

# STYLE ANALYSIS OF MALAYSIA SUKUK FUNDS

CHEONG KOK JUN  
TAN HAO ZHING  
TAN SIAU TUNG  
TAY WEN HUI  
YONG CHEE CHENG

BACHELOR OF BUSINESS ADMINISTRATION  
(HONS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE  
DEPARTMENT OF FINANCE

APRIL 2018

STYLE ANALYSIS OF MALAYSIA SUKUK FUNDS

BY

CHEONG KOK JUN  
TAN HAO ZHING  
TAN SIAU TUNG  
TAY WEN HUI  
YONG CHEE CHENG

A research project submitted in partial fulfillment of the  
requirement for the degree of

BACHELOR OF BUSINESS ADMINISTRATION  
(HONS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE  
DEPARTMENT OF FINANCE

APRIL 2018

Copyright @ 2018

ALL RIGHTS RESERVED. No part of this paper may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, graphic, electronic, mechanical, photocopying, recording, scanning, or otherwise, without the prior consent of the authors.

DECLARATION

We hereby declare that:

- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
- (4) The word count of this research report is 13,468.

Name of Student:	Student ID:	Signature:
1. Cheong Kok Jun	13ABB03865	_____
2. Tan Hao Zhing	15ABB08191	_____
3. Tan Siau Tung	15ABB07440	_____
4. Tay Wen Hui	13ABB05794	_____
5. Yong Chee Cheng	14ABB06805	_____

Date: \_\_\_\_\_

## ACKNOWLEDGEMENT

We have obtained assistance from several people in order to complete this research project. Hence, we would like to take this opportunity to express our gratitude to those people who have lent us a helping hand throughout this research.

First and foremost, we would like to thank Universiti Tunku Abdul Rahman (UTAR) for giving us the opportunity and platform to conduct this project.

Besides, we would like to show our gratitude to our supervisor, Encik Ahmad Harith Ashrofi bin Hanafi, who shared his pearls of wisdom with us during this research. This research project will not be completed successfully without his assistance. We thank him for sacrificing his precious time to guide us throughout this project and we have indeed learnt a lot from him during the meetings.

Lastly, we thank our family members and friends who have supported us in every aspect during the progress of this research.

## DEDICATION

We would like to dedicate this research project to our supervisor, Encik Ahmad Harith Ashrofi bin Hanafi, for his helpful advice and guidance that helped us to complete this project.

Furthermore, as a token of appreciation for the support from our family members and friends, we would like to dedicate this project to them as well.

TABLE OF CONTENTS

	Page
Copyright Page .....	iii
Declaration .....	iv
Acknowledgement .....	v
Dedication .....	vi
Table of Contents .....	vii
List of Tables .....	x
List of Figures.....	xi
List of Abbreviations .....	xii
List of Appendices.....	xiii
Preface .....	xiv
Abstract .....	xv
CHAPTER 1 INTRODUCTION .....	1
1.1 Research Background .....	3
1.2 Problem Statement .....	6
1.3 Research Objectives .....	8
1.3.1 General Objectives .....	8

	1.3.2 Specific Objectives .....	8
1.4	Research Questions .....	9
1.5	Hypotheses of the Study .....	10
1.6	Significance of Study .....	11
1.7	Chapter Layout .....	12
1.8	Conclusion .....	13
CHAPTER 2	REVIEW OF LITERATURE .....	14
2.1	Underlying Theory.....	15
2.2	Literature Review .....	16
2.3	Analysis Model .....	17
2.4	Empirical Evidence .....	19
2.5	Theoretical Framework .....	23
2.6	Hypotheses .....	26
2.7	Summary .....	28
CHAPTER 3	METHODOLOGY .....	29
3.1	Sample Selection and Data Collection .....	30
3.2	Method .....	35
3.3	Hypotheses of T-statistic .....	40
3.4	Summary .....	41



CHAPTER 4	ANALYSIS OF FINDINGS .....	42
4.1	Result of Asset Classes Test .....	43
4.2	Individual Fund's Style .....	49
4.3	Individual Fund's Graph .....	53
4.4	Summary .....	71
CHAPTER 5	DISCUSSION, CONCLUSION AND IMPLICATIONS ....	72
5.1	Summary of Study .....	73
5.2	Implication of Study .....	75
5.3	Policy Implications .....	76
5.4	Limitation of Study .....	77
5.5	Recommendations for Future Research .....	79
References	.....	80
Appendices	.....	84

LIST OF TABLES

	Page
Table 3.1: List of Selected Sukuk Funds	30
Table 3.2: Asset Allocation of Sukuk Funds	31
Table 3.3: Asset Classes' Indices	33
Table 4.1: Correlation of Asset Classes (2013 to 2017)	43
Table 4.2: Descriptive Statistical of Asset Classes for Overall Period	43
Table 4.3: Correlation of Asset Classes (2013 to 2017)	44
Table 4.4: Descriptive Statistical of Asset Classes for Overall Period	44
Table 4.5: Style Analysis for Period 2013 to 2017	48

LIST OF FIGURES

	Page
Figure 1.1: Net Asset Value of the Mutual Funds (2007-2016)	5
Figure 2.1: Theoretical Model	23
Figure 4.1: Style Analysis for Period 2013-2017	52
Figure 4.2: Average of Style and Selection in the Overall Period	52
Figure 4.3: Individual Funds Graph	53-70

LIST OF ABBREVIATIONS

CBSA	Characteristics-Based Style Analysis
FIMM	Federation Investment Managers Malaysia
HSBA	Holding-Based Style Analysis
KLIBOR	1-month Kuala Lumpur Inter-Bank Offer Rate for Cash Index
MSCI	Morgan Stanley Capital International
NAV	Net Asset Value
OLS	Ordinary Least Square
RBSA	Return-Based Style Analysis
RI	International Stock
RMG	Growth Stock
RMV	Value Stock
SUKUK	Sukuk

LIST OF APPENDICES

	Page
Appendix I    Style Analysis for Overall Period	84

## PREFACE

There are many types of investment vehicles available for the investors in the market. However, the mutual funds holders would be able to hold a diversified portfolio even with restricted funds as the mutual funds are managed by professional fund management team. In addition, Malaysia has been listed as one of the world's largest sukuk market. On the other hand, the investors are very conscious of the asset allocation of the mutual funds they invested and the original objectives of the funds should be in line with investors' objectives to fulfill their investment needs. Hence, we are very interested to examine whether sukuk funds' style of asset allocation drift from the fund's original objectives as well as to investigate whether style drift leads to mis-classification of funds.

This study provides a useful guidelines and insight into various sukuk funds in Malaysia to several parties such as the investors, fund managers, policy makers, government, researchers and the public in order for them to have a better understanding of the styles change of sukuk funds in Malaysia.

## ABSTRACT

This study examines whether or not the Sukuk funds' style of asset allocation drift from the fund's original objectives as well as to investigate whether style drift leads to mis-classification of funds. The period of study is five (5) years starting from January 2013 to December 2017. This study uses MSCI Malaysia Growth Index, MSCI Malaysia Value Index, 1-month Kuala Lumpur Inter-Bank Offer Rate (KLIBOR), Bloomberg Malaysian Sukuk Ex-MYR Index, and MSCI World Index as benchmarks for asset classes. The total of 18 Malaysia Sukuk funds used as sample and analyzed using Return Based Style Analysis (RBSA). The results show that there are some Sukuk funds that have significant different styles when compared to their original objectives for the study period. The variation in monthly returns for most of the funds for the whole study period mainly could be explained by the variation in their styles of funds. The average style of the overall period shows that the fund managers have focused their investments mainly in Sukuk at 59% to 100% and the rest of the portion of investments in value stocks and cash market. The average Sukuk fund returns could be explained mainly by the variation in the funds' styles.

## **CHAPTER 1: RESEARCH OVERVIEW**

### **1.0 Introduction**

There are various types of investment vehicles that are accessible to the investors in the market nowadays such as unit trusts or mutual funds, stocks and property. However, different types of investment may have different degree of risk and returns. For those investors that prefer long-term and stable approach to invest in, the investors may choose to invest in unit trusts or mutual funds as the investors would be able to hold a diversified portfolio even with restricted funds.

According to FIMM Annual Reports, the statistic demonstrates that the Net Asset Value (NAV) for mutual funds have grew massively within 10 years. Islamic funds, money market funds, and equity funds are the major contributors that enhance the rapid growth of mutual funds. However, the percentage of total NAV by Islamic funds increased significantly from the year 2007 to 2016. There is a steady growth in the percentage of total NAV by money market funds within the same period. The percentage of total NAV by equity funds fluctuated within the years but it still ended up with an increasing figure. Hence, Malaysia has been listed as one of the world's largest sukuk markets as many investors are interested in the investment of sukuk funds in order to take advantages of this situation (Mohamed, 2015). However, it is difficult for the individual investors to get direct access into the sukuk funds compared to institutional investors. Based on the past data, the objectives of mutual funds in the sukuk or Islamic bond funds are most likely fall under fixed income and



balanced funds as those investors who invested in sukuk funds usually would expect a fixed income (Bloomberg, 2017).

Fund managers are responsible in managing the investment of funds in order to ensure that the strategy of funds is aligned with their objectives or goals. Moreover, the overall management of the fund's investments is in charged by the fund managers, from the client service to risk management of the investment. Sharpe (1992) presented the concept of effective asset mix and selection returns as style management to determine how effectively individual fund managers have implemented their functions and the degree to which value has been added through active management. Style analysis presented by Sharpe (1992) can be used to compare the effectiveness of the overall asset allocation with that of one or more benchmark asset mixes.

Lastly, further studies based on the style analysis management are necessary because it enables fund managers to manage their investment portfolio without drifting away from the funds original styles according to the needs and requirement of the investors.

## 1.1 Research Background

A grouping of joint investments enables the investors with the common investment goals to pool the money together to be invested in a portfolio of securities or other types of assets, is known as mutual funds. According to Federation Investment Managers Malaysia (FIMM), the mutual funds concept was introduced or launched to Malaysia relatively early compared to the other Asian countries in the year of 1959. The Malayan Unit Trust Ltd. issued the first unit trust in Malaysia. The unit trust or mutual funds industry in Malaysia exists for more than 4 decades.

With the increasing growth of economic, the industry has grown rapidly ever since up till 1997. In 1997, the East Asian financial crisis has brought an unexpected suspension to such an exponential development. However, after the financial crisis, the mutual fund industry recovered from the financial crisis steadily.

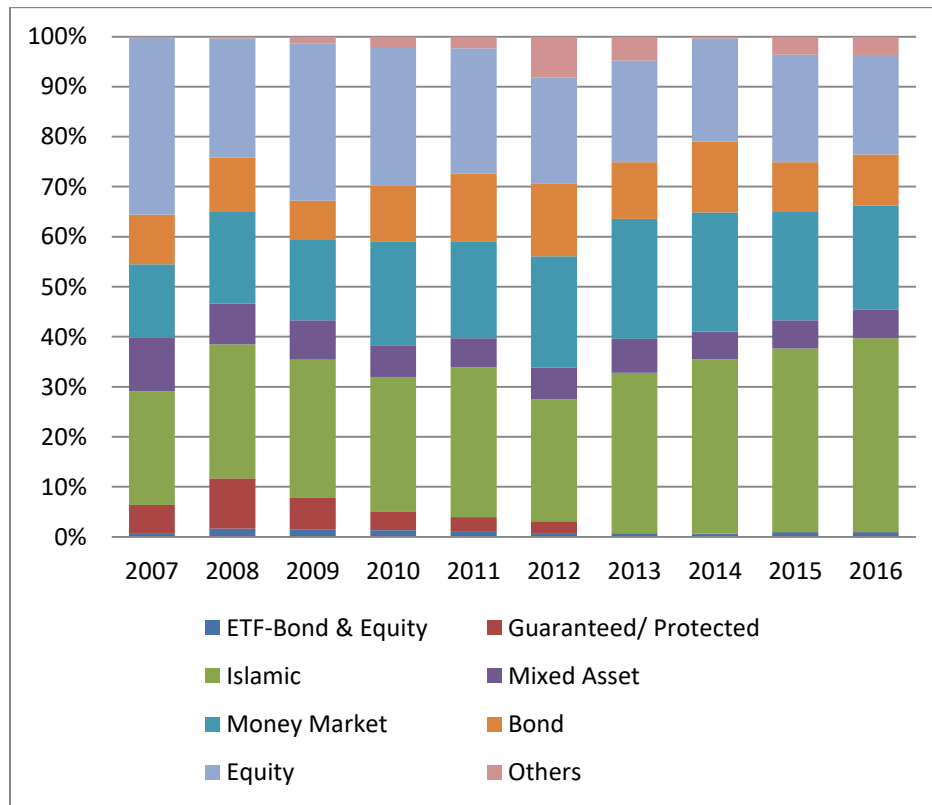
There is a substantial development in Islamic mutual funds industry after the recovery of financial crisis. Islamic mutual funds are different than the conventional mutual funds due to the assets invested in Islamic funds must comply with the Shari'ah Law. According to Mohd, Norlela, Siti and Gairuzazmi (2014), Sukuk is unknown to the public before 1990, and then it has appeared as a practical financing option for the public especially in the 2000s. The popularity of Sukuk has increased among corporate issuers and Sukuk is a potential investment as a viable financing option (Mohd, Norlela, Siti and Gairuzazmi, 2014). According to Bank Negara Malaysia (2017), Malaysia continued to be the main driver for sukuk issuance for the year 2016 at USD34.7 billion and market share of 46.4% of total issuances and it followed by Indonesia and the United Arab Emirates (UAE). Moreover, Boo, Mong, Li and Mamunur (2017) presented that the risk management of Islamic mutual funds is more desirable than the conventional mutual funds.

Based on the historical statistics of total NAV according to the style of the mutual funds, as shown in Figure 1.1, the statistics shows that the total net asset value (NAV) has increased from RM 72,856.88 million in 2007 to RM 203,824.76 million in 2016. It has showed a significant increment of the NAV. The main contributors to this exponential growth of the mutual funds industry are Islamic funds, equity funds, and money market funds.

In 2016, Islamic funds recorded its firm growth on the tenth consecutive years with total of NAV at RM 79,101.26 million and also at 38.81%. The NAV percentage of Islamic funds increased significantly from 22.72% in 2007 to 38.81% in 2016 which showed that the Islamic funds are growing steadily over the course of 10 years in Malaysia.

However, the NAV percentage of equity funds decreased tremendously from 35.33% in 2007 to 19.90% in 2016. The NAV percentage of money market funds also increased slightly from 14.63% in 2007 to 20.80% in 2016. Figure 1.1 shows that there is a positive sign of development in Islamic funds in Malaysia.

Figure 1.1: Net Asset Value of the Mutual Funds from 2007 to 2016



Source: Federation of Investment Managers Malaysia (FIMM) Annual Reports

## 1.2 Problem Statement

According to Lau (2008), the advantages of mutual funds are the investors can invest their money to a fund that provides portfolio diversification and also it was managed by professional fund management. The investors are becoming more sensitive and cautious towards their investments because of the uncertainty movements of the global economy. The investors should be conscious of the asset allocation of the mutual funds they invested and the original objectives of funds should be in line with the investors' objectives to fulfill their investment needs. Fund manager might possess greater knowledge than the investors regarding the mutual funds, it also known as asymmetric information. According to Lau (2008), the researcher stated that knowing the style of the fund reduces the risk of asymmetric information. Investor can plan risk budgeting if they have the information of the asset allocation of the portfolio. According to Fowler, Grieves and Singleton (2010), the findings showed that the 99 New Zealand unit trust funds change from their original objective which is invest primarily in equities to 16% to 33% of funds invested in fixed income securities such as bonds. The choice of investing in fixed income securities should be made disclosed to investors so the investors can evaluate their investment. Further studies should be made on the styles of Malaysia's Sukuk funds.

Mintzer and Littmann (2000) presented that when the investors invest in mutual funds, they might be facing a risk which is style drift risk. Style drift risk is defined as the fund's style drift away from the original objective when the manager does not follow the designated styles. For style drift of mutual funds, there are a few of researches have been done (Cumming and Johan, 2014; Cao et al, 2017; Chan et al, 2002; Ainsworth et al, 2008). The fund managers tend to shift their styles to gain higher returns depends on the economic conditions over the period of time. Hence, this study would like to study about all 18 Sukuk's style of asset allocation does or does not drift from the fund's original objectives.

Style analysis is very useful not only for investors; it is a very useful tool for regulators and managers to notice the style changes. The manager can understand the portfolio better and know how different styles perform over a period a time. This study is needed for manager to investigate whether the style changes over time.

Other than this, this study is also needed to fill in the gap in the research area of mis-classification of Sukuk funds due to style drift. To examine the degree of style of mutual funds, Lau and Chan (2004) investigated the equity funds classification in Malaysia using return-based style analysis. Big-cap shares are invested by the index and growth fund managers for capital gains in the future.

In addition, there are many studies on performance Malaysia mutual funds as well as comparisons between the conventional and Islamic mutual funds in Malaysia (Lai and Lau, 2010; Ho et al, 2014; Boo et al, 2017, Abdullah et al, 2007; Abdullah and Abdullah, 2009). However, there are relatively small numbers of studies on style analysis of mutual funds (Gregoriou and Wu, 2016; Lau, 2002, 2007 and 2008). According to Bank Negara Malaysia (2017), Malaysia being one of the most popular Islamic finance hub in the world, hence more researches needed to be done on the Sukuk funds in Malaysia.

In Malaysia, there are insufficient studies made on the style analysis of Malaysia Sukuk funds in terms of the Sukuk funds' style of asset allocation drifting away from the funds' original objectives and the mis-classification of funds.

## **1.3 Research Objectives**

### **1.3.1 General Objectives**

With the increasing growth of Islamic mutual funds' industry after the financial crisis in 1997 as well as Malaysia continued to be the main driver for Sukuk issuance has inspired us to investigate on the style analysis of Malaysia Sukuk funds. Therefore, the general objective of this research is to investigate whether the funds' styles change from its original objectives.

### **1.3.2 Specific Objectives**

1. To examine whether the Sukuk funds' style of asset allocation drift from the fund's original objectives.
2. To investigate whether style drift leads to mis-classification of funds.

## 1.4 Research Questions

Corresponding to the executed general and specific research objectives above, the research questions are listed below:

1. Does the Sukuk funds' style of asset allocation drift from the fund's original objectives?
2. Does style drift lead to mis-classification of funds?



## **1.5 Hypotheses of the Study**

### Hypothesis 1

H<sub>0</sub>: The Sukuk fund's style of asset allocation does not drifts from the funds' original objective

H<sub>1</sub>: The Sukuk fund's style of asset allocation drifts from the funds' original objective

### Hypothesis 2

H<sub>0</sub>: Style drift does not lead to mis-classification of fund

H<sub>1</sub>: Style drift does lead to mis-classification of fund

## 1.6 Significance of Study

The literature on style analysis of Malaysia Sukuk funds is still very limited. This research would benefit investors to ensure the Sukuk funds that they invest in do not differ from the Sukuk funds' original objectives. Funds managers can also find out whether their fund's objectives have changed over time through this study to take corrective action before undesirable situation happens.

This study would also provide a reliable information source for fund assessment and selection for investors if the investors are interested in choosing the 18 Sukuk funds as their investments. The outcomes of this research would be a beneficial and practical tool for investors to grasp the 18 Sukuk fund's objectives and investment policy and identified the style drift of the Sukuk funds. According to Bams et al (2017), as the investors rely heavily on the stated fund's style in the fund prospectus, this study would give an insight for the investors whether or not the styles deviate from its original goals or objectives. If the fund's style drifts away, it means that the investors might not be getting what they anticipated from the investments they made.

Moreover, this study would enhance the regulators' existing policies and guidelines of the mutual funds available to the public so that the information of the mutual funds would be the correct and not misleading for investor as well as public. The regulator should review and work towards risk management and compliance for the interest of investors if the funds drift away from original goals. Last but not least, this study would fill in the gap on the lack of research focusing on style analysis in different economic condition.

## **1.7 Chapter Layout**

This paper is arranged as follows: Chapter 2 is divided into five parts which are the underlying theory, literature review, empirical evidence, theoretical framework and hypothesis. Chapter 3 covered the methodology of this paper. Analysis of the final result is discussed in chapter 4 and chapter 5 summarizes the study.

## **1.8 Conclusion**

The paper is to examine whether the Sukuk funds' style of asset allocation drift from the fund's original objectives as well as to investigate whether style drift leads to misclassification of funds. The determining factors have been focused in this research. Result of this research may attain different from past researches since this research uses different funds and in different economic conditions may also affect the empirical result.

## **CHAPTER 2: REVIEW OF LITERATURE**

### **2.0 Introduction**

This chapter emphasizes on the underlying theory and empirical evidence of the research. It begins with the discussion of the underlying theory, literature review of the research and analysis model. Then, this followed by the empirical evidence of past studies. Chapter 2 ends with the theoretical framework.

## 2.1 Underlying Theory

Several theories have been proclaimed to explain the asset allocation of the funds as well as the performance of the mutual funds. However, Modern Portfolio Theory is the most important and influential economic theories of the century. There are many other theories and models were created based on the modern portfolio theory, including Sharpe's style analysis.

According to Markowitz (1952), the researcher stated that it is needed to avoid investing in diversify across different industries and should maximize expected returns. A diversified investment portfolio should have a lower risk compared to single investment portfolio. In the simplest words, portfolio theory securities with high covariance among themselves and the investors should is to look for the balance between minimizing the risk and maximizing the return.

Based on this modern portfolio theory, investors or fund managers make effort to develop portfolios that fall on the efficient frontier because it is known as an optimum portfolio that theoretically has the maximum returns at the minimum risk level if the portfolios fall on the efficient frontier. However, the portfolios that situate under the efficient frontier are called as sub-optimal due to the portfolios do not give sufficient return for that specific risk. Hence, the investors can invest based on their risk and return preference by choosing where they should invest on the efficient frontier. However, different levels of return depend on the different combinations of securities in a portfolio. In order to achieve highest level of return, the investors must do portfolio diversification to reduce risks as well.

## 2.2 Literature Review

There are many past researches regarding the style analysis of mutual funds but there are only a few researches for Malaysia Islamic mutual funds, hence this study can fill the gap of lacking research in this area.

Style analysis is a process of understanding the investment behavior of an investor or fund manager that will apply when making investment decisions and asset allocation. According to Sharpe (1992), the paper stated that the portfolio performance act as a vital aspect in asset allocation. Researcher further explained that asset allocation is a process of dividing investment portfolio into different classes. This is also known as diversification of portfolio. Markowitz (1952) said that diversification of portfolio is to reduce the risks of investment through asset allocation. Thus, the style of a portfolio would normally determine its objective.

Style analysis is also vital where the fund manager is managing company or individual funds and the investor has to ensure whether the objective can be accomplished. The manager has the predictive power in explaining the future return of the portfolio. The style of manager can be classified into two important styles which are growth and value. Growth manager chooses to invest in the stronger growth companies and focusing more on growth stocks while the value manager searches for companies where the value of stock is lower and focusing on the value stocks. However, different fund managers have the different categories and styles of investment because differences in institutional and legal frameworks lead managers to invest differently. It can also lead to the changing of political condition and economic.

Majority of the researchers analyzed the fund's performance. Yet there are limited researchers who studies on fund's style. The past researchers had run few types of style analysis of unit trusts research such as equity style classification.

## 2.3 Analysis Model

There are two major approaches of style analysis which are return-based style analysis (RBSA), holding-based style analysis (HBSA), characteristics-based style analysis (CBSA), stocks classification, equity investment styles and investment fund style.

Returns-based style analysis (RBSA) is developed by William Sharpe (Sharpe, 1992). According to Sharpe (1992), Sharpe stated that it is a numerical method that identifies what integration of long positions in passive indexes would directly reflected the actual fund's performance. It is used to compare the total returns of the portfolio to the total returns of different benchmark indexes. It is reliant on the benchmark index choices. The benchmarks can also help to evaluate the performance and the sensitivity of portfolio to the returns. It is a popular application that was created for the purpose of analysis for RBSA to analyze asset allocation. RBSA implies whether the return of fund acted as if the funds were invested in these benchmarks (Foer, Grieves & Singleton, 2010). It can be used to justify the accuracy and integrity of portfolio holdings. However, this approach can only have applied in old portfolio with more than 20 months of performance.

Additionally, the objective of the holding-based style analysis (HBSA) is to examine the characteristics and the aggregate results of funds that held in investment portfolio in a specific time. It is dependent on the style framework choice and transparent. This is because the portfolio used the similar technique framework; the manager can observe how each holding provide to the average portfolio style. It is expensive to collect and keep the database up-to-date. The advantage of HBSA is that it can detect style drift (unpredictability in styles) faster. In short, according to Lau (2007), RBSA is a low-cost alternative to HBSA and RBSA can perform better than HBSA. Both approaches are vital and useful to know about the ways of equity performance.



In addition, characteristics-based style analysis (CBSA) is one of the tools that used to analyze the characteristic based on portfolio holdings and differentiate principal factors. According to Mason, Thomas, McGroarty (2013), RBSA and CBSA could be used together with each other and combined into a style analysis model. RBSA used to identify the 'style' element while CBSA used to identify the 'skill' element; stock option and sector allocation. The researchers found out that it was complementary to link RBSA and CBSA.

Last but not least, classification of stock and equity investment styles can be categorized into size (small-cap, large-cap), valuation (growth and value investing) and market factor. Next, investment funds style studied to classify differentiated style groups lead to two approaches which are to apply the actual portfolios or to apply the replicated portfolios. Different styles would cause different performance and portfolios. Investors must acknowledge that funds returns are not only highly depending on investment style but also the risk of invest. However, fund manager's performance should not be affected by outsider or third party.

## 2.4 Empirical Evidence

The number of researches on style analysis of Islamic Sukuk funds are relatively little. It is unavoidable that there will be an existence of asymmetric information between the investors and fund managers as mutual fund holdings are not up-to-date from time to time. Lau (2002) and Lau (2007) stated that using style analysis to understand a trust fund policy and also its objectives can decrease the asymmetric information between the investors and the fund managers. Both researchers specified that there is a significant relationship in the performance of Malaysian unit trust funds and their respective asset allocation. Lau (2007) also stated that assets selected for the fund should be negatively correlated to each other. According to Das and Rao (2013), active management of mutual funds is an important determinant of their performance in USA. However, Fowler, Grieves and Singleton (2010) believed that New Zealand investors are more suitable for passive management because the active managers only contribute little return that exceed the passive return after the deduction of fees and transaction costs.

According to Swinkels and Van Der Sluis (2001), they used Kalman filter approach to model the exposure of time variation. Kalman filter improves the estimate of investment style of mutual funds and it is best to use when the investment style of the managed funds is constantly changing. They also compare between using Kalman filter and rolling window regression. However, the results from this study showed that when the coefficients are changing over the period of time, it is not suitable to use rolling window regression.

On the other hand, there are some constraints on hedge funds which are known to use short-selling or leverage. Based on Agarwal and Naik (2000), the researchers

conducted the research using the generalized style analysis approach because it is stronger or more powerful to calculate the risk exposure of the hedge fund.

Moreover, Weng and Trück (2011) used a modified style analysis to test the risk factors of the Asia-focused hedge funds and they also further examine the Value-at-Risk (VaR) analysis. Hedge funds are allowed to switch both asset allocation and trading strategies to different asset classes which are very unlikely to happen in the case of mutual funds. Mutual funds follow a described investment approach and hence not permissible to change the investment styles. The researchers found that the objectives of the hedge fund strategy are consistent with the risk exposures. The Asia-focused hedge funds shows that there are positive exposures to cash and high credit-rating securities but negative exposures to world government and emerging market securities. By using the rolling window style analysis, it shows that the hedge fund managers' style drifts because of the dynamic trading and changing market circumstances.

Additionally, using a combination of Best Index methodology and characteristic based style methodology into two-stage BFI-CBS process, Mason, McGroarty and Thomas (2013) have found that this methodology produced more superior results to illustrate the cross-section of fund returns. The researchers further stated that this method is highly effective to form the peer groups and determining the related benchmarks for performance evaluation and diversification ideas.

According to Dor & Jagannathan (2002), using return-based style analysis is easier to implement and also interpret and it is employed to define a specific universe of funds that appear to exhibit the same style. However, one of the that the researchers pointed out is that it is hard to make any conclusions about the risk in the future or return

profile potential of the manager because the data used in researches are all historical returns.

In addition, Ahmad (2014) used return-based style analysis to study that whether 14 different Islamic bond funds' asset allocation styles are different from the funds' original objectives over the study period and the sub-periods which are during financial crisis and after the financial crisis. The study period starts from January 2007 to December 2012 and the sub-periods are from January 2007 to December 2009 and January 2010 to December 2012. The results of this research show that some of the unit trusts have deviated from its original objectives when the economic condition changes. Most of the fund managers invested in fixed income securities; however, there is a small portion of investment placed in equity and money market instruments to meet the withdrawal of investment from the investors.

A deviation from the fund original objective is known as style drift. Cao, Iliev and Velthuis (2017) presented that small-cap mutual funds are more likely to hold mid and large-cap stocks like Apple Inc's stocks which is different from their original objectives of the funds and this may expose higher risk to the investor. The research also showed that small-cap funds invest about 27 percent of the portfolio to large cap and also mid cap shares. Small-cap mutual funds should focus on holding small and midsize company stocks as their fund objectives. Moreover, Cumming & Johan (2014) stated that private equity style drifts take place more than 50 percent of the time from its original objectives of the fund and they also found that the probability of style drift goes up when the fund manager gets older.

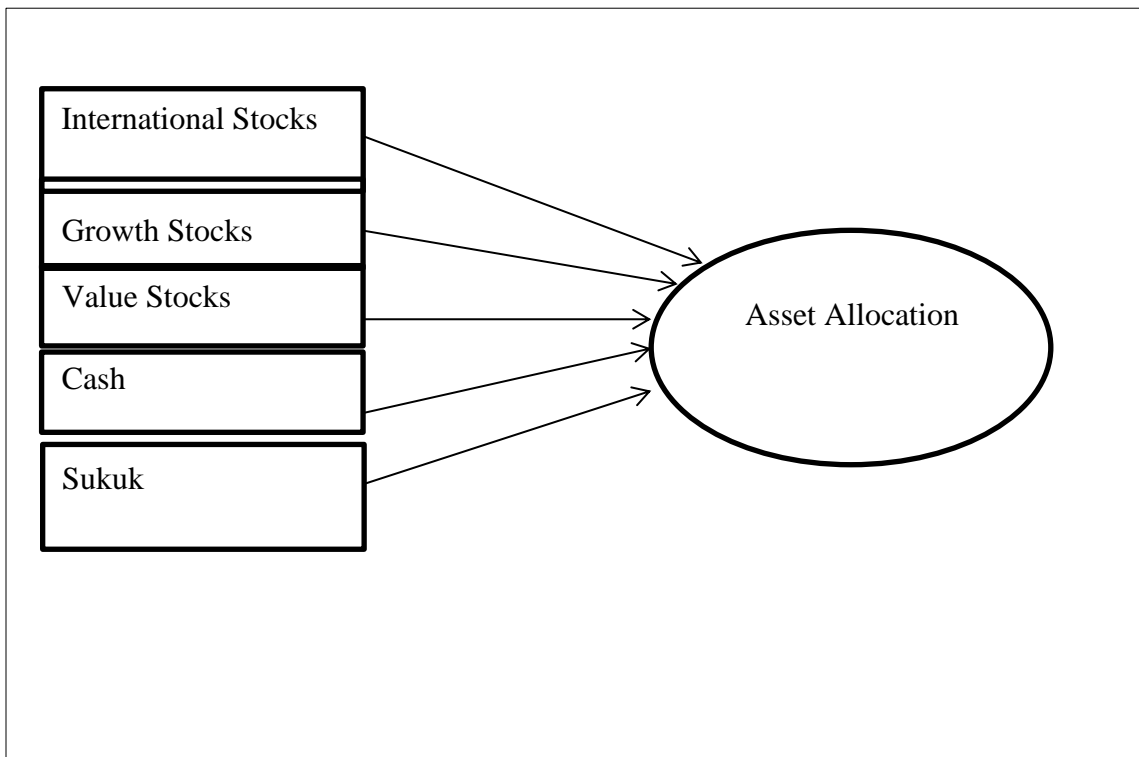
The researchers stated that there are 29% and 26% of growth and income funds remarkably misclassified and this showed that style drift is a serious problem for both growth and income funds in the study. The results also showed that misclassification

of funds have a negative effect on fund performance. In addition, misclassified funds performed less well than well classified funds and charging high expense ratios, small-scale and younger are the characteristics of misclassified funds.

## 2.5 Theoretical Framework

We construct a model based on Modern Portfolio Theory together with Sharpe's style analysis to help developing this theoretical framework. Among all the different types of style analysis, this study will be using return-based style analysis to study whether or not the Sukuk funds' style of asset allocation differs from the fund's original objectives over the period of study. This study will be using the net asset value of each Sukuk fund to calculate the continuous compounding return for the fund used as dependent variable (Lau, 2008). The theoretical framework can be illustrated as follows:

Figure 2.1: Theoretical Model



These are adopted as the core determinants to capture whether Sukuk funds' asset allocation styles are different from the funds' original objectives. There are 5 asset classes in the theoretical model are growth stocks, value stocks, cash, Sukuk, and international stocks. For international stocks, the index is Morgan Stanley Capital International (MSCI) World Index. This index is created to show the achievement of large as well as mid-cap stocks across 23 developed markets. International stocks are investing outside of home country market and invest in foreign country stocks. It offers diversification and hedging of home country's economic distress if happens.

Growth stocks tend to have higher risks but they offer higher return over longer term. MSCI Malaysia Growth Index is used for growth stocks. The growth stocks rely on the earning value per share divided by book value per share and sustainable growth rate to calculate the growth potential of stock (Yeh & Hsu, 2014). Stocks with high return on equity are known as growth stocks.

In addition, value stocks normally trade at a lower price compared to the stocks' performance. To calculate if a stock is undervalued, the researchers stated that it is reasonable to use book value per share divided by the stock price. Hence, stocks with high book value per share divided by the stock price are defined as value stocks (Yeh & Hsu, 2014). To measure the value stocks, this study will use MSCI Malaysia Value Index as benchmark.

Moreover, cash equivalents are defined as investment for short term, lower returns compared to stocks and bonds, and highly liquid. Cash equivalents use one-month KLIBOR as benchmark. The securities of cash equivalents include banker's acceptance, commercial paper, treasury bills and other money market investments.

Lastly, Sukuk are accessible to a pool of investors but it only restricted to invest in only Shariah-compliant investments. Sukuk traded internationally not only in Malaysia. To measure Sukuk, this study will use Bloomberg Malaysian Sukuk Ex-MYR Index TR.



## 2.6 Hypotheses

This study emphasis on the deviation of Sukuk funds' style allocation by comparing the original objectives of Sukuk funds with the outcomes of style analysis. This study proposed the following hypotheses:

### *Hypothesis 1*

H1: The Sukuk fund's style of asset allocation drifts from fund's original objectives.

According to Lau (2007), the researcher divided the study period into 2 periods and it was found that there are notable changes of style due to the economic condition changes and also the policy changes in 1998. Lau also emphasized on the index fund's degree of style is similar to small company funds which indicate that there might be a possible mis-classification of funds.

In addition, Cao, Iliev and Velthuis (2017) presented that style of small-cap mutual funds drift away from their original objectives due to the small-cap mutual funds hold middle and large-cap stocks. Moreover, Cumming & Johan (2014) stated that private equity style drifts take place more than 50 percent of the time from its original objectives of the fund. Additionally, Ahmad (2014) presented that when the economic condition changes, the unit trust deviated from its objectives.

### *Hypothesis 2*

H1: The style drift does lead to misclassification of funds.

Bams, Otten & Ramezanifar (2017) stated that there are 29% and 26% of growth and income funds remarkably mis-classified and this showed that style drift is a serious

problem for both growth and income funds in the study. Castellanos and Alonso (2004) presented that 33% of Spanish mutual funds are misclassified which stresses on the complication of current classification system of distinguishing the mutual funds features.

## **2.7 Summary**

There are some past studies carried out on the topic of style analysis, especially on the different asset classes, different location of the studies and different types of mutual funds. However, there are studies concentrated on the style analysis of mutual funds or hedge funds in different locations. Previous studies that this study had found are mainly focus on mutual funds. This study is to fill in the gap of the research area.

## **CHAPTER 3: METHODOLOGY**

### **3.0 Introduction**

Based on recent studies, it was emphasized on the concept of equity style management in unit trust funds. However, the knowledge of equity style management in unit trust funds has furthered investors by reducing the issue of asymmetric information between investors and fund managers. Lau (2002) intends to attribute the performance of Islamic unit trust funds to their respective asset allocation as well as to determine both the degree of selection and style exhibited by the fund managers. Other than that, the paper states that the performance of unit trust funds can also be compared against their particular peer groups or categories. According to Lau (2005), the paper stated that the risk-adjusted performance of growth style fund managers is more persistent compared to the value style funds, even though the same effect was not determined under unit trust funds objective classification. Besides, Lau (2006) discovers that investment style is found to communicate the economic trends to investors under style classification based on MSCI style indices.

Hence, this paper focuses on the sample selection process, data and method used in obtaining the objectives of this study. The methodology used in this paper is primarily based on the studies conducted by Sharpe (1992) and Lau (2008).

### 3.1 Sample Selection and Data Collection

The samples of this study are selected from the unit trust fund prospectus that issued by Federation of Investment Managers Malaysia (FIMM) and the asset management companies in Malaysia. This research is only focused on those Islamic unit trust funds that invested approximately 50% to 98% of their funds in Sukuk as it is highly demanded among investors (Bloomberg, July 2017). According to previous studies, Sukuk has emerged as one of the most important mechanisms of global Islamic Financial System because Sukuk market has witnessed nearly 10% to 15% growth rate to reach US\$ 170 billion outstanding portfolio at the end of third quarter in the year 2011. Sukuk funds are expected to grow as it has contributed about 14.3% of the global Islamic finance assets over the recent past years (Nafis et al, 2013). Therefore, there are 18 Sukuk funds available within January 2013 to December 2017.

There are only 18 Sukuk funds are included in this study as shown in Table 3.1 and Table 3.2 due to unavailability of getting complete data within the period of study.

Table 3.1

*List of Selected Islamic Unit Trust Funds*

<b>Fund</b>	<b>Inception Date</b>	<b>Fund Objective</b>
Amanahraya Syariah Trust	21 September 2006	Fixed Income
AMB Dana Arif	27 April 2004	Balanced
AmDynamic Sukuk - Class A	12 June 2012	Fixed Income
AmBon Islam	3 December 2001	Fixed Income
CIMB Islamic Enhanced Sukuk	23 February 2005	Fixed Income
CIMB Islamic Sukuk	8 October 2004	Balanced
Dana Al-Fakhim	27 December 2001	Fixed Income
Eastspring Invt Dana Wafi	21 February 2005	Fixed Income

Hwang AIIMAN Income Plus	28 Jun 2004	Balanced
Kenanga Bon Islam	23 April 2004	Fixed Income
Libra ASnita BOND Oneinvest	18 March 2005	Fixed Income
MAAKL As-Saad	30 Jun 2003	Fixed Income
MIDF Amanah Shariah Money Market	5 April 2004	Balanced
Pacific Dana Murni	25 March 2003	Fixed Income
RHB Islamic Bond	18 September 2000	Fixed Income
PB Sukuk	6 September 2011	Fixed Income
PMB Sukuk	22 October 1977	Balanced
Public Sukuk	19 July 2011	Fixed Income

Source: Morningstar Asia

Table 3.2

*Asset Allocation of Islamic Unit Trust Funds*

<b>Fund</b>	<b>Asset Allocation</b>
Amanahraya Syariah Trust	Minimum 70% will be invested in Sukuk, 30% in Islamic Money Market Instruments
AMB Dana Arif	70% to 98% will be invested in Sukuk and Shariah-compliant money market instruments, 2% to 30% in Shariah-compliant liquid assets
AmDynamic Sukuk - Class A	70% to 98% will be invested in sovereign, quasi-sovereign and corporate Sukuk, at least 2% will be invested in liquid assets
AmBon Islam	70% to 100% will be invested in Sukuk and Islamic money market securities, 30% in Shariah-compliant liquid assets
CIMB Islamic Enhanced Sukuk	70% to 98% in Sukuk, 40% in Unrated Sukuk, 0% to 20% in Shariah-compliant equities, up to 10% may be invested in warrants, at least 2% in Shariah-compliant liquid assets

CIMB Islamic Sukuk	70% to 98% in Sukuk, 28% in other permissible investments, 40% in Unrated Sukuk, at least 2% in Shariah-compliant liquid assets
Dana Al-Fakhim	May be invested in short-term debentures, money market instruments and placement in short-term deposits
Eastspring Invt Dana Wafi	Minimum 70% in Sukuk, minimum 1% in Islamic Deposits or Islamic liquid assets
Hwang AIIIMAN Income Plus	Minimum 80% in Sukuk, minimum 20% in cash and Islamic money market instruments
Kenanga Bon Islam	About 50% to 98% in Sukuk, 2% to 50% in cash
Libra Asnita Bond	About 70% will be invested in quoted Shariah-compliant equities and equity-related securities, minimum 2% in Islamic liquid assets
MAAKL As-Saad	Nearly 100% in money market
MIDF Amanah Shariah Money Market	About 90% will be invested in Islamic Deposits, Islamic Money Market Instruments, 10% in Islamic Short-Term Debt Instruments
Pacific Dana Murni	Minimum 95% in Sukuk, 5% in cash and other Shariah-compliant liquid assets
RHB Islamic Bond	Minimum 60% in Sukuk, minimum 5% in Shariah-compliant liquid assets
PB Sukuk	Minimum 75% to 98% may be invested in Sukuk, others in Shariah-compliant liquid assets
PMB Sukuk	Minimum 70% to 99.5% in Sukuk
Public Sukuk	Minimum 75% to 98% in Sukuk, others in Shariah-compliant liquid assets

Source: Fundsupermart Malaysia

The data above are collected directly from Morningstar Asia website which provides the list of Sukuk funds that are available in Malaysia. However, the monthly data of net asset value (NAV), inception date, fund objective, asset allocation for each fund and any other details about the 18 Sukuk funds are taken from Fundsupermart Malaysia website. As for the asset classes to show the styles of Sukuk funds such as growth stocks, value stocks, cash, Sukuk, and international stocks. The data of different asset classes collected from various website that are presented in Table 3.3.

Table 3.3  
*Asset Classes' Indices*

Asset Class	Description	Source of Data
Growth stocks	*MSCI Malaysia Growth Index as quoted in MYR used to represent growth stocks.	<a href="http://www.msci.com">www.msci.com</a>
Value stocks	*MSCI Malaysia Value Index as quoted in MYR used to represent value stocks.	<a href="http://www.msci.com">www.msci.com</a>
Cash	Represent Malaysian money market instrument and 1-month Kuala Lumpur Inter-Bank Offer Rate (KLIBOR) used.	<a href="http://www.bnm.gov.my">www.bnm.gov.my</a>
Sukuk	Bloomberg Malaysian Sukuk Ex-MYR Index used as index for this asset class which represent Malaysia fixed income markets.	Bloomberg
International stocks	*MSCI World Index as quoted in MYR used to represent all international stock indexes.	<a href="http://www.msci.com">www.msci.com</a>

\*MSCI indices developed by Morgan Stanley Capital International



Sharpe (1992) stated that there are few criteria to be fulfilled by the selected asset classes since the usefulness of results is highly dependable on the asset classes. The conditions are that all asset classes must be (i) commonly exclusive or asset classes should be in one class only; (ii) exhaustive or it represents all assets within the same class, and (iii) the return of the asset classes must have low correlations or different standard deviations if the correlations were high to make sure they represent the specific group.

### 3.2 Method

Style analysis (Sharpe, 1992) is used for the purpose of accomplishing the objective, which is to examine whether or not Sukuk funds' style of asset allocation differs from the fund's original objectives.

Style analysis that Sharpe (1992) used is quadratic programming to solve asset allocation problem and to determine the exposure of funds towards the changes in the returns. Quadratic programming is a process of solving quadratic function (more complex compare to linear function). It is also a special type of nonlinear programming. This analysis is mainly based on Sharpe's (1992) generic factor (multi-factor) model which is as shown as below:

$$\tilde{R}_i = [b_{i1}RMV + b_{i2}RMG + b_{i3}RI + b_{i4}SUKUK + b_{i5}KLIBOR +] + \tilde{e}_i \quad (1)$$

Where

$\tilde{R}_i$  = return of fund i

$b_{in}$  = sensitivity of fund i to factor n

$\tilde{e}_i$  = non-factor returns of asset i of mean zero with the assumption that the non-factor returns are uncorrelated

RMV = return factor of fund i represent Value Stock

RMG = return factor of fund i represent Growth Stock

RI = return factor of fund i represent International Stock

SUKUK = return factor of fund i represent Sukuk

KLIBOR = return factor of fund i represent the Cash

The generic model is similar to ordinary least squares (OLS) without interception but for data analysis process, it uses quadratic programming to examine the return of Sukuk funds and asset classes.

Although OLS estimators are best, linear, unbiased and efficient, but there are some reasons of not using ordinary least square (OLS) in this study. OLS is a technique that commonly used to estimate the unknown parameters for multiple linear regressions in the fields of economics, statistics, finance and so on. Due to the possibility of getting negative values, this study will not apply OLS which may against the restriction in style analysis (Pohlman & Leitner, 2003).

In addition, according to Sharpe (1992), there are two major restrictions which are the total of all coefficients factors has to equivalent to 100%, and coefficients of all factors must be positive. These two restrictions were applied in quadratic programming. When there are negative coefficients, its means that there is short position in asset classes (Lau, 2007). The fund managers avoid using this strategy so that it would provide better and useful results (Sharpe, 1992).

A key hypothesis of the equation that according to Sharpe (1992) is: the non-factor returns of asset ( $e_i$ ) assumed to be uncorrelated with non-factor return for other assets because the return factor of fund i are the sources of correlations between the returns. This hypothesis aligned with the asset classes' benchmark where each asset class

should be (i) commonly exclusive, (ii) exhaustive, and (iii) the returns have low correlations or different standard deviation if the correlations are high.

The purposes of this analysis are as follows:

- (i) To find the major asset class within the Sukuk funds analysis with the total of 100% based on the restriction applied in the model
- (ii) To decide on the style of Sukuk funds that reduces the difference in terms of variance
- (iii) To prove the exposure of Sukuk funds to the variability in returns for each asset class

Yet, this model does not show how good or bad the style of the Sukuk fund is. At the same time, some adjustment is needed in equation (1). Rearranging equation (1) into equation (2):

$$\tilde{e}_i = \tilde{R}_i - [b_{i1}RMV + b_{i2}RMG + b_{i3}RI + b_{i4}SUKUK + b_{i5}KLIBOR] \quad (2)$$

Where

$\tilde{e}_i$  = selection

$\tilde{R}_i$  = return of fund i

$b_{in}$  = sensitivity of fund i to factor n

RMV = return factor of fund i represent Value Stock

RMG = return factor of fund i represent Growth Stock

RI = return factor of fund i represent International Stock

SUKUK = return factor of fund i represent Sukuk

KLIBOR = return factor of fund  $i$  represent the Cash

Based on equation (2) and the restrictions of this analysis, the coefficient (*bin*) will represent the weight of each asset class within the range. This model is used to analyze the style of 18 selected Sukuk funds. The analysis will accomplish the objectives of the study. The objective and the styles from this analysis will be compared to the list of Sukuk funds.

The returns of funds and asset classes are benchmark calculated using equation (3). To calculate the continuous compounding return for the fund, this study uses net asset value (NAV) (Lau, 2008). The calculation of the continuous compounding return for each Sukuk funds is:

$$R_{i,t} = \ln (P_{i,t} / P_{i,t-1}) \quad (3)$$

Where

$R_{i,t}$  = the continuous compounding return of Sukuk fund  $i$  at time  $t$

$P_{i,t}$  = the NAV for Sukuk fund  $i$  at time  $t$

In this study, the dependent variables express as the changes in Sukuk funds. Independent variables express as the value of each asset classes. The return of asset classes represented the compounding return of the index.

$$R_{m,t} = \ln (I_{j,t} / I_{j,t-1}) \quad (4)$$

And

$$R_{f,t} = \ln (1 + r_{f,t}) \quad (5)$$

Where

$R_{m,t}$  = the continuous compounding return for m benchmark portfolio for month t

$R_{f,t}$  = the continuous compounding risk free rate of interest for month t

$I_{j,t}$  = the asset class index at the end of month t

$r_{f,t}$  = 1-month Kuala Lumpur Inter-bank Offer Rate (KLIBOR)

The Malaysian money market instrument is represented by 1-month Kuala Lumpur Inter-Bank Offer Rate (KLIBOR) in this study.

$\tilde{e}_i$  can be interpreted as the differences between return of fund ( $\tilde{R}_i$ ) and the same style of passive selection. It can also know as “tracking error”. The asset classes within Sukuk funds calculated explained the  $R^2$ . In order to minimize the variance, equation (6) is created:

$$R^2 = 1 - \frac{Var(\tilde{e}_i)}{Var(R_i)} \quad (6)$$

In equation (6), it shows the variation of returns can be explained by:

- (i) the variation of returns of each asset class within the Sukuk fund or *style* ( $R^2$ )
- (ii) the residual returns due to active management or *the selection* ( $\frac{Var(\tilde{e}_i)}{Var(R_i)}$ )

### 3.3 Hypotheses of T-statistic

This study emphasis on the deviation of Sukuk funds' style allocation by comparing the original objectives of Sukuk funds with the outcomes of style analysis. This study proposed the following hypotheses:

#### Hypothesis 1

H<sub>0</sub>: The Sukuk fund's style of asset allocation does not drifts from the funds' original objective.

H<sub>1</sub>: The Sukuk fund's style of asset allocation drifts from the funds' original objective.

#### Hypothesis 2

H<sub>0</sub>: Style drift does not lead to mis-classification of fund.

H<sub>1</sub>: Style drift does lead to mis-classification of fund.

### **3.4 Summary**

This chapter describes the sample of Sukuk funds that have been used in this study. Besides, this study also furthered an explanation on the methods used in performing the style analysis. All the variables are well-defined where which the return of each sukuk funds represents the dependent variable. At that moment, the index or rates act as a proxy of asset classes which indicates the independent variables in this research. The analysis continues with determining  $R^2$ .



## **CHAPTER 4: ANALYSIS OF FINDINGS**

### **4.0 Introduction**

This part will be providing a discussion on the analysis and the measurements of the findings. The analysis and measurements will provide a result which is use to compare and to identify the changes of the original objectives of the Islamic sukuk funds. The analyses are based on overall period of 2013 to 2017 data. Bloomberg Malaysian Sukuk Ex-MYR Index-(Islamic Sukuk), MSCI Malaysia Growth Index (Growth Index), MSCI Malaysia Value Index (Value Index), 1-month Kuala Lumpur Inter-Bank Offer Rate (KLIBOR) (Cash Index), and MSCI World Value Index (International Stock Index) are used as benchmarks for asset classes within the funds. A total of 18 Sukuk funds is analyzed by using style analysis for each period of study.

## 4.1 Result of Asset Classes Test

Correlation analysis and descriptive statistical analysis are conducted by focusing on the third criteria for selecting asset classes. In this regard, if the correlation is high, then the return should be either a low correlation or a different standard deviation.

Table 4.1

*Correlation of Asset Classes (2013 to 2017)*

Correlation	KLIBOR	RMG	RMV	SUKUK	RI
KLIBOR	1				
RMG	-0.165793	1			
RMV	-0.287319	0.797713	1		
SUKUK	0.155425	-0.401166	-0.561388	1	
RI	-0.172748	-0.060842	-0.072760	0.494635	1

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

Table 4.2

*Descriptive Statistical of Asset Classes for Overall Period*

Overall Period (n = 60) (2013 – 2017)		
	Mean	Std. Deviation
SUKUK	0.007467	0.024046
KLIBOR	3.243667	0.126598
RMG	0.000679	0.022977
RMV	0.000859	0.023944
RI	0.012291	0.027633

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

Table 4.3

*Correlation of Asset Classes (2013 to 2015)*

Correlation	KLIBOR	RMG	RMV	SUKUK	RI
KLIBOR	1				
RMG	-0.15689	1			
RMV	-0.3652	0.81489	1		
SUKUK	0.285458	-0.43324	-0.58642	1	
RI	-0.10252	0.051011	0.145069	0.243275	1

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

*Correlation of Asset Classes (2016 to 2017)*

Correlation	KLIBOR	RMG	RMV	SUKUK	RI
KLIBOR	1				
RMG	-0.18213	1			
RMV	-0.08879	0.819538	1		
SUKUK	-0.21058	-0.37739	-0.51555	1	
RI	-0.40315	-0.24771	-0.2776	0.718955	1

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

Table 4.4

*Descriptive Statistical of Asset Classes (2013 to 2015)*

Overall Period (n = 60) (2013 – 2015)		
	Mean	Std. Deviation
SUKUK	0.011661	0.022884
KLIBOR	3.260278	0.143616
RMG	0.0000136	0.026525
RMV	-0.000985	0.023997
RI	0.015568	0.023117

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

*Descriptive Statistical of Asset Classes (2016 to 2017)*

Overall Period (n = 60) (2013 – 2017)		
	Mean	Std. Deviation
SUKUK	0.001177	0.024849
KLIBOR	3.218750	0.092985
RMG	0.001678	0.016789
RMV	0.003626	0.024106
RI	0.007375	0.033220

SUKUK – Islamic sukuk; KLIBOR – Cash; RMG – Growth Stocks; RMV – Value Stocks; RI – International Stocks

Table 4.1 is the correlation of asset classes from 2013 until 2017. Returns on cash represented by KLIBOR and returns on Bloomberg Malaysian Sukuk Ex-MYR Index have a correlation of 15.54%. Then, the returns on growth stocks represented by MSCI Malaysia Growth Index and returns on Bloomberg Malaysian Sukuk Ex-MYR Index have a correlation of -40.12%. The returns on value stocks represented by MSCI Malaysia Value Index and returns on Bloomberg Malaysian Sukuk Ex-MYR

Index have a correlation of -56.14%. The returns on international stocks represented by MSCI World Value Index and returns on Bloomberg Malaysian Sukuk Ex-MYR Index have a correlation of 49.46%.

Besides that, for correlation of the returns on MSCI Malaysia Growth Index versus KLIBOR is -16.58%. Then, the correlation of the returns on MSCI Malaysia Value Index and MSCI World Value Index versus KLIBOR is -28.73% and -17.27%.

In addition, the returns on MSCI Malaysia Value Index and MSCI Malaysia Growth Index have a high correlation of 79.77%. In opposite, the returns on MSCI World Value Index and MSCI Malaysia Growth Index have a correlation of -6.08%. Lastly, it also can be seen that the returns on MSCI World Value Index versus MSCI Malaysia Value Index have a correlation of -7.28%.

Table 4.2 state that the mean monthly returns of MBI, ISK, RMG, RMV, RI and 1-month KLIBOR have positive value returns. It is important to check the standard deviation of each class before included them into style analysis because of the high correlation between these asset classes. There asset classes could still be used in the style analysis due to their standard deviations are different.

Table 4.3 is the correlation of asset classes from 2013 to 2015 and 2016 to 2017. Same with the overall period, there are a few asset classes that have negative correlation for period 2013 to 2015. For example: RMG versus Sukuk (-43.32%), RMV versus Sukuk (-58.64%), RMG versus KLIBOR (-15.69%), RMV versus KLIBOR (36.52%) and RI versus KLIBOR (-10.25%), KLIBOR versus Sukuk (28.55%), RI versus RMG, RMV, Sukuk (5.1%, 14.5%, 24.33%). There are also

some asset classes that are having high correlations such as RMV versus RMG (81.49%).

For period 2016 to 2017, the correlation of asset classes like KLIBOR versus Sukuk (-21.06%), RMG versus Sukuk (37.74%), RMV versus Sukuk (51.55%), RMG versus KLIBOR (-18.21%), RMV versus KLIBOR (-8.88%), RI versus KLIBOR (-40.32%), RI versus RMG (-24.77%) and RI versus RMV (-27.76%) are negative relationship. In these regards, there have some asset classes are high positive correlation, including RI versus Sukuk (71.90%), and RMV versus RMG (81.95%). These asset classes are included in style analysis for all period due to their standard deviation is different. It is important to ensure that each of asset classes must implement such a hypothesis to avoid the wrong asset classification because it can directly affect the style analysis results.

According to table 4.4, it can be seen that the mean monthly returns of value stocks in period 2013 to 2015 is the only asset class that has a negative return. While the rest of asset classes' mean monthly returns are positive value, such as Sukuk, KLIBOR, RMG and RI for period 2013 to 2015, then for period 2016 to 2017 are Sukuk, KLIBOR, RMG, RMV and RI.

Table 4.5

*Style Analysis for Period 2013 to 2017*

<b>Fund</b>	<b>Original Objective</b>	<b>SUKUK</b>	<b>KLIBOR</b>	<b>RI</b>	<b>RMG</b>	<b>RMV</b>	<b>New Style</b>	<b>Style</b>	<b>Selection</b>
Amanahraya Syariah Trust	Income	75.76	0.00	0.00	0.00	24.24	Income	99.0	1.0
AMB Dana Arif	Balanced	86.78	0.00	0.00	3.4	9.82	Income	99.98	0.02
AmDynamic Sukuk – Class A	Income	88.45	0.00	0.1	0.00	11.45	Income	99.99	0.01
AmBon Islam	Income	97.27	0.00	0.00	0.00	2.73	Income	99.5	0.5
CIMB Islamic Enhanced Sukuk	Income	61.00	10.00	0.00	0.00	29.0	Income	99.2	0.8
CIMB Islamic Sukuk	Balanced	84.25	4.4	0.00	0.00	11.35	Income	99.1	0.9
Dana Al-Fakhim	Income	96.6	0.00	0.00	0.00	3.4	Income	99.9	0.1
Eastspring Invt Dana Wafi	Income	100.00	0.00	0.00	0.00	0.00	Income	99.4	0.6
Hwang AILMAN Income Plus	Balanced	96.9	0.00	0.00	0.00	3.1	Income	99.8	0.2
Kenanga Bon Islam	Income	94.7	0.00	0.00	0.00	5.3	Income	99.9	0.1
Libra ASnita Bond Oneinvest	Income	89.8	7.8	0.00	0.00	2.4	Income	99.0	1.0
MAAKL As-Saad	Income	95.7	0.00	0.00	0.00	4.3	Income	99.2	0.8
MIDF Amanah Shariah Money Market	Balanced	99.87	0.13	0.00	0.00	0.00	Income	99.9	0.1
Pacific Dana Murni	Income	96.10	0.00	0.00	0.00	3.9	Income	99.5	0.5
RHB Islamic Bond	Income	93.89	0.00	0.00	0.00	6.11	Income	98.1	1.9
PB Sukuk	Income	94.25	0.00	0.00	0.00	5.75	Income	99.4	0.6
PMB Sukuk	Balanced	59.18	0.00	0.00	5.62	35.2	Income	99.0	1.0
Public Sukuk	Income	93.89	0.00	0.00	0.00	6.11	Income	99.3	0.7

RMV – Value Stocks; RMG – Growth Stocks; RI – International Stocks; SUKUK – Sukuk; KLIBOR – Cash

## 4.2 Individual Fund's Style

Most of the funds showed that the original objectives are income funds, and it does not deviate away from their original objectives by staying as income funds. However, all the balanced funds have deviated to become income funds during the study period such as AMB Dana Arif, CIMB Islamic Sukuk, Hwang AIIAMAN Income Plus, Shariah Money Market and PMB Sukuk. Based on the style analysis table, the fund managers have invested mainly in Sukuk and small portion of the funds invested in growth stocks. The styles of the funds do not deviate much from its original objectives because the funds are mainly invested in Sukuk ranges from 100% to 59.18%.

The style analysis result for Amanahraya Syariah Trust showed that the fund managers have invested around 75.76% in Sukuk and 24.24% in value stocks. The style of the fund did not drift much from its original objective which stated that minimum of 70% will be invested in Sukuk and the remaining 30% will be invested in money market instruments. The result also clearly showed that 99% of the style of fund could explain the variation in the monthly return of the fund.

As for AMB Dana Arif, it can be seen from the result that the style of fund has drifted from balanced fund to income fund. The fund manager invested about 86.78% of funds in Sukuk and the remaining of funds invested in growth stocks and value stocks. The variation of monthly return during crisis period is 99.98% explained by the variation in the style of fund. Besides, CIMB Islamic Sukuk, Hwang AIIAMAN Income Plus, MIDF Amanah Shariah Money Market and PMB Sukuk also drifted from balanced funds to income funds as suggested from the result of style analysis table. The fund managers from CIMB Islamic Sukuk, Hwang AIIAMAN Income Plus, MIDF Amanah Shariah Money Market and PMB Sukuk has allocated around 99.87%



to 59.18% of funds in Sukuk while the remaining of funds range from 0.13% to 4.4% invested in cash market, 0% to 35.2% of funds in value stocks and 5.62% in growth stocks. The results showed that CIMB Islamic Sukuk (99.1%), Hwang AIIIMAN Income Plus (99.8%), MIDF Amanah Shariah Money Market (99.9%) and PMB Sukuk (99%) of the variation in monthly return can be explained by the variation in the style of fund.

AMB Dana Arif, CIMB Islamic Sukuk, Hwang AIIIMAN Income Plus, Amanah Shariah Money Market, and PMB Sukuk drift from their original objectives which are balanced funds to new styles which are income funds. According to Bams, Otten and Ramenizanifar (2017), the researchers stated that the funds deviate from their stated investment style on a long-term basis is unavoidable, especially if the fund manager passively hold the same stocks over time. The previous studies have showed that deviation from the stated investment style is a real phenomenon among mutual funds. Chan, Chen, and Lakonishok (2002) stated that style drifts may reflect the manager's effort to time the style indices. The manager may deviate from the fund's original objective to recover from the past investment losses or adopt whichever the fund style has been successful. In addition, to avoid losing their clients, fund manager may try a different approach from his or her original objective in anticipation of high returns. On the other hand, the change of funds' style may be affected by inflation and the stock selection skills of the fund manager. According to Gusni, Silviana, and Fasisal (2018), market timing skills and fund size do not have the effect on the equity mutual funds' performance, meanwhile the stock selection skill and inflation has a positive effect on the equity mutual fund performance.

In addition, AmDynamic Sukuk – Class A's fund manager is the only one among other 17 fund managers who invested in international stocks for 0.1% of the funds. AmDynamic Sukuk – Class A, AmBon Islam, Dana Al-Fakhim, Kenanga Bon Islam, MAAKL As-Saad, Pacific Dana Murni, RHB Islamic Bond, PB Sukuk and Public

Sukuk invested 93.89% to 97.27% in Sukuk while only small portion of funds range from 2.73% to 11.45% invested in value stocks. The results also showed that about AmDynamic Sukuk – Class A (99.99%), AmBon Islam (99.5%), Dana Al-Fakhim (99.99%), Kenanga Bon Islam (99.99%), MAAKL As-Saad (99.2%), Pacific Dana Murni (99.5%), RHB Islamic Bond (98.1%), PB Sukuk (99.4%) and Public Sukuk (99.3%) of the variation in monthly return can be explained by the variation in the style of fund.

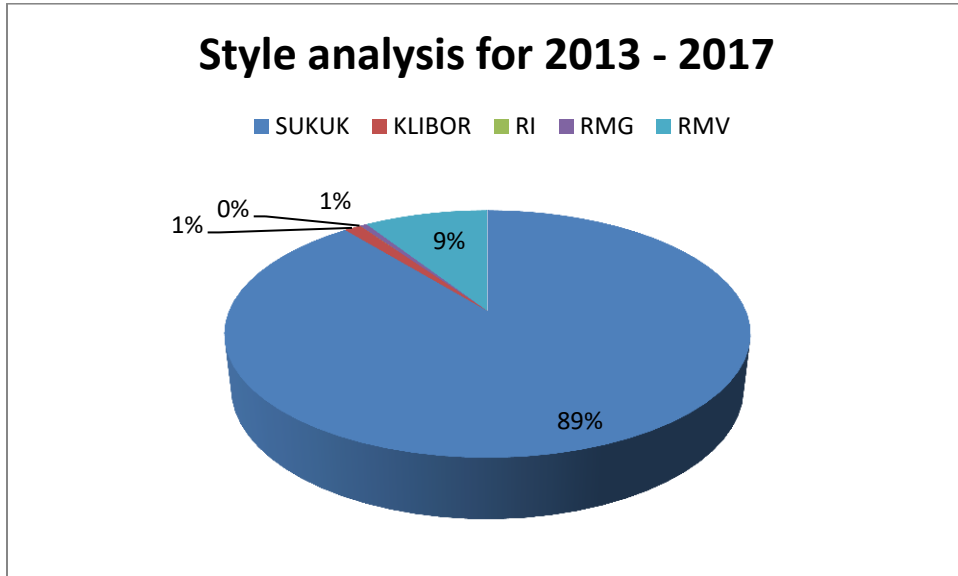
Moreover, as for CIMB Islamic Enhanced Sukuk, it does not deviate from its original objective which is income fund. The original asset allocation of CIMB Islamic Enhanced Sukuk is 70% to 98% will be invested in Sukuk which does not drift much from the result of the style analysis at 61% of funds invested in Sukuk, 10% in cash market and 29% in value stocks. 99.2% of the variation in monthly return can be explained by the variation in the style of CIMB Islamic Enhanced Sukuk fund.

Additionally, Eastspring Invt Dana Wafi fund has invested 100% solely on Sukuk from our result which does not differ from its original objective in investing at least 70% in Sukuk and minimum of 1% in Islamic liquid assets. The variation of monthly return during study period is around 99.4% can be explained by the variation in the style of fund.

Lastly, Libra ASnita BOND Oneinvest's original objective is income fund and it remained the same as its original objective during the study period. The fund manager has allocated 89.8% in sukuk and a small portion of the investments invested in other asset classes at 7.8% in cash market and 2.4% in value stocks. The variation of monthly return during the study period is at 99.0% can be explained by the variation in the style of the fund.

**Figure 4.1**

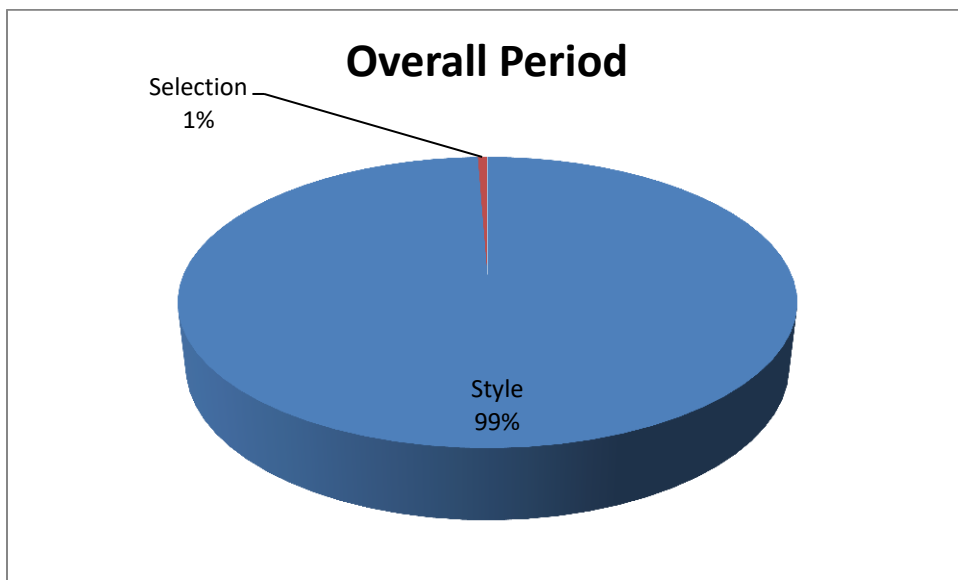
**Style Analysis for Period 2013-2017**



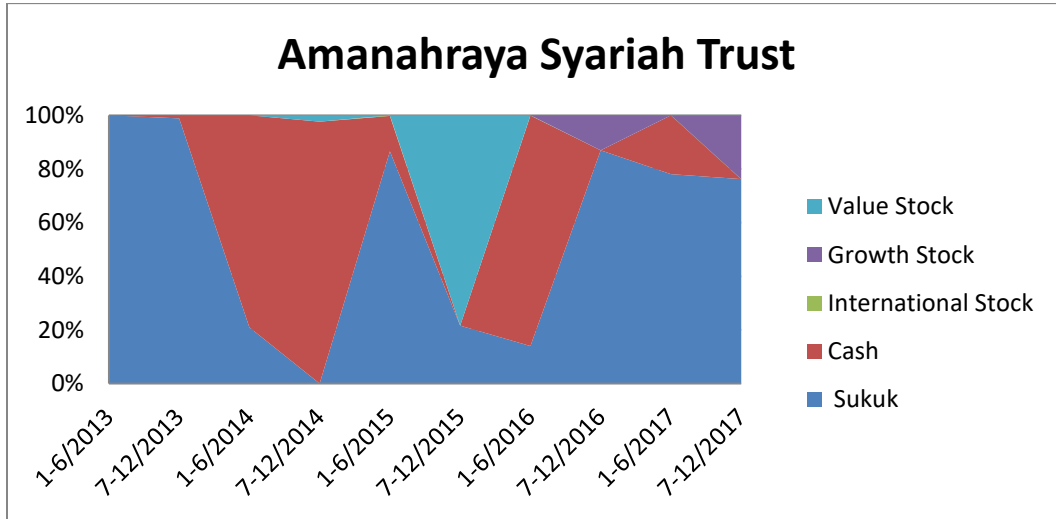
SUKUK	KLIBOR	RI	RMG	RMV
89%	1%	0%	1%	9%

**Figure 4.2**

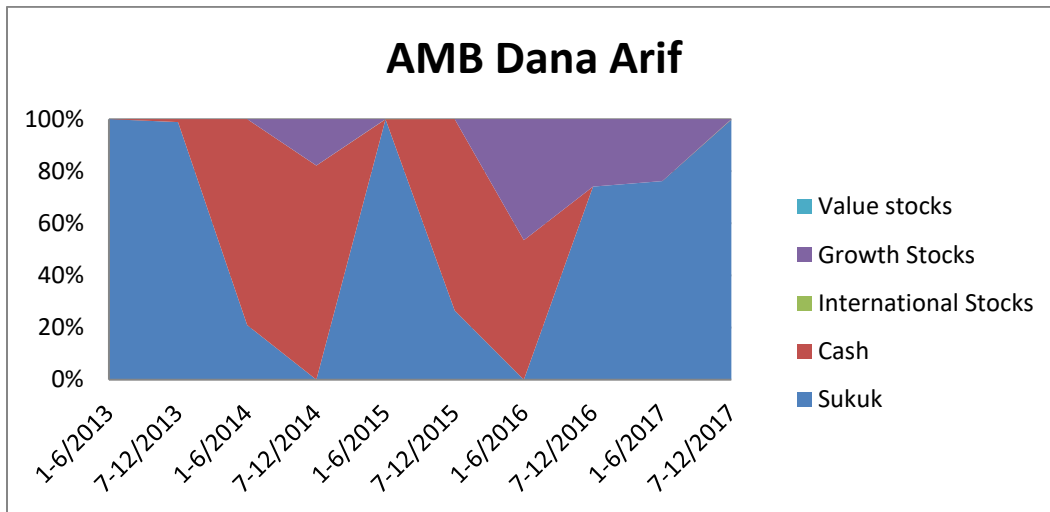
**Average of Style and Selection in the Overall Period**



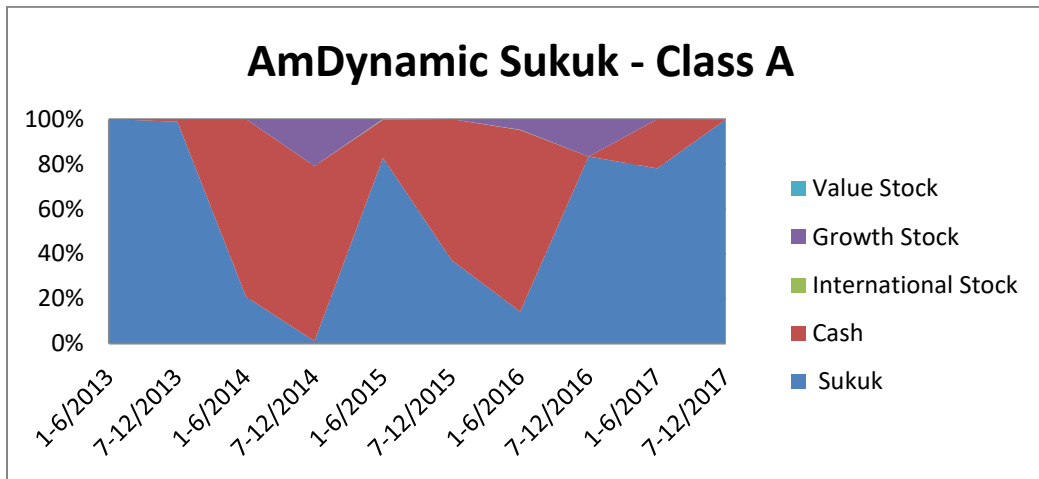
### 4.3 Individual Funds Graph



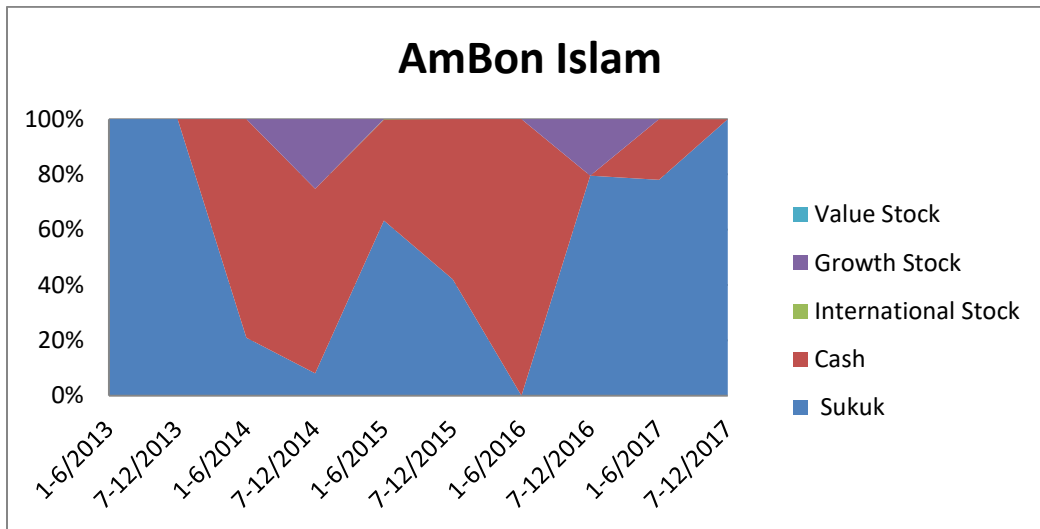
Initially, a minimum of 70% of Amanahraya Syariah Trust funds will be invested in Sukuk. There is nearly 100% of the funds have been invested into Sukuk market in 2013. However, it is about 79% to 98% of the funds invested into cash market by fund manager in 2014. In the second half year of 2015, there is around 78% have been invested into value stocks. There is more than 75% of the funds have been invested into Sukuk in 2017.



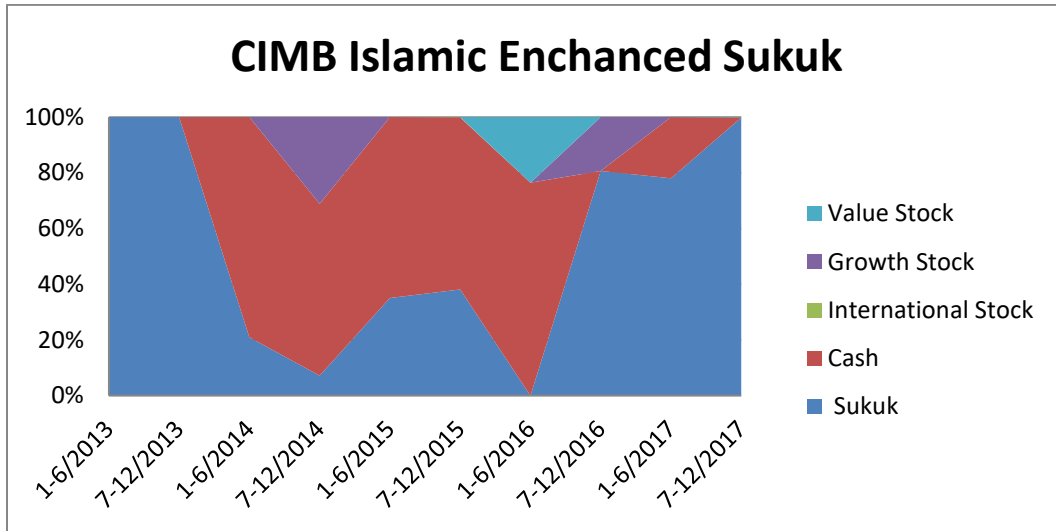
The original objective of AMB Dana Arif has about 70% to 98% will be invested in Sukuk. In second half year of 2016 and first half year of 2017, there are around 74% and 76% invested by fund manager in the Sukuk. Nearly 100% at the whole year 2013, first half year of 2015, and second half year of 2017 are invested in Sukuk. However, around 79% and 82% are invested in cash market in 2014. Then, there are 73% of funds invested in cash market for second six months of year 2015. About 53% of funds are invested into cash market by managers in first six months of 2016.



The original objective of AmDynamic Sukuk - Class A about 70% to 98% will be invested in Sukuk. There is around 82% of funds have invested by fund manager in Sukuk in first six months of 2015. In second half year of 2016 and first half year of 2017, there are around 83% and 78% invested by fund manager in the Sukuk. Nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. However, around 79% and 77% of the funds are invested in cash market at year 2014. Then, there are 62% invest in cash market in second six months of year 2015 and 80% invest in cash market in first six months of year 2016.

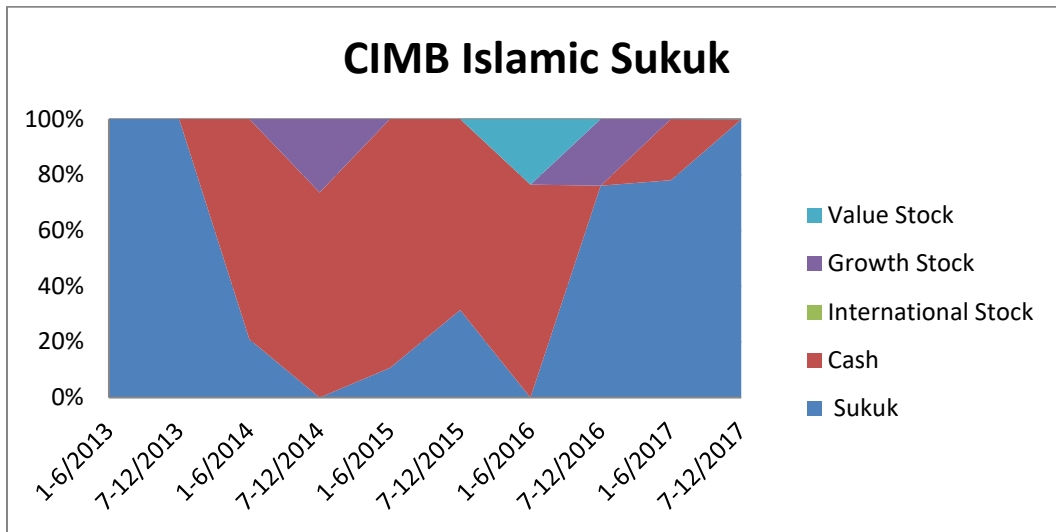


The original objective of Ambon Islam is around 70% to 100% will be invested in Sukuk. At second half year of 2016 and first half year of 2017, there are around 79% and 78% invested by fund manager in the Sukuk. There is nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. Then, around 79% and 66.76% of funds are invested in the cash market at year 2014. However, for year 2015, there are 63% of funds invested in Sukuk in first six months and 57% in the cash market in another six months.

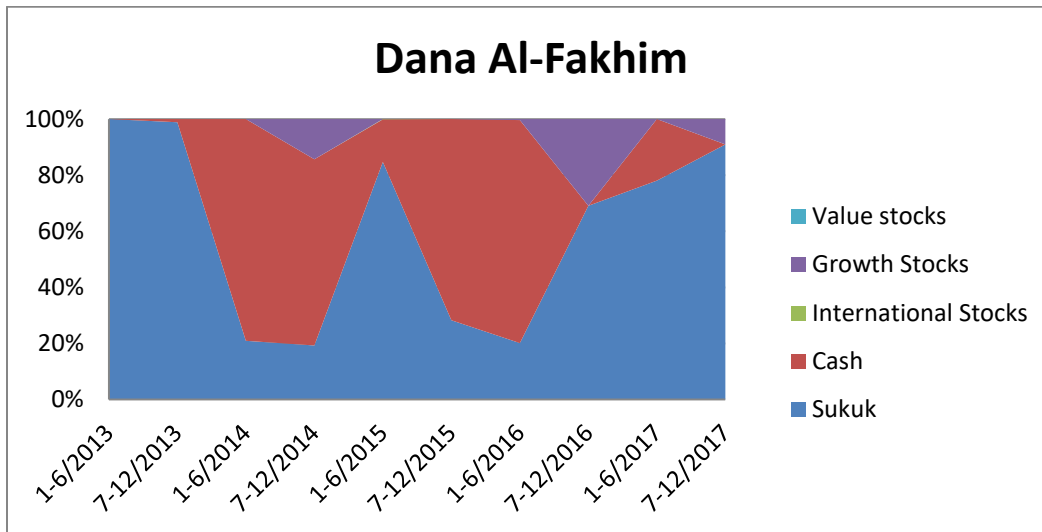


The original objective of CIMB Islamic Enhanced Sukuk is around 70% to 98% of the funds will be invested in Sukuk. At second half year of 2016 and first half year of 2017, there are around 80% and 78% of the funds invested by fund manager in Sukuk. Nearly 100% at the whole year 2013 and second half year of 2017 are invested in Sukuk. Then, around 79% and 76% of the funds are invested in cash market at both first half year of 2014 and 2016. However, there are around 63% to 65% of the funds to be invested in cash market for first six months and 57% in cash market in another six months.

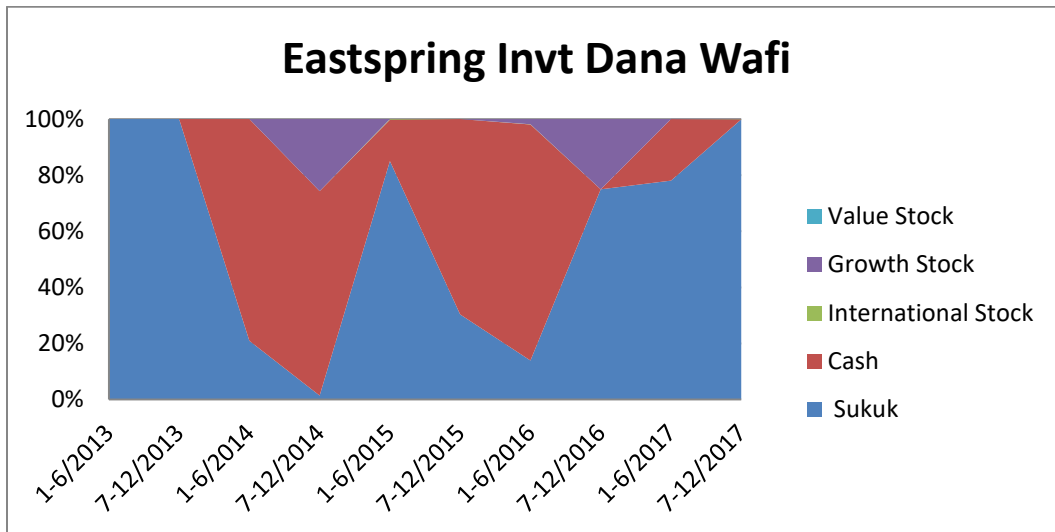




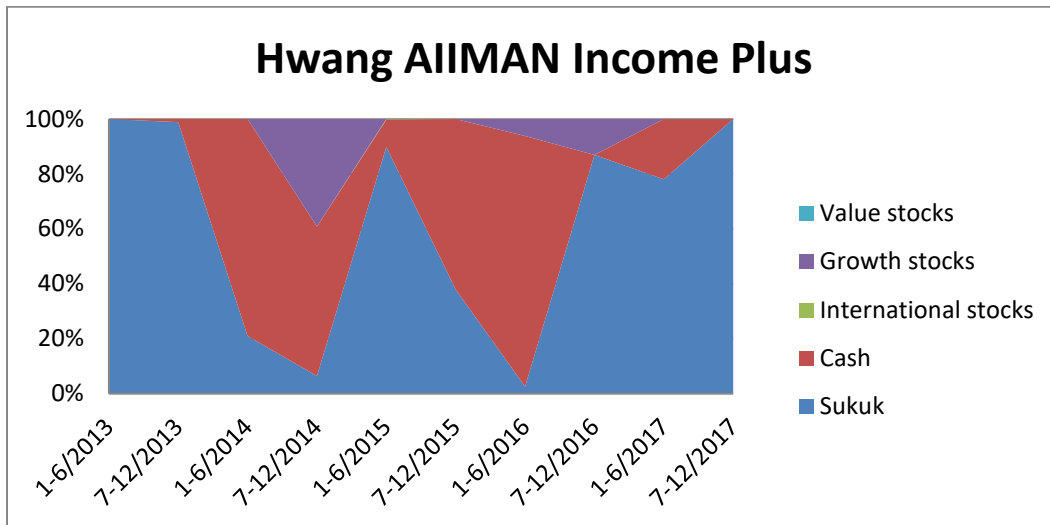
The original objective of CIMB Islamic Sukuk is around 70% to 98% will be invested in Sukuk. At second half year of 2016 and first half year of 2017, there are around 76% and 78% of funds invested by fund manager in the Sukuk. Nearly 100% at the whole year 2013 and second half year of 2017 are invested in Sukuk. Then, from first half year of 2014 until first half year of 2016, around 68% to 89% of the funds are invested in cash market.



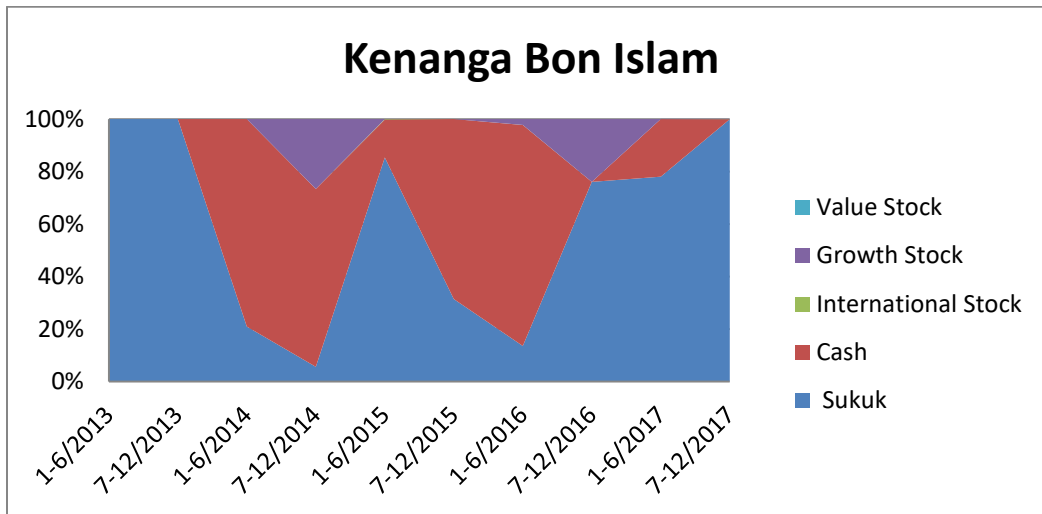
The original objective of Dana Al-Fakhim may be invested in short-term debentures, money market instruments and placement in short-term deposits. There is around 84% and 90% of funds has invested by fund manager in Sukuk in first six months of 2015 and second half year of 2017. In second half year of 2016 and first half year of 2017, there are around 69% and 78% invested by fund manager in the Sukuk. In the year 2013, there are nearly 100% are invested in Sukuk. However, around 79% are invested in cash market at both first half year of 2014 and 2016. Then, there are 66% and 71% invest in cash market for both first six months of year 2014 and 2015.



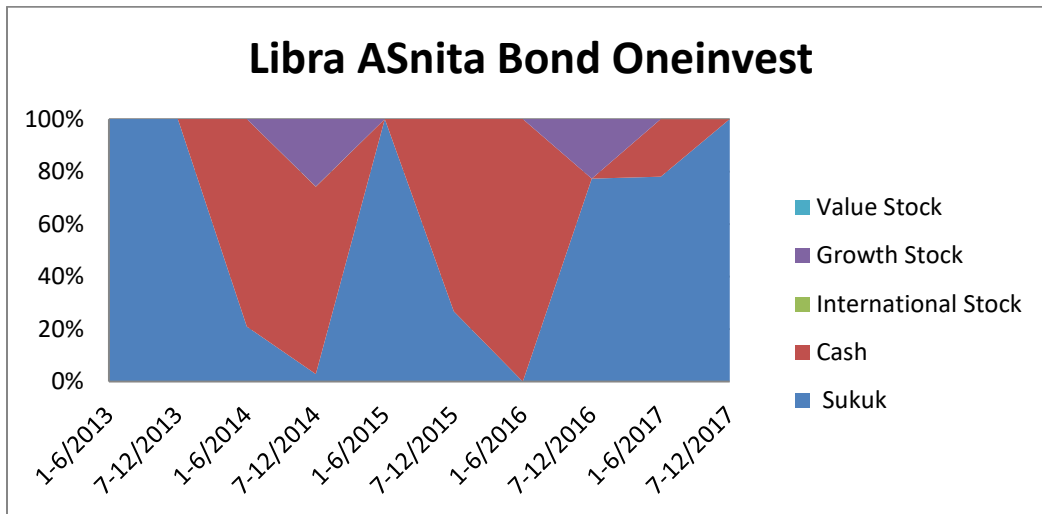
The original objective of Eastspring Invt Dana Wafi has minimum 70% of funds will be invested in Sukuk. Around 85% of funds have invested by fund manager in Sukuk in first six months of 2015. In second half year of 2016 and first half year of 2017, there are around 74% and 78% of the funds invested by fund manager in the Sukuk. Nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. However, around 79% and 72% of the funds are invested in the cash market at year 2014. Then, there are 69% invest in the cash market in second six months of year 2015 and 84% invest in cash in first six months of year 2016.



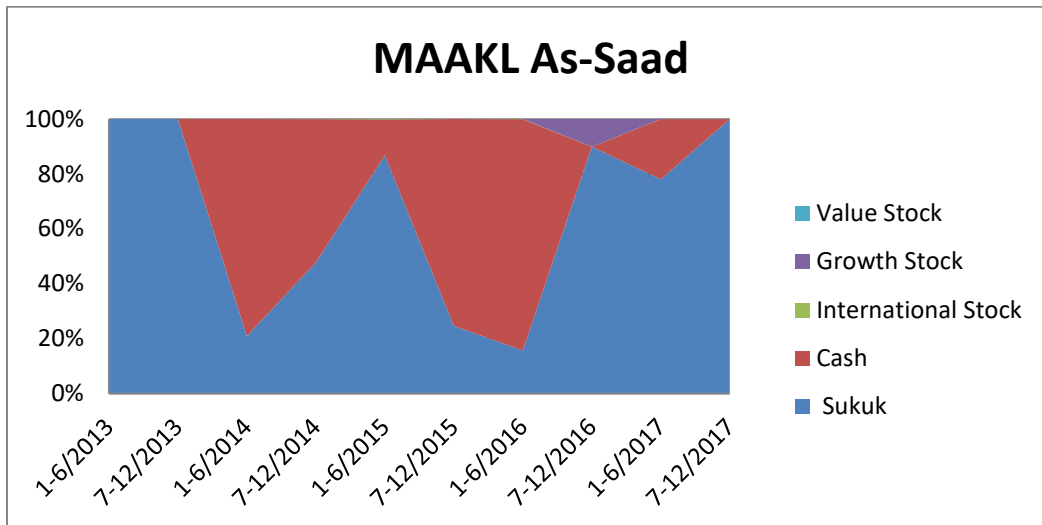
The original objective of Hwang AII MAN Income Plus has minimum 80% of the funds will be invested in Sukuk. Around 89% and 86% of funds has invested by fund manager in Sukuk in first six months of 2015 and second half year of 2016. In first half year of 2017, there are around 78% invested by fund manager in the Sukuk. In the year 2013 and second half year of 2017, there is nearly 100% of the funds are invested in Sukuk. However, around 79% and 91% are invested in cash market at both first half year of 2014 and 2016. Then, there are 54% and 62% invest in cash market for both second six month of year 2014 and 2015.



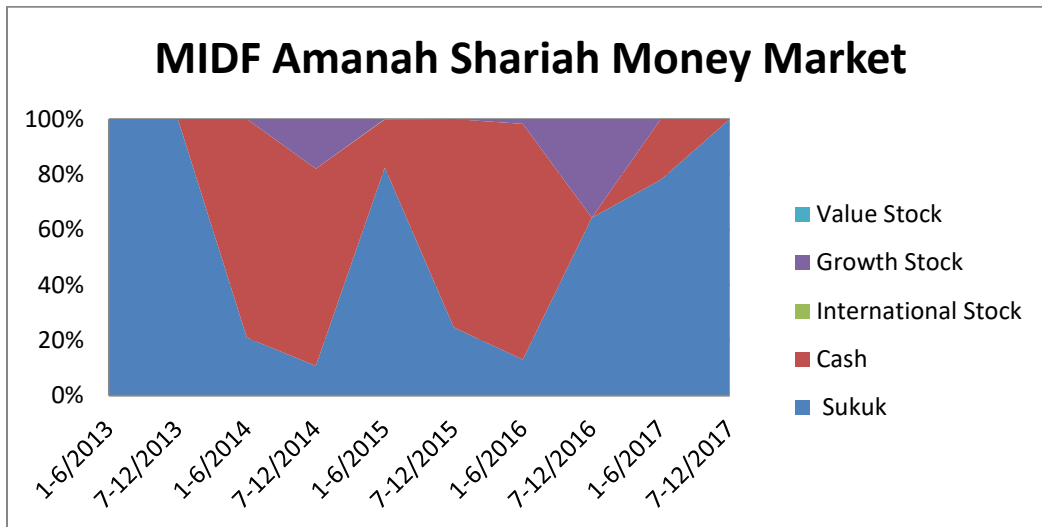
The original objective of Kenanga Bon Islam is around 50% to 98% will be invested in Sukuk. At second half year of 2016 and first half year of 2017, there are around 76% and 78% invested by fund manager in the Sukuk. Nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. There is around 85% of funds have invested by fund manager in Sukuk in first six months of 2015. However, around 79% and 67.75% are invested in cash market at 2014. Then, there are 68% invest in cash market in second six months of year 2015 and 84% invest in cash market in first six months of year 2016.



The original objective of Libra Asnita Bond has about 70% will be invested in Sukuk. There is around 85% of funds have invested by fund manager in Sukuk in the first six months of 2015. In second half year of 2016 and first half year of 2017, there are around 77% and 78% of the funds invested by fund manager in the Sukuk. Nearly 100% at the year 2013, first half year of 2015, and second half year of 2017 are invested in Sukuk. However, around 79% and 71% of the funds are invested in cash market at 2014. Then, there are 73% of the funds invest in cash market for second six months of 2015.

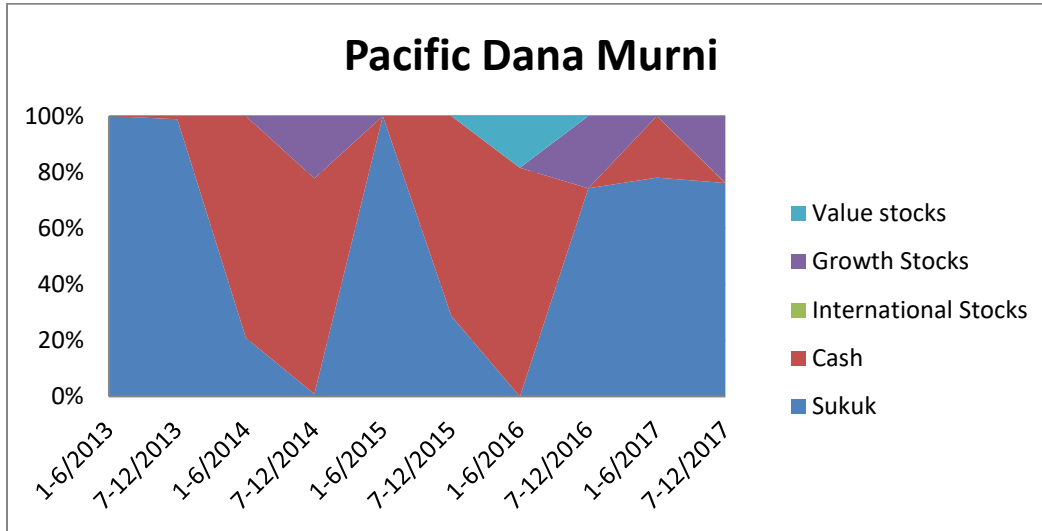


The original objective of MAAKL As-Saad is nearly 100% will be invested in Sukuk. At second half year of 2016 and first half year of 2017, there are around 89% and 78% invested by fund manager in the Sukuk. Nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. There is around 86% of funds have invested by fund manager in Sukuk in first six months of 2015. However, there is around 79% of the funds are invested in cash market in first six months of 2014. Then, there are 75% of the funds invested in cash market in second six months of year 2015 and 84% invested in cash market in first six months of year 2016.

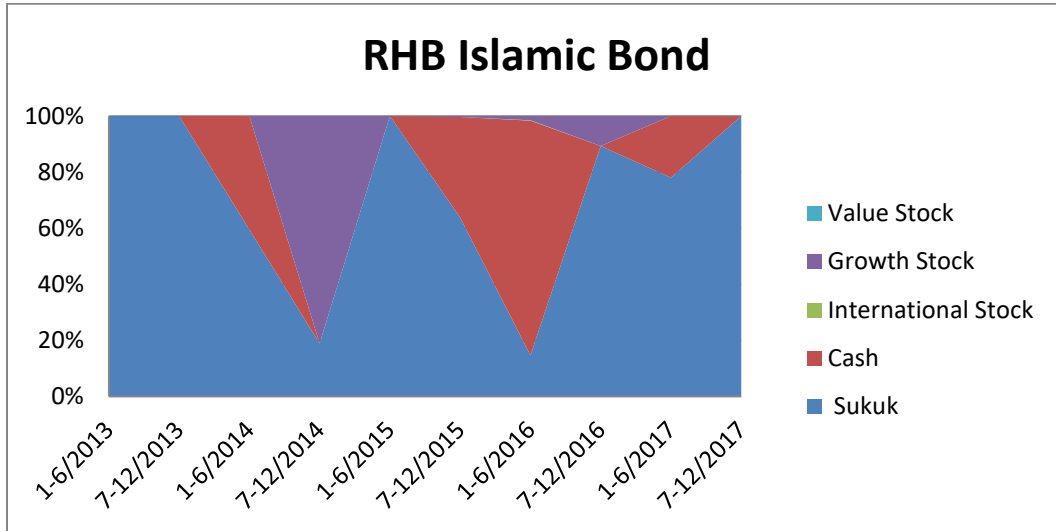


The original objective of MIDF Amanah Shariah Money Market is about 90% will be invested in Sukuk. There are around 82% of funds have invested by fund manager in Sukuk in first six months of 2015. In second half year of 2016 and first half year of 2017, there are around 64% and 78% invested by fund manager in the Sukuk. There is nearly 100% at the year 2013 and second half year of 2017 are invested in Sukuk. However, around 79% and 71% are invested in cash market at 2014. Then, there are 75% invest in cash market in second six months of year 2015 and 85% invest in cash market in first six months of year 2016.

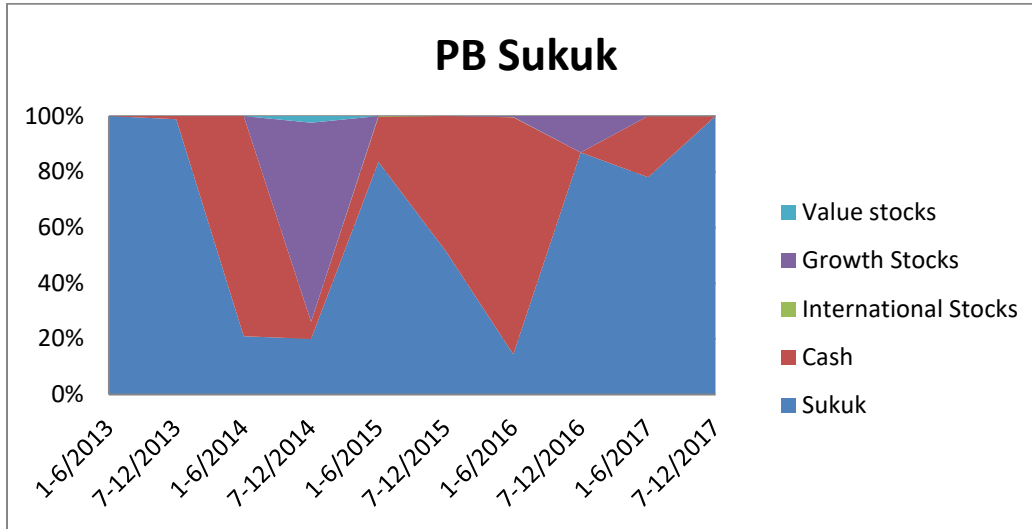




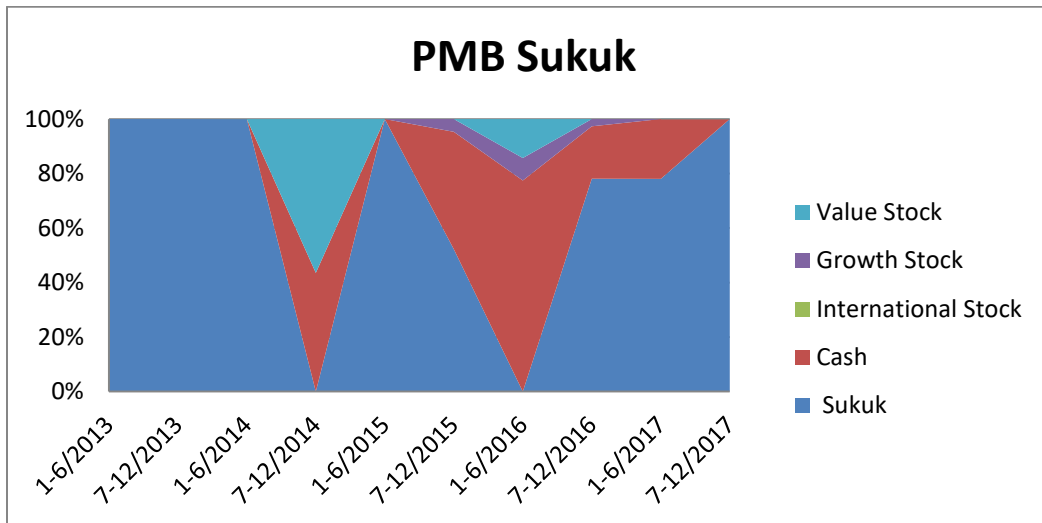
The original objective of Pacific Dana Murni has minimum 95% will be invested in Sukuk. There is around 74% and 78% of funds has invested by fund manager in Sukuk in second half year of 2016 and first six months of 2017. In first half year of 2017, there are around 78% invested by fund manager in the Sukuk. In the year 2013 and first half year of 2015, there are nearly 100% are invested in Sukuk. However, around 79% and 81% of the funds are invested in cash market at both first half year of 2014 and 2016. Then, there are 76% and 71% invest in cash market for both second six months of year 2014 and 2015.



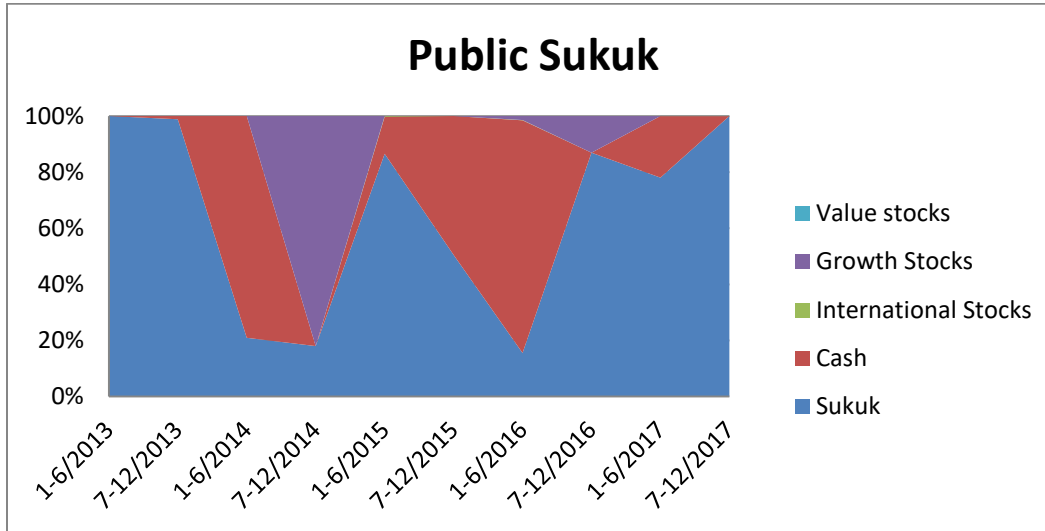
The original objective of RHB Islamic Bond has minimum 60% will be invested in Sukuk. There is around 59% and 78% of funds has invested by fund manager in Sukuk in first six months of 2014 and 2017. In second half year of 2015 and 2016, there are around 63% and 89% invested by fund manager in the Sukuk. In the year 2013, first half year of 2015 and second half year of 2017, there are nearly 100% are invested in Sukuk. However, around 40% and 83% are invested in cash market at both first half year of 2014 and 2016. Then, there are 35.85% of the funds invested in cash market for second six months of year 2015.



The original objective of PB Sukuk has minimum 75% to 98% will be invested in Sukuk. There is around 83% and 78% of funds has invested by fund manager in Sukuk in first half year of 2015 and first six months of 2017. In second half year of 2015 and 2016, there are around 51% and 86% of the funds invested by fund manager in the Sukuk. In the year 2013 and second half year of 2017, there is nearly 100% are invested in Sukuk. However, there is around 79% and 85% of the funds are invested in cash market at both first half year of 2014 and 2016. Then, there are 48.5% invest in cash market for second six months of year 2015.



The original objective of PMB Sukuk has minimum 70% to 99.5% of the fund will be invested in Sukuk. There is around 52% of funds have invested by fund manager in Sukuk in first six months of 2015. In second half year of 2016 and first half year of 2017, there are around 78% invested by fund manager in the Sukuk. In the year 2013, both first half year of 2014 and 2015, and second half year of 2017, there are nearly 100% are invested in Sukuk. However, there is around 43% are invested in cash market at both second half year of 2014 and 2015. Then, there are 77% invest in cash market for first six months of year 2016.



The original objective of Public Sukuk has minimum 75% to 98% will be invested in Sukuk. There is around 86% and 78% of funds have invested by fund manager in Sukuk in first half year of 2015 and first six months of 2017. In second half year of 2015 and 2016, there are around 50.5% and 86% invested by fund manager in the Sukuk. In the year 2013 and second half year of 2017, there is nearly 100% of the funds are invested in Sukuk. However, around 79% and 82% are invested in cash market at both first half year of 2014 and 2016. Then, there are 49.49% of the funds invested in cash market for second six months of year 2015.

## 4.4 Summary

The results obtained show that the styles of some sukuk funds have shifted from their original objective to another objective. However, most of the funds are able to maintain their mainly set objective and style throughout the period of study and calculation. This result gained from the previous studies Lau (2008) and so on.

Since the samples used above to calculate and to study this were taken from a group of Islamic sukuk funds, most of the fund's managers focus their asset allocation towards international sukuk and also on their value. Fewer funds allocated to value, growth and in the overall, during the overall period. There is only a very small portion of funds allocated to the KLIBOR and international. Moreover, there is zero investment on Islamic bond during the overall period.

In the meaning of the variation in monthly returns of each unit trust fund, the result shows that most of the selected unit trust funds within the sample are highly influenced by the variation of style of the unit trusts. On average, 98% above of the variation in return of the index provided are attributable to style in the overall, in 2013-2017. However, there are some unit trusts, which has changed their original objective to another objective can be explained by their investment section.

## **CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS**

### **5.0 Introduction**

This last chapter is summarizing the whole study. This section will begin with summary of the study. Then, it is following by the implication of study and policy implication based on this research. At the end of chapter, there will be the limitation and the last part is recommendation for future research.

## 5.1 Summary of Study

This study's aim is to determine Sukuk fund's style of the asset allocation deviate or not from the fund's original objectives as well as to investigate whether style drift leads to mis-classification of funds during the study period. In this respect, total 18 Sukuk funds has presented as samples in this study. The overall study period is five years which starts from January 2013 to December 2017.

In this study, there are several theories have been declared to explain the asset allocation of the funds as well as the performance of funds. Modern Portfolio Theory is the most significant and influential economic theories nowadays. Investors are trying to develop portfolios that fall on efficient borders which is known as optimum portfolio. Theoretically, it has the maximum returns within the minimum level if portfolios have fell on efficient borders according to Modern Portfolio Theory. The portfolio that fall under the efficient borders are known as sub-optimal since the portfolios has not given enough return at that specific risk. Investors can do their investment by choosing the degree of risk and return where they should invest on the efficient borders. In this regard, there are some other theories and models has created based on the Modern Portfolio Theory which includes Sharpe's style analysis.

Besides, there are some approaches of style analysis which include return-based style analysis (RBSA), holding-based style analysis (HBSA), characteristics-based style analysis (CBSA), stocks classification, equity investment styles and investment fund style. Each of the approaches has their own characteristics and advantage. However, only return-based style analysis (RBSA) is used in this study.



In addition, most of the income funds are similar to their original objective during the study period. In this regard, the results showed that some mutual funds have different styles from their original objectives during the study period. For example, the objective of AMB Dana Arif, CIMB Islamic Sukuk, Hwang AIIMAN Income Plus, Shariah Money Market and PMB Sukuk have changed from balanced fund to income funds.

The variation in monthly returns could be explained by the variation in their styles in the study periods. The result shows that most of the selected unit trust funds within the sample are highly influenced by the variation of style of the unit trusts.

## 5.2 Implication of Study

This research will enable regulatory agencies such as BNM to strengthen the existing policies and become the guidelines of the funds that available to public so that the information of mutual funds should be accurate and will not be misleading for both investors and the public. In this regard, style analysis is a way that is useful not only for investors but it is also very useful for fund managers to notice the changes in styles specially to ensure mutual funds do not deviate from the original goals. Further studies about the management of styles of the funds are necessary since it allows managers to manage the funds' portfolios according to the needs and requirements of investors and the funds do not deviate from the funds of the original style. The results have become the fund manager's guidelines which to ensure the original objectives of their fund does not deviate or drift into other classifications. However, investors will invest in other mutual funds if they have realized that the fund they invested has drifted away from its original objectives. Hence, the managers have to ensure that the funds do not drift away too much from its original objectives to avoid the withdrawal of investment from investors.

Based on the results of this study, some of the Sukuk funds have shifting away from their original goals. Therefore, the regulators or fund managers need to ensure accurate information about the Sukuk funds being announced to the public in order to protect the interests of investors. Let say an investor understands the trust fund policy and also objective, then it will lighten the asymmetric information between investors and fund managers. If the fund deviates from its original goal, regulators should re-examine and focus on risk management and compliance with investors' interests. Last but not least, this research will fill in gaps in the lack of research on style analysis of Sukuk funds.

### **5.3 Policy Implications**

All market participants need to work together to raise the long-term goal of the unit trust industry in which having 40 per cent of the market capitalization in the Malaysian capital market by 2020 (Lau 2007). Then, fund managers have to place a greater focus on equity management and risk management to benefit Islamic bonds investors (Lau, 2007). Regulators or fund managers need to ensure accurate information that disclosure about Islamic bonds to protect investors' interests. As observed in developed markets, style analysis reduces asymmetric information between fund managers and investors in the persistence of investment policies (Lau 2002).

According to Lau (2002), the international best practice should be encouraged by the regulator, Securities Commission (SC) to emphasize policy adherence and to ensure accountability of fund managers. In this regard, Federation Investment Managers Malaysia (FIMM) has responsibility to educate investors about asset allocation strategy and investment approach (Lau, 2002). Islamic bonds are considered very suitable for infrastructure financing because of their risk-sharing characteristics and can help to fill up financing gaps.

In the case of AFTA agreement, another best practice will enable the Malaysian unit trust fund to compete with regional and international mutual funds in the near future (Lau, 2002). Policy makers are encouraged to take a more appropriate approach to enforcing stricter rules that would benefit Islamic bond investors.

## 5.4 Limitation of Study

Although this research has achieved the objectives, some limitations are found in this study. The limitations of this study are the past literature studies on Sukuk fund's style analysis are insufficient. Hence, further studies are required in order to let investors to understand the style drift and the mis-classification of funds. In Malaysia, there is lack of previous research in this area to examine the deviation of the funds' styles from its original objectives in the asset allocation of Sukuk funds. The mutual funds' investors funds mainly focus on the objectives of the funds in order fulfill their investment objectives. If the funds do not fulfill the objectives, those investors might shift to invest in other mutual funds that are aligned with their original objectives.

Besides, the limitations of the study may consist of relatively small sample size that included in this study. The relatively small sample size and the results obtained from style analysis and performance evaluation are general facts that are very sensitive to the selection of benchmarks and the selected sample period. A sample size that not big enough will reduces the power of the study and increases the margin of error, which can render the study meaningless. In this study, total 5 years or 60 months from January 2013 until December 2017 are included as sample size and then it may not big enough. It will be difficult to find significant relationships within data set if sample size is too small.

Lastly, one of the limitations is the lack of information on the Sukuk fund prospectus provided by the fund manager. Lack of resources or information about the sukuk funds might be an obstacle for the researchers to conduct an in-depth analysis on this research topic. Generally, prospectus is a formal legal document that is required by and filed with the Securities and Exchange Commission (SEC) that provides details about an investment offering for sale to the public. It is designed to provide investors

with the information they need to make an informed decision about investing in a fund. However, lack of information on fund prospectus will also affect the investors to make investment decisions. It also reduces the confidence of investors to invest in the sukuk funds due to the asymmetric information exists between the manager and the public.

## **5.5 Recommendations for Future Research**

Based on the results of this study, future studies are recommended to conduct more in-depth analysis with the style analysis of Malaysia Sukuk funds. For example, a comparative study of style analysis on conventional and Sukuk funds could be implemented in order to obtain comprehensive information easily in the future. Future researches could focus more on the Sukuk funds to investigate whether the asset allocation of the Sukuk funds is derived from their original objectives.

Last but not least, sample size calculation is part of the early stages of conducting a research. Statistical tests usually require larger sample sizes to ensure a representative distribution of the population and generated more accurate results. For instance, two investigations conducted with the same methodology and achieving equivalent results, but different only in terms of sample size, it may bring the researcher in different directions when making decisions. In this study, total 5 years of period has performed as sample size. Therefore, a larger sample size, such as 10 years are encouraged to conduct a research in order to obtain more accurate result and also to determine the significant relationships from the data.

Last but not least, the fund prospectus does not provide enough information regarding to the asset allocation of the fund. This limits the researchers' scope of study. Hence, adequacy information of prospectus that disclosure to public is recommended and necessary. The Securities and Exchange Commission (SEC) should establish a law on the information on displayed in every fund prospectus to overcome this issue.

## REFERENCES

- Abdullah, F., Mohamad, S., & Hassan, T. (2007). Investigation of performance of Malaysian Islamic unit fund trusts, comparison with conventional unit fund trusts. *Managerial Finance*, 33, 142–153.
- Abdullah, N. A., & Abdullah, N. A. (2009). The Performance of Malaysian Unit Trusts Investing in Domestic Versus International Markets. *Asian Academy of Management Journal of Accounting and Finance*, 5(2), 77-100.
- Agarwal, V., & Naik, N. Y. (2000). Generalised Style Analysis of Hedge Funds. *Journal of Asset Management*, 1(1), 93-109.
- Ahmad, H. A. H. (2014). Style Analysis of Malaysian Islamic Bond Unit Trust Funds. Universiti Utara Malaysia, College of Business, Kedah, Malaysia.
- Ainsworth, A. B., Fong, K., & Gallagher, D. R. (2008). Style drift and portfolio management for active Australian equity funds. *Australian Journal of Management*, 32(3), 387-418.
- Bams, D., Otten, R., & Ramezanifar, E. (2017). Investment style misclassification and mutual fund performance. 28<sup>th</sup> Australasian Finance and Banking Conference.
- Bank Negara Malaysia (2017). *2016 Global Sukuk Market: A Record Year for Corporate Issuance*.
- Bank Negara Malaysia. (2017). *Malaysia International Islamic Financial Centre*.
- Bloomberg: <http://www.bloomberg.com/index.html?Intro=intro3>
- Boo, Y. L., Mong, S. E., Li, B., & Mamunur, R. (2017). Islamic or conventional mutual funds: who has the upper hand? Evidence from Malaysia. *Pacific-Basin Finance Journal*, 42, 183-192.
- Cao, C., Iliev, P., & Velthuis, R. (2017). Style Drift: Evidence from small-cap mutual funds. *Journal of banking and finance*, 78, 42-57.
- Castellanos, A. R., & Alonso, B. V. (2004). Spanish mutual fund misclassification: Empirical evidence. *Investment Management and Financial Innovations*, 1(2), 24-33.

- Chan, L. K. C., Chen, H. L., Lakonishok, J. (2002). On Mutual Fund Investment Styles. *The Review of Financial Studies*, 15(5), 1407-1437.
- Cumming, D. J., & Johan, S. A. (2014). *Venture Capital and Private Equity Contracting: An International Perspective* (2<sup>nd</sup> ed.). California, USA: Elsevier Inc.
- Das, P. K., & Rao, S. P. U. (2013). Performance evaluation of socially responsible mutual funds using style analysis. *Social Responsibility Journal*, 9(1), 109-123.
- Dor, A. B., & Jagannathan, R. (2002). Understanding mutual fund and hedge fund styles using return based style analysis. NBER Working Paper No.9111.
- Fowler, R., Grieves, R., Singleton, J. C. (2010). New Zealand unit trust disclosure: asset allocation, style analysis, and return attribution. *Pacific Accounting Review*, 22(1), 4-21.
- Gregoriou, G. N., & Wu, M. (2016). An application of style analysis to Middle East and North African (MENA) Hedge Funds. *Handbook of Frontier Markets*, 19-31.
- Gusni, Silvinia, & Faisal, H. (2018). Factors affecting equity mutual fund performance: evidence from Indonesia. *Investment Management and Financial Innovations*, 15(1), 1-9.
- Ho, C. S. F., Nurul, A. A. R., Noor, H. M., & Zamzamin, Z. (2014). Performance of global Islamic versus conventional share indices: International Evidence. *Pacific-Basin Finance Journal*, 28, 110-121.
- Lai, M. M., & Lau, S. H. (2010). Evaluating mutual fund performance in an emerging Asian economy: The Malaysian Experience. *Journal of Asian Economics*, 21(4), 378-390.
- Lau, W. Y. (2002). Does Asset Allocation Explain the Styles and Performance of Unit Trust Funds: A Style Analysis with the Evidence from Malaysia. *Journal of Malaysian Studies*, XX(2), 1-32.
- Lau, W. Y. (2005). How Persistent is Equity Style Performance Among Malaysian Fund Managers? *Osaka Economic Paper*, 55(3), 64-82.
- Lau, W. Y. (2006). Investment Style of Mutual Funds: How is it Useful In Communicating Economic Trends to Investors? ". *Osaka Economic Papers*, 55(4), 139-156.



- Lau, W. Y. (2007). An Integrated Framework for Style Analysis: How is it Useful to Malaysian Equity Trust Investors?. *Managerial Finance*, 33 (2), 122–141.
- Lau, W. Y. (2008). Investigating Equity Style Portfolio Risk Using VaR: An Empirical Study Based on Malaysian Mutual Funds. *Osaka Economic Papers*, 57(4), 100-118.
- Lau, W. Y., & Chan, T. H. (2004). Does misclassification of equity funds exist? Evidence from Malaysia. MPRA Paper 2029, University Library of Munich, Germany.
- Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance*, 7(1), 77-91.
- Mason, A., McGroarty, F., & Thomas, S. (2013). Complementary or contradictory? Combining returns-based and characteristics-based investment style analysis. *Journal of Asset Management*, 14(6), 423-438.
- Mintzer, R., & Littmann, B. (2000). *The Everything Mutual Funds Book: How to pick, buy and sell mutual funds, and watch your money grow!* Massachusetts, USA: Adams Media Corporation.
- Mohamed, H. H., Masih, M., & Bacha, O. I., (2015). Why do issuers issue *Sukuk* or conventional bond? Evidence from Malaysian listed firms using partial adjustment models. *Pacific-Basin Finance Journal*, 34, 233-252.
- Mohd, F. K., Norlela, K., Siti, K. A. M., Gairuzazmi, M. G. (2014). Defaulters profile in Malaysia Sukuk market. *Procedia – Social and Behavioral Sciences*, 145, 277-285.
- Nafis, A., Kabir, H.M., & Aminul, H.M. (2013) Are Islamic Bonds Different from Conventional Bonds? International Evidence from Capital Market Tests. *Borsa Istanbul Review*, 13(3), 22-29.
- Pohlman, J.T., & Leitner, D.W., (2003). A Comparison of Ordinary Least Squares and Logistic Regression. *The Ohio Journal of Science*, 103(5), 118-125.
- Sharpe, W. F. (1992). Asset Allocation: Management Style and Performance Measurement. *Journal of Portfolio Management*, 7-19.
- Swinkels, L. & Van Der Sluis, P. J. (2006). Return-based style analysis with time-varying exposures. *European Journal of Finance*, 12(6-7), 529-552.
- Weng, H., & Trück, S. (2011). Style analysis and Value-at-Risk of Asia-focused hedge funds. *Pacific Basin Finance Journal*, 19(5), 491-510.

Yeh, I. C., & Hsu, T. K. (2014). Exploring the dynamic model of the returns from value stocks and growth stocks using time series mining. *Expert Systems with Applications*, *41*(17), 7730-7743.

## APPENDICES

**Appendix I: Style Analysis for Overall Period**

Fund	Original Objective	SUKUK	KLIBOR	RI	RMG	RMV	New Style
Amanahraya Syariah Trust	Income	75.76	0.00	0.00	0.00	24.24	Income
AMB Dana Arif	Balanced	86.78	0.00	0.00	3.4	9.82	Income
AmDynamic Sukuk – Class A	Income	88.45	0.00	0.1	0.00	11.45	Income
AmBon Islam	Income	97.27	0.00	0.00	0.00	2.73	Income
CIMB Islamic Enhanced Sukuk	Income	61.00	10.00	0.00	0.00	29.0	Income
CIMB Islamic Sukuk	Balanced	84.25	4.4	0.00	0.00	11.35	Income
Dana Al-Fakhim	Income	96.6	0.00	0.00	0.00	3.4	Income
Eastspring Invt Dana Wafi	Income	100.00	0.00	0.00	0.00	0.00	Income
Hwang AIIIMAN Income Plus	Balanced	96.9	0.00	0.00	0.00	3.1	Income
Kenanga Bon Islam	Income	94.7	0.00	0.00	0.00	5.3	Income
Libra ASnita BOND Oneinvest	Income	89.8	7.8	0.00	0.00	2.4	Income
MAAKL As-Saad	Income	95.7	0.00	0.00	0.00	4.3	Income
MIDF Amanah Shariah Money Market	Balanced	99.87	0.13	0.00	0.00	0.00	Income
Pacific Dana Murni	Income	96.10	0.00	0.00	0.00	3.9	Income
RHB Islamic Bond	Income	93.89	0.00	0.00	0.00	6.11	Income
PB Sukuk	Income	94.25	0.00	0.00	0.00	5.75	Income
PMB Sukuk	Balanced	59.18	0.00	0.00	5.62	35.2	Income
Public Sukuk	Income	93.89	0.00	0.00	0.00	6.11	Income