlation of only Islamic funds is greater than the mean return correlation of a combination of Islamic with conventional funds.

$H_a3(b)$: The mean return correlation of only conventional funds is greater than the mean return correlation of a combination of Islamic with conventional funds.

$H_a3(c)$: The mean return correlation of only the Islamic funds is greater than the mean return correlation of only the conventional funds.

$H_a3(d)$: The mean return correlation of only the Islamic funds 'within Family' is greater than the mean return correlation of only the Islamic funds 'across Families'.

$H_a3(e)$: The mean return correlation of only the conventional funds 'within Family' is greater than the mean return correlation of only the conventional funds 'across Families'.

$H_a3(f)$: The mean return correlation of a combination of Islamic and conventional funds 'within Family' is greater than the mean return correlation of a combination of Islamic and conventional funds 'across Families'.

Hypothesis 4

$H_a4(a)$: The mean common holding of only Islamic funds is greater than the mean common holding of Islamic and conventional funds.

$H_a4(b)$: The mean common holding of only conventional funds is greater than the mean common holding of Islamic and conventional funds.

$H_a4(c)$: The mean common holding of only the Islamic funds is greater than the mean common holding of only the conventional funds.

$H_a4(d)$: The mean common holding of only the Islamic funds 'within Family' is greater than the mean common holding of only the Islamic funds across Families.

$H_a4(e)$: The mean common holding of only the conventional funds 'within Family' is greater than the mean common holding of only the conventional funds across Families.

$H_a4(f)$: The mean common holding of a combination of Islamic and conventional funds 'within Family' is greater than the mean common holding of a combination of Islamic and conventional funds across Families.

3.2 Data

This research comprises the Malaysian Unit Trust Funds published in Malaysia. All published funds that are available from January 2003 to June 2009 are included in the sample. The data does not suffer a 'survivorship bias' problem as it is collected manually from the local leading daily newspapers. As per Brown *et al*. (1992), Malkiel (1995) and Brown and Goetzmann (1995), survivorship bias exist in almost all the Mutual Funds databases. This problem arises where funds that ceased operations are excluded from the database. The 'ceased' funds are usually underperformers. As such, it gives rise to over estimation of funds performance. However, in this study, all funds that subsequently ceased operations are included in the analysis (See Appendix).

To analyse the return correlation according to 'fund objectives' within and across fund companies, all the Malaysian unit trust funds published by Bursa Malaysia are used. The sample includes all fund companies that existed in June 2009. Monthly returns for six-and-a-half years from January 2003 to June 2009 are used. Since there is no database available for unit trust information in Malaysia, the month-end fund's net asset values (NAV) are obtained from the leading daily newspapers, such as *The Star* and *New Straits Times*. The 'special objective' funds are excluded for various reasons. These are International Funds, Regional Funds, State Funds, Federal Funds, closed-end funds, and special funds, such as Capital Protected Funds, Exchange Traded Funds (EFT), and Real Estate Investment Trusts (REIT). The Management Companies of government agencies, State Funds, and some Unit Trust Management Companies with only one Fund in the objective sub-group, are excluded. International funds and regional funds were eliminated because investing in different countries involved different levels of country risk - typically involving risks developing from a variety of nation-wide variations in Government policies, economic structures, socio-political

establishments, and currencies. Capital Protected Funds basically try to guarantee that the investor will not lose the initial investment value, provided that the investor does not redeem his investment before the maturity date. Due to their differing nature from the ordinary funds, these funds are excluded. Funds launched by Amanah Saham Nasional (ASN) [1] and Amanah Saham Bumiputera (ASB) [2], managed by Permodalan Nasional Berhad (PNB)[3], are also excluded from this study.

Table 1 presents the number of Funds in the seven main objective categories in the sample after the mapping process. Equity Funds are categorised into Aggressive Growth (AG), Long-term Growth (LG), Growth and Income (GY), and Income (Y). The total of 222 Funds is made up of 124 Equity Funds, 39 Balanced Funds, 45 Bond Funds, and 14 Money Market Funds. The total number of funds used in the analysis is sufficient in terms of the sample size. When the Shariah objectives are differentiated in the second analysis, there are 14 objective categories and the number of Funds by objective classification is as shown in Table 1.

Table 1: Number of funds in sample by objective

		Conventional	Islamic	Total	%
1	Aggressive Growth	29	7	36	16.2
2	Long term Growth	41	18	59	26.6
3	Growth and Income	13	3	16	7.2
4	Income	11	2	13	5.9
5	Balanced	25	14	39	17.6
6	Bond	28	17	45	20.3
7	Money Market	10	4	14	6.3
	Grand Total			222	100

Table 2 presents the classification of Funds according to the descriptions of the main objectives. These descriptions are adopted from the Investment Company Data Incorporate (ICDI) listed in the CRSP survivor-bias-free U.S. Mutual Fund database. The detailed descriptions of each objective classification are listed in Table 2.

[1] Amanah Saham Nasional (ASN) is the first unit trust schemes. It was launched on 20 April 1981. Unit trusts in Malaysia are like mutual funds in the United States.

[2] Amanah Saham Bumiputera (ASB) is the second unit trust schemes. It was launched on 2 January 1990. ASB is only open to Bumiputeras, which refers to the native Malaysian.

[3] Permodalan Nasional Berhad (PNB) is Malaysia's biggest fund management company. It is a government agency in Malaysia.

Table 2: Descriptions of main objectives of classification

Description	Main Objective	Code
Aggressive Growth	To provide capital appreciation through investment in growth stocks, and to meet at least one of the following criteria: i) The investors' risk profile is 'aggressive', which indicates high capital growth and its corresponding high risk. ii) A portfolio turnover rate of 100% or more per year is permitted by prospectus. iii) The fund primarily invests in new, speculative or unproven or recovering or undervalued securities. iv) The investment in stocks or sectors is identified through an aggressive selection strategy.	AG
Long Term Growth	To achieve long term growth of capital as the primary objective and income as the secondary objective.	LG
Income	To obtain income from investment, e.g. Dividends	Y
Growth and Income	To achieve capital growth plus income.	GY
Balanced	Contains a mixed portfolio of both fixed income and equity.	BL
Bond	To obtain income returns through investment in fixed interest income.	BY
Money Market	To provide liquidity and current income while maintaining capital stability by investing primarily in money market instruments.	MM

*Note: Islamic objective funds aim to achieve similar goals as the conventional funds presented in the table, in addition to compliance with Shariah principles.

Table 3: Malaysia Unit Trust Management Companies (UTMC)

Sample Selection		**Number**
Total Approved UTMC (as at June 2009)		39
Less :	Government / GLC	5
	State owned	6
	REIT	2
	UTMC with less than 2 funds in an objective class	11
Less :	Government / GLC	5
Total number of UTMC in sample		15

Table 3 reports the Unit Trust Management Companies used in the sample. There are 39 approved Unit Trust Management Companies as at 30 June 2009. The Government, Government-Linked and State

Owned funds are excluded from this study. In addition, Unit Trust Management Companies that have one Fund left in the objective classification are also excluded from this study. Ultimately, there are fifteen (15) Unit Trust Management Companies left in the sample.

Table 4 summarises the data used in the study. The first column of Table 4 presents the type of analysis. The second column shows the sample period included in each study. The third column presents the intervals of data used in the analysis. The fourth reports the type of Funds included. The fifth is the total number of Funds of each type of Funds included in the sample, and the sixth shows the total sample size in the study. The last column presents the total number of Families in the study.

Table 4: Unit trust funds included in the study

	Analysis	Sample period	Interval	Type of funds included	Number of funds	Sample size	Number of fund Families
1.	Correlation	Jan 2003 – Jun 2009	Monthly	Equity	124		
				Balanced	39		
				Money Market	59	222	15
2.	Stockholdings	As at 31 Dec 2007 - 31 May 2008	-	Equity	112	112	15

3.3 Methodology

In this study, the measure 'raw return' is used. Raw returns are the most frequently reported figures and they are most commonly referred to when investment decisions are made by an average investor (Hallahan and Faff, 2001; Capon, Fitzsimons and Prince, 1996; Lawrence, 1998; and Giles, Wilsdon and Worboys, 2002). The 'natural log' function, which is the continuously compounded rate of return, is used in the Fund Return calculation. It is the first difference of log prices sampled at a specific interval. The continuous raw return adjusted for dividend is calculated as follows:

$$R_{j,t} = \log_e \frac{NAV_{j,t} + D_{j,t}}{NAV_{j,t-1}}$$

Where:

$R_{j,t}$ = Monthly continuously compounded rate of return of the jth unit trust during month t,

$\log_e$ = Natural logarithm to the base e,

$NAV_{j,t}$ = Net asset value for unit trust j at the end of month t,

$D_{j,t}$ = Dividend per unit paid by unit trust j during month t.

The average return can be used to compare to the average return of the benchmark. The average return is calculated as:

$$R_{j,t} = \frac{1}{n}\sum_{i=1}^{n} R_{j,t}$$

Where:

$R_{j,t}$ = Monthly return on fund j at time t,

n = The number of fund returns in the sample.

In the correlation analysis, the Fund's returns for each 'pair-wise' combination of Fund objectives is calculated. For the Funds within a company, the correlation with all other Funds with the same objectives is computed. As for the Across-Fund Companies, the correlation with Funds with the same objectives outside the Fund Company is computed. The correlation is averaged first within the Company and then across Companies. The 'paired *t*-test' is performed to test whether any significant difference exists in the mean of the correlation. The equality of variance (homoscedasticity) is first tested followed by the equality of mean. In the test for the equality of variance, the alternative hypothesis is formulated that the variances of the two groups, the 'across-family' and the 'within-family', are not the same. The '*F*-statistic' is applied. At a confidence level of 99 per cent, a *p*-value of smaller or equal to 0.01 is deemed to be significant and the null hypothesis of no difference is therefore rejected. Hence, the two groups have the same variance, that is, equal variance is assumed. Subsequently, the equality of mean is tested. The alternative hypothesis is formulated that the mean average return correlations of the two groups, the 'across-Family' and the 'within- Family', are not the same.

Common stockholdings, as one of the causes of the higher correlation among Funds within a Family, are examined. This argument

is based on the rationale that if Portfolio Managers within a Family use a shared economic forecast in their portfolio stock selection process, one may expect Within Family Funds to have similar exposure to different economic factors, and, therefore, Within Family Funds are highly correlated with each other as compared to funds Outside Family. Two Funds holding the same assets, known as the common holding, are examined in this part of analysis. The common holding of two Funds is calculated as the sum of the minimum fraction of the portfolio held in any stock *A* between the two Funds.

Percentage holding in common for each Fund pair = $\sum_i \min(X_{iA}, X_{jA})$

Where:
X_{iA} = the fraction of fund *i*'s portfolio invested in stock *A*.
X_{jA} = the fraction of fund *j*'s portfolio invested in stock *A*.

This common holding is expressed as a percentage of the total Net Asset Value. The calculated common percentage holding is averaged Within- and Across-Fund Companies. The 'paired *t*-test' will then be performed to test whether there are any significant differences in the mean of the common holding Within-Companies and Across-Companies in the same category. The percentage of common holdings in the same category is expected to be greater for the 'within-Company' funds as compared with the 'across-Company' funds. The stockholdings in a Fund's portfolio are used as reported in the annual report or the interim report; whichever fell in the first half of calendar year 2008, from 31 December 2007 to 31 May 2008.

On the other hand, the impact of Shariah restrictions on 'Fund investment diversification' was examined. The sample was divided into the Conventional Objective classification, and Islamic Objective classification. The level of diversification is different between the conventional funds and the Islamic funds. Islamic funds have a more restricted choice of stocks within which to invest. We therefore examine whether the returns from correlation of funds of investing across the conventional and Islamic objective group is lower than the returns from correlation of Funds of investing all capital in Islamic objectives. Considering only the Equity Funds, the correlation of the Fund's return for each 'pair-wise' combination of Fund objectives was first calculated. Then the calculated 'pair-wise' correlations were grouped into nine groups: (1) 'within-Family' combination, consisting of only Islamic funds; (2) 'within-Family' combination, consisting of a mixture of conventional and Islamic funds; (3) 'within-Family' combination, consisting of only conventional funds; (4) 'across-Family' combination,

consisting of only Islamic funds; (5) 'across-Family' combination, consisting of a mixture of conventional and Islamic funds; (6) 'across-Family' combination consisting of only conventional funds; (7) 'within-and-across-Family' combination, consisting of only Islamic funds; (8) 'within-and-across-Family' combination, consisting of mixture of conventional and Islamic funds; and (9) 'within-and-across-Families' combination, consisting of only conventional funds. The 'paired *t*-test' was performed to test whether there was any significant difference in the mean of correlation.

As with the situation discussed above, the impact of the Shariah restriction on Fund investment on portfolio diversification was analysed by studying the common stockholdings of Funds. The Fund objectives were separated into conventional and Islamic objectives. They were then grouped into pairs of common stock holdings in the following categories: (1) 'within-Family' combination, consisting of only Islamic funds; (2) 'within-Family' combination, consisting of a mixture of conventional and Islamic funds; (3) 'within-Family' combination, consisting of only conventional funds; (4) 'across-Family' combination, consisting of only Islamic funds; (5) 'across-Family' combination, consisting of a mixture of conventional and Islamic funds; (6) 'across-Family' combination, consisting of only conventional funds; (7) 'within-and-across Family' combination, consisting of only Islamic funds; (8) 'within-and-across Family' combination, consisting of a mixture of conventional and Islamic funds; (9) 'within-and-across Family' combination, consisting of only conventional Funds. An examination was made to see whether the common stockholdings of funds between the Islamic objectives were lower than the fund common stockholdings across conventional and Islamic objective groups. The 'paired *t*-test' was performed.

4. Findings

Table 5 presents the 'pair-wise' correlation after grouping the Funds into narrowly defined objectives. A total of 22 of the 28 objective pairs were found to have a statistically significant greater return correlation of Funds within a Unit Trust Fund Family, as compared with the return correlation of Funds outside the Fund Family. There were three pairs of Funds showing negative correlations, all of which involved Money Market funds, the correlation between GY-MM showing the greatest negative coefficient of -0.2251. From the portfolio diversification standpoint, therefore, Money Market funds would be able to help reduce portfolio risk considerably.

Table 5: Returns correlation by objectives within and across unit trust management companies, January 2003 - June 2009

Fund Objective pairs	Within Company Correlation		Across Company Correlation				
	Correlation	Number	Correlation	Number	t-statistic	p-value	
AG-AG	0.8817	60	0.7709	490	9.1731	0.0000	***
AG-LG	0.8623	118	0.7784	1712	9.3649	0.0000	***
AG-Y	0.7597	32	0.7154	357	1.5966	0.0556	*
AG-GY	0.8165	30	0.7691	500	2.9328	0.0029	***
AG-BL	0.7691	74	0.7380	1008	1.5173	0.0666	*
AG-B	0.2338	124	0.1554	1341	3.5979	0.0002	***
AG-MM	0.0144	54	-0.0864	446	3.2738	0.0009	***
LG-LG	0.7952	179	0.7864	1323	0.5758	0.2827	n.s.
LG-Y	0.7828	42	0.7175	588	3.4912	0.0005	***
LG-GY	0.8400	25	0.7760	847	3.6587	0.0005	***
LG-BL	0.8280	208	0.7412	1555	11.1003	0.0000	***
LG-B	0.1913	204	0.1585	2181	1.9329	0.0267	**
LG-MM	0.0063	81	-0.0689	761	3.1991	0.0009	***
Y-Y	0.7476	3	0.6773	58	0.7555	0.2265	n.s.
Y-GY	0.8363	4	0.7257	171	3.7463	0.0100	***
Y-BL	0.7698	24	0.6923	349	2.4823	0.0067	***
Y-B	0.2317	36	0.1980	466	0.8237	0.2053	n.s.
Y-MM	-0.1159	17	-0.0829	156	-0.7489	0.2275	n.s.
GY-GY	0.7946	20	0.7702	100	1.5372	0.0648	*
GY-BL	0.8326	25	0.7376	451	6.0783	0.0000	***
GY-B	0.1633	46	0.1570	651	0.1689	0.4330	n.s.
GY-MM	-0.2251	6	-0.0779	229	-1.8314	0.0342	**
BL-BL	0.8127	33	0.7125	465	5.2237	0.0000	***
BL-B	0.2137	120	0.1807	1240	1.4988	0.0671	*
BL-MM	0.0100	42	-0.0797	444	3.3740	0.0004	***
B-B	0.3279	96	0.2246	859	3.5310	0.0003	***
B-MM	0.0531	63	-0.0147	614	2.7594	0.0037	***
MM-MM	-0.0769	13	0.0519	103	-1.0745	0.1511	n.s.
ALL	0.4708	(N=1,773)	0.4376	(N=19,465)	3.4529	0.0003	***

*Note: This table reports the return correlations by objectives within and between unit trust management companies for the whole sample. The number refers to the number of pair-wise combinations. The sample period covers from January 2003 to June 2009. The *t*-statistics test the difference between the within- and across-companies correlations. *, **, and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

Money Market funds hold very short-term Money Market instruments at the lowest risk, while Equity Funds have the potential for

generating high returns over the long term and their volatility is high. Due to the difference in nature, these two Funds are expected to be negatively correlated. This negative relationship reflects a good addition to the portfolio. For the 'across-Families' correlation, it was found that the highest correlation is 0.7864 for the LG-LG pair, while the lowest is 0.0519 for the MM-MM pair. In addition, there are six pairs showing negative correlation, all of which involved Money Market Funds. As expected, the 'within-Family' correlations are, in general, higher than the 'across-Families' correlation with respective averages of 0.4708 and 0.4376. The results show that all but six (6) of the twenty-nine (29) pairs show a significant difference at significant levels up to 10 per cent. The last row indicates that the 'within-Family' correlation of 0.4708 is significantly greater than the 'across-Family' correlation of 0.4376 for all the objectives pair. The 'high *t*-statistic' of 3.45 indicates that this difference is significant at the 1 per cent level. The results shown in this table clearly indicate that 'within-Family' correlations are greater than 'across-Family' correlations

The evidence presented in this section supports the alternative hypothesis H_a1 which states that the correlation of the return of funds for 'within-fund' Families is greater than that for 'across-fund' Families. This observation is in line with the findings of Elton *et al.* (2007). Since the correlation of financial asset returns represents the major component in the portfolio risk of assets, the higher asset's return correlation of Funds within a Fund Company has an impact on increasing the risk level for the unit trust investors who invest their money in Funds that are managed in one Fund Company. Therefore, it is concluded that investing in Funds within one Fund Company in Malaysia carries a greater portfolio risk than investing in Funds across different Fund Companies. Thus, keeping investments in a single Fund Company can increase risk and reduce diversification - a possible reason being that although Malaysian Fund Companies sell Funds with different names, different growth potential and different objectives, their risk profiles are generally the same. These Fund Companies attempt to capture market share by offering a wide range of products. However, due to the limitation of sharing the research resources in a company, the Funds that a Fund Company offers tend to have the same investment objective or market view, which leads to the high commonality of Funds within a Fund Company. The main implication in this part of the research is that limiting investment to one Fund Company brings about greater total portfolio risk than diversifying across different Fund Companies. The greater risk is because Funds within a company have a greater correlation than when Funds are selected from two companies.

Table 6: Common holding of stocks for funds within- and across-fund companies

	Within-company		Across-company					
	Common Holding	number	Common Holding	number	Ratio of Within to Across	t-stat	p-value	
AG-AG	19.40	60	12.87	1057	1.5	3.804	0.0002	***
AG-LG	26.43	132	14.08	3444	1.9	9.520	0.0000	***
AG-GY	24.43	16	12.25	662	2.0	3.771	0.0009	***
AG-Y	20.71	31	11.96	704	1.7	3.627	0.0005	***
LG-LG	27.67	140	16.06	2404	1.7	8.118	0.0000	***
LG-GY	27.72	20	13.68	990	2.0	3.569	0.0010	**
LG-Y	21.85	54	13.46	1066	1.6	5.613	0.0000	***
GY-GY	21.80	4	11.05	82	2.0	1.143	0.1681	n.s.
GY - Y	31.21	7	11.70	206	2.7	5.854	0.0000	***
Y-Y	32.14	3	12.34	106	2.6	2.899	0.0506	**
average	24.92	(N=467)	14.79	(N=10,721)	1.7	16.154	0.0000	***

*Note: This table shows the average percentage of stockholding in common for funds within-and across-fund companies. The common percentage holdings for each pair of funds is calculated as $\sum_i \min(X_{iA},X_{jA})$, where X_{iA} is the fraction of fund *i*'s portfolio invested in stock *A* and X_{jA} is the fraction of fund *j*'s portfolio invested in stock *A*. It is expressed as a percentage of Net Asset Value. The calculated common percentage holding is averaged within and across fund companies. The paired *t*-test was then performed to test whether there are any significant differences in the mean of common holding within-company and across-companies in the same category. *, **, and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

One possible reason for the correlation within the company is greater than across companies is that there is greater common holding of stocks among Funds within a company as opposed to across companies. Table 6 reports the common stockholdings for all Equity Funds, as at 31 Dec 2007 to 31 May 2008, separating into a 'within-fund' company group and an 'across-fund' companies group. As expected, the average portfolio in common 'within-Company' is nearly two times (24.92 per cent) greater than the common holdings of the 'across-Companies' funds (14.79 per cent). The last column of the table indicates the level of significance of the difference between the pair-wise comparison of 'within'- and 'across'-Companies' common stockholdings. The overall result in the last row shows that all the 'pair-wise' differences are highly significant at the 1 per cent level. As expected, the common portfolio holding of 'pair-wise' funds 'within-Company' is consistently higher, by about twice for all the categories, than when the pair is made up of

Funds across Fund Companies. The evidence supports the alternative hypothesis H_a2 which states that the common stock holdings of Funds within a Fund Family are greater than the holdings across Fund Families. Considering the cause of the increased correlation in a Fund Family and an unexpectedly high level of common holdings when 'within-Family' Fund stockholdings were compared with 'across-Families' funds, this research finding is consistent with that of Elton *et al.* (2007).

Table 7 shows that for the 'within-Company returns' correlations, the 'pair-wise' combination consisting of an Islamic fund and a conventional fund of 0.8207 is significantly lower than the average correlation of a 'pair-wise' combination consisting of two Islamic funds of 0.8492 at the 1 per cent level of significance - meaning that the return correlation of two Islamic funds is more closely correlated as compared with 'two-mix' Funds of an Islamic and conventional fund. However, the 'pair-wise' combination that consists of an Islamic fund and a conventional fund of 0.8207 is not significantly different from the average correlation of the 'two conventional funds' pair of 0.8231. The mean return correlation of 'pair-wise' combinations consisting of two Islamic funds of 0.8492 is significantly greater than the average correlation of a 'pair-wise' combination consisting of two conventional funds of 0.8231 at the 1 per cent level of significance. Similarly for the 'across-fund' Company return correlations, the average correlation of an Islamic fund paired with a conventional fund of 0.7526 is significantly lower than the average correlation of the 'two Islamic funds' pair of 0.7753. However, the correlation of a 'pair-wise' combination that consists of an Islamic fund and a conventional fund of 0.7526 is greater than the average correlation of a 'pair-wise' combination that consists of two conventional funds of 0.7490. It is significant at the 10 per cent level of significance. The mean return correlation of a 'pair-wise' combination consisting of two Islamic funds of 0.7753 is significantly greater than the average correlation of a 'pair-wise' combination consisting of two conventional funds of 0.7490 at the 1 per cent level of significance. Again, the results indicate that the return correlation of two Islamic funds is more closely correlated as compared with the return correlation of two conventional funds. Correspondingly, for the combined result of 'within-and-across' Fund Company return correlations, the average correlation of an Islamic fund paired with a conventional fund of 0.7584 is significantly lower than the average correlation of the 'two Islamic funds' pair of 0.7813 at the 1 per cent level of significance.

Table 7: Equity fund returns correlation by objectives 'within' and 'across-' Unit Trust Management Companies, January 2003 - June 2009

	Correlation		Correlation	t-stat	p-value	
		Within Family				
Islamic-Islamic	0.8492 (N =72)	Islamic-Conventional	0.8207 (N=411)	2.4812	0.0072	***
Conventional-Conventional	0.8231 (N =478)	Islamic-Conventional	0.8207 (N=411)	0.3030	0.3810	n.s.
Islamic-Islamic	0.8492 (N = 72)	Conventional-Conventional	0.8231 (N =478)	2.3673	0.0098	***
		Between Families				
Islamic-Islamic	0.7753 (N =808)	Islamic-Conventional	0.7526 (N=4406)	4.7105	0.0000	***
Conventional-Conventional	0.7490 (N=5922)	Islamic-Conventional	0.7526 (N=4406)	-1.4235	0.0773	*
Islamic-Islamic	0.7753 (N =808)	Conventional-Conventional	0.7490 (N=5922)	5.5684	0.0000	***
		Combined Within and Between Families				
Islamic-Islamic	0.7813 (N =880)	Islamic-Conventional	0.7584 (N=4817)	4.9420	0.0000	***
Conventional-Conventional	0.7545 (N=6400)	Islamic-Conventional	0.7584 (N=4817)	-1.5886	0.0561	*
Islamic-Islamic	0.7813 (N =880)	Conventional-Conventional	0.7545 (N=6400)	5.9738	0.0000	***
		Islamic-Islamic				
Within Family	0.8492 (N =72)	Between Families	0.7753 (N = 808)	6.8805	0.0000	***
		Conventional-Conventional				
Within Family	0.8231 (N =478)	Between Families	0.7490 (N = 5922)	13.8208	0.0000	***
		Islamic-Conventional				
Within Family	0.8207 (N =411)	Between Families	0.7526 (N =4406)	10.5290	0.0000	***

*Note: This table shows the equity objectives classification separating into the Islamic and conventional objectives and the pair-wise returns correlation of the within- and across-companies are calculated. The t-test is performed to test the mean difference. The number refers to the number of pair wise combinations. The sample period covers from January 2003 to June 2009. *, **, and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

However, the correlation of a 'pair-wise' combination that consists of an Islamic fund and a conventional fund of 0.7584 is greater than the average correlation of a 'pair-wise' combination that consists of two conventional funds of 0.7545. It is significant at the 10 per cent level of significance. The mean return correlation of the 'pair-wise' combination consisting of two Islamic funds of 0.7813 is significantly greater than the average correlation of a 'pair-wise' combination consisting of two conventional funds of 0.7545 at the 1 per cent level of significance. This result indicates that there is room for risk reduction when investing in funds across conventional and Islamic objectives, for both 'within-company' funds and 'across-company' funds combinations.

This evidence supports the alternative hypothesis of Ha3(a) which states that the mean return correlation of only Islamic funds is greater than the correlation of a combination of Islamic and conventional funds. However, we cannot reject the null hypothesis of $H_0$3(b) of the mean return correlation of only conventional funds as being the same as the correlation of a combination of Islamic and conventional funds. Additionally, the evidence discussed supports $H_0$3(c) in favour of the alternative hypothesis of H_a3(c) which states that the mean return correlation of only the Islamic funds is greater than the mean return correlation of only the conventional funds, 'within-Family' and 'across-Families'. It is concluded that restricting investments solely to one Fund Family - especially solely in the Islamic funds - will lower the diversification benefits. Shariah restrictions on stock investment do have an impact on Fund Return correlation and diversification.

On the other hand, the evidence supports H_a3(d) - that the mean return correlation of only the Islamic funds 'within-Family' is greater than the mean return correlation of only the Islamic funds 'across-Families'. H_a3(e) is supported - that the mean return correlation of only the conventional funds 'within-Family' is greater than the mean return correlation of only the conventional funds across Families. Likewise, H_a3(f) is also supported - that the mean return correlation of a combination of Islamic and conventional funds 'within-Family' is greater than the mean return correlation of a combination of Islamic and conventional funds 'across-Families'. This research evidence is in line with the finding reported by Elton *et al*. (2007) who found that funds are more closely correlated within the Fund Family than across other Fund Families. This also supports our earlier findings that the correlation of return of funds within a Fund Family is higher than across Fund Families.

Table 8: Common holding of stocks by objectives 'within-'and 'across-' Unit Trust Management Companies, January 2003 - June 2009

Common Holdings		Common Holdings		t-stat	p-value	
		Within Family				
Islamic-Islamic	32.05 (N =37)	Islamic-Conventional	22.94 (N=213)	2.7737	0.0041	****
Conventional-Conventional	25.60 (N=234)	Islamic-Conventional	22.94 (N=213)	1.9745	0.0245	***
Islamic-Islamic	32.05 (N =37)	Conventional-Conventional	25.60 (N=234)	1.9564	0.0285	***
		Between Families				
Islamic-Islamic	21.42 (N =596)	Islamic-Conventional	13.88 (N=4327)	15.0229	0.0000	****
Conventional-Conventional	13.19 (N=1996)	Islamic-Conventional	13.88 (N=4327)	-3.5800	0.0002	****
Islamic-Islamic	21.42 (N =596)	Conventional-Conventional	13.19 (N=1996)	16.5268	0.0000	****
		Combined Within and Between Families				
Islamic-Islamic	22.04 (N =633)	Islamic-Conventional	14.30 (N=4540)	14.9063	0.0000	****
Conventional-Conventional	13.38 (N=4996)	Islamic-Conventional	14.30 (N=4540)	-4.4069	0.0000	****
Islamic-Islamic	22.04 (N =633)	Conventional-Conventional	13.38 (N=4996)	16.3269	0.0000	****
		Islamic-Islamic				
Within Family	32.05 (N =37)	Between Families	21.42 (N = 596)	3.3360	0.0010	****
		Conventional-Conventional				
Within Family	25.60 (N =234)	Between Families	13.19 (N=6373)	12.6209	0.0000	****
		Islamic-Conventional				
Within Family	22.94 (N =213)	Between Families	13.88 (N=4327)	9.6289	0.0000	****

*Note: Grouping funds into the Islamic and conventional objectives within- and across-unit trust companies, the fund common holding of stocks is calculated. The t-test is performed to test the mean difference. The number refers to the number of pair-wise combinations. *, **, and *** denote significance at the 0.1, 0.05 and 0.01 levels, respectively.

In Table 8 Funds are grouped into nine combinations and the average common stock holding of each combination is calculated. For the

'within-fund' Families, the common stock holding of an Islamic fund paired with a conventional fund of 22.94 per cent is statistically significantly lower than the average common stock holdings of pairs of two Islamic funds of 32.05 per cent at the 1 per cent level of significance. Also, the average common stockholding of an Islamic fund paired with a conventional fund of 22.94 per cent is significantly lower than the average common stock holding of a pair of two conventional funds of 25.60 per cent. It is significant at the 5 per cent level of significance. In addition, the common holding of the 'pair-wise' combination consisting of two conventional funds of 25.60 is significantly lower than the average common holding of a 'pair-wise' combination consisting of two Islamic funds of 32.05 at the 5 per cent level of significance. For the 'across-fund' companies, the table reports that the common stockholding of an Islamic fund and a conventional fund of 13.88 per cent is significantly lower than the average common holdings of a 'pair-wise' combination that consists of two Islamic funds of 21.42 per cent. However, the common stockholding of an Islamic fund and a conventional fund of 13.88 per cent is significantly greater than the average correlation of a 'pair-wise' combination that consists of two conventional funds of 13.19 per cent. The common holding of the 'pair-wise' combination consisting of two conventional funds of 13.19 is significantly lower than the average common holding of a 'pair-wise' combination consisting of two Islamic funds of 21.42 at the 1 per cent level of significance. Consistent with the results reported in Table 7, Table 8 reports that the common stockholding of a 'pair-wise' of two Islamic funds or two conventional funds are significantly greater than the 'pair-wise' funds of a conventional fund and an Islamic fund. The results indicate that the stock common holding of two Islamic funds is greater than the common stockholdings of two conventional Funds.

The evidence discussed above supports the alternative hypothesis of $H_a4(a)$, that the mean common holding of only Islamic funds is greater than the mean common holding of Islamic and conventional funds. On the other hand, we cannot support $H_04(b)$ of the mean common holding of only conventional Funds is greater than the mean common holding of Islamic and conventional funds. The evidence supports the alternative hypothesis of $H_a4(c)$, that the mean common holding of only the Islamic funds is greater than the mean common holding of only the conventional funds, 'within-Company' and 'across-Company'.

The results discussed above are in line with the argument made by Abdullah *et al.*, (2007) and Han and Rarick (2009) - that conventional Funds have a marginally better diversification level than the Islamic funds. In conclusion, the common stockholding is found to be greater by more than two-fold if investment is limited to 'within-Company' and investing solely in the Islamic funds, as compared with investing 'across-Companies', across Islamic and conventional funds or 'across-Companies' across conventional Funds. The result implies that diversifying investment across Islamic and conventional Funds will lower the correlation of fund returns and stock common holding of Funds.

On the other hand, the evidence supports $H_a4(d)$ - that the mean common holding of only the Islamic funds 'within-Family' is greater than the mean common holding of only the Islamic funds 'across-Families'. $H_a4(e)$ is also supported - that the mean common holding of only the conventional funds 'within-Family' is greater than the mean common holding of only the conventional funds 'across-Families'. Similarly, $H_a4(f)$ is supported - that the mean common holding of a combination of Islamic and conventional funds 'within-Family' is greater than the mean common holding of a combination of Islamic and conventional funds 'across-Families'.

In conclusion, the common stock holding is found to be higher by more than two-fold if investment is limited to the 'within-Families' method and investing solely in the Islamic funds, as compared to investing 'across-Families', across Islamic and conventional Funds, or 'across-Families' across conventional funds.

5. Conclusion

This paper offers new insights into the risks of investing all money into a single Unit Trust Management Company. The conclusions drawn in this study are as follows: (1) Total portfolio risk reduction can be achieved through diversifying investment in Unit Trust Funds across different Fund Companies. (2) The common stockholdings of funds within a Fund Company are two times greater than those across different companies. (3) Total portfolio risk reduction can be achieved through diversifying investment in Unit Trust funds across Islamic and conventional funds. (4) Money Market Funds stand out as good diversification due to their low correlation with the other funds.

The findings in this study provide evidence that returns from unit trusts are more closely correlated within than across the Unit Trust Management Companies. In the study of common stockholdings, in general, Funds in the same company hold more identical stocks than

funds in different Fund Companies. Therefore, it is concluded that investors in Malaysia are able to enjoy diversification benefit by investing in funds across different Fund Companies. In addition, this study also provides evidence that the portfolio risks can be further reduced by investing in a combination of Funds consisting of a mixture of Funds across the conventional and Islamic objectives.

The implication of this study is that there exists an opportunity for investors to lower the diversification risk by investing 'across-Funds' in different Management Companies and by integrating their investment of conventional funds with Islamic funds. Investors are advised to balance the trade-off between the additional portfolio risk that arises from the greater Fund correlation and commonality of Funds 'within-Company' and the benefits that are to be enjoyed by investing in Funds within a single company.

Evidence from this study is consistent with the diversification benefit stated in the portfolio theory (Markowitz, 1952). Therefore, diversifying investment across Fund Families reduces the portfolio risk for unit trust investors in Malaysia. This mechanism works well where the level of Unit Trust Fund diversification in Malaysia is low, as reported by Leong and Aw (1997).

On the other hand, these findings would also benefit the Unit Trust Management Companies whose role is to engage in fair and sound asset-management activity. This evidence highlights to the Fund Managers that further diversification of stockholdings in Funds is needed in the near future. Fund Managers should be aware that common stockholdings play a vital role in Fund Return Correlation and, hence, the risk profile of the Fund. The inclusion of a diverse set of securities in the Fund portfolios managed by them eases the commonality problem in Fund Management Companies.

The results of this study suggest to the regulator that more Fund Management Companies should be approved and that smaller Fund Management Companies should be encouraged to launch more new Funds so that investors could invest in various Funds managed by different Families for diversification purposes. With more competing Unit Trust Management Companies in the industry, the efficiency of Fund Management would be improved, which benefits both the economy as well as the consumers.

Five plausible explanations for the high similarity within Unit Trust Families in Malaysia are noted. Firstly, the Unit Trust Fund Managers in Malaysia have a preference for several specific stock counters, although they attempt to diversify their holding across all the stocks available on the stock exchange. Secondly, Unit Trust Fund Managers might have access to the same research resources that lead to a

company-wide economic view and, thus, similar investment exposure. Thirdly, Unit Trust Companies have a specified investment style, which influences the type of assets in which Fund Managers invest. Fourthly, a Family-wide prospect on the general economy will also lead to an identical investment in certain economic sectors. Lastly, Unit Trusts in Malaysia are managed by one Management Portfolio Team within a Fund Family. This adds to the commonalities of Funds in relation to the individual securities and the particular sectors in which funds are invested. Consequently, Funds having different names in a Family do not mean they are different Funds. This is similar to the matured market in the U.S. as documented in Elton *et al.* (2007).

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Appendix: List of unit trust management companies in the sample

Name of Fund Management Company	Abbreviation
PUBLIC MUTUAL BERHAD	PMB
CIMB-PRINCIPAL ASSET MANAGEMENT BERHAD	CPA
HLG UNIT TRUST BERHAD	HLG
PRUDENTIAL FUND MANAGEMENT BERHAD	PRU
AMINVESTMENT SERVICES BERHAD	AMS
OSK-UOB UNIT TRUST MANAGEMENT BERHAD	OSK
MAAKL MUTUAL BERHAD	MAA
HWANGDBS INVESTMENT MANAGEMENT BHD	HWD
PACIFIC MUTUAL FUND BERHAD	PAC
RHB INVESTMENT MANAGEMENT SDN BHD	RHB
TA INVESTMENT MANAGEMENT BERHAD	TAS
AVENUE INVEST BERHAD	AVE
ALLIANCE INVESTMENT MANAGEMENT BERHAD	ALL
ING FUNDS BERHAD	ING
APEX INVESTMENT SERVICES BERHAD	APX