A Comparative Analysis of Islamic Unit Trust Portfolio using Value at Risk Methodologies

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Abstract **- Islamic unit trust is a sunrise industry in the Malaysian capital market over the last decades to fulfill the demand from its Muslim investors. Muslim investors are only willing to invest their capital if the investment does not conflict with their religious beliefs, namely Islam. Previously, most of the studies focused to evaluate the performance of unit trust funds relative to the market as a whole. Meanwhile, it is also important for investors to accurately measure their downside risk because it is closely related to their future losses. Thus, Value at Risk (VaR) concept was introduced to calculate monthly risk for an Islamic unit trust portfolio using the three standard approaches which are Delta Normal, Historical Simulation and Monte Carlo Simulation. Results show that Monte Carlo Simulation is the best method to quantify risk exposure as the average Mean Absolute Percentage Error (MAPE) is the lowest compared to the other two methods. The findings also highlight the importance of embedding risk into investment analyses and provide insights to investors who are considering *Shariah*-compliant equity funds as a potential income-generating instrument. Therefore, financial consultants or fund managers can make informed decisions in setting up a well-diversified unit trust fund's portfolio for their Muslim investors by applying the concept of VaR and its methodologies.**

Keywords **-** *Delta Normal, Historical Simulation, Islamic Unit trust, Monte Carlo Simulation, Value at Risk*

ARTICLE INFO

Received 10 October 2020
Received in revised form 1 December 2020
Accepted 16 December 2020
Published 31 December 2020

I. Introduction

The history of unit trust industry in Malaysia dated back with the establishment of the Malayan Unit Trust Ltd by British investors in 1959. During its formative years from 1959 to 1979, the growth of unit trusts was very slow due to a lack of public interest and knowledge in this new investment. The dramatic turning point for this industry was in 1981 when the Malaysian government launched *Amanah Saham Nasional* (*ASN*), a government-sponsored unit trust that aimed to improve the Bumiputeras' social-economic status (Taib & Isa, 2007). Since then, the Malaysian unit trust industry has been one of the fastest-growing sectors within the finance industry in the last two decades. According to Bashir (2011), several factors have jointly contributed to the massive growth of the industry and those include strong economic and good stock market performance, expansion of the local stock market and success of the privatization companies. The Malaysian unit trust market

offers various types of funds available for investors to invest in a well-diversified portfolio such as bond fund, balance fund, fixed income fund as well as equity fund. The fact that the Malaysian capital market is functioning based on interest (*riba),* ambiguity *(gharar)* and gambling (*maisir)*; it is not surprising that many of the instruments products, which are available to conventional products are not available to Islamic funds. Besides, during the funds screening process, the companies whose core activities include pork-related products, alcohol, gambling, pornography, conventional banking and entertainment-related products and services like music, cinema and hotels are also excluded.

Initially, Tabung Amanah Bakti (Malaysia Security Fund) launched on 19th. May, 1971 was the pioneer of Islamic unit trust with Asia Unit Trust Berhad as its fund manager (Ahmad & Haron, 2003). Given the increasing demand from Muslim investors, therefore has prompted the Malaysian government to introduce various *Shariah*-compliant investment vehicles in Islamic Capital Market (ICM). For example, *Sukuk*, *Shariah*-compliant securities, Islamic unit trust funds and Islamic real estate investment trusts or I-REITs as listed on Bursa Malaysia. In May 1996, Securities Commission Malaysia (SCM) established a *Shariah* Advisory Council (SAC) to monitor and ensure that the transactions of the ICM are managed in compliance with *Shariah* principles (Islamic law as revealed in the Quran and Sunnah). Twice a year since June 1997, SAC would have published a public report on the list of *Shariah*-compliant securities for Bursa Malaysia (Morni, Iskandar & Banchit, 2019). Islamic funds are relatively new as compared to conventional funds. Within Islamic investment funds, the equity funds market is one of the fastest-growing sectors. According to Bursa Malaysia estimates, 36% of the total listed Islamic equity funds are in this country (Sadeghi, 2008). Thus, the existence of Islamic unit trust allows Muslim investors to invest in a well-diversified *Shariah*-compliant portfolio. Given the increasing popularity of unit trust funds, the findings of this study would certainly provide valuable insights for Muslim investors to consider it as an ideal long term investment instrument to increase their passive income and gain various benefits such as portfolio diversification, liquidity, professional management and risk minimization (Abdullah & Abdullah, 2015).

1.1 Problem statement

Unit trusts and mutual funds synonymously refer to professionally managed investment funds is an unending area of interest for both investors as well as fund managers. Hence, this topic is well researched by academicians over the years. Based on Mean-Variance framework, a set of standard performance measures of Sharpe (1966), Treynor (1965) and Jensen (1968) are widely used to evaluate the performance of unit trust funds relative to the targeted market indexes as benchmarks. Recently, Abdullah and Shari (2019) examine the performance between 31 fixed incomes and 57 equity unit trust funds from 2006 to 2012. Gallo, Apilado and Kolari (1996) showed that banks' profitability can be significantly improved if they consistently deliver top-performing funds. Meanwhile in finance, risk is defined as the uncertainty or the probability that the actual (realised) return will deviate from the future (expected) return. Generally, the risk level of an investment is directly correlated with the future returns to be earned by investors whereby the higher the risk, the higher the returns. However, a risk-averse investor still feels intimidated by the risk and wish to minimize the amount of losses expected in the future. This type of investor would have preferred lower returns with known risks rather than higher returns with unknown risks.

Since unit trust cannot be classified as a fully risk-free asset, standard deviation is one of the earliest popular methods used to measure its investment risk. Statistically, standard deviation which is an absolute measure of variability indicates that the larger standard deviation, the higher the risk assumed by the portfolio and vice versa. Furthermore, the measurement of the standard deviation in investment is also known as volatility. Volatility measures the variation of the asset's prices over time (Yusof & Majid, 2006). In the current situation, standard deviation is insufficient to describe the total loss of a portfolio because it does not only penalize the downward deviation (losses) but also the upward deviation (profits). In general, all investors don't like negative volatility but they do like positive and upward volatility. Therefore, standard deviation is not consistent with the investor's actual perception that wishes to minimize only the downside risk (Jaaman, Lam & Isa, 2011). Hence, a measurement technique that could consider only negative volatility and effective in determining the maximum loss of a portfolio is appropriate especially for risk-averse investors.

1.2 Contribution of the study

In recent years, downside risk measures such as Value at Risk have been proposed as a new approach for measuring risk of portfolio and to overcome the deficiencies of standard deviation (Emmer, Kratz & Tasche, 2015). According to Jorion (2007), VaR can be defined as follows: "the worst expected loss over a given

horizon under normal market conditions at a given level of confidence". Essentially, there are three key elements to describe the Value at Risk; a holding period, the dollar amount of loss and confidence level. The choice of holding period and the confidence level should be chosen depending on the overall goal of risk measurement. However, a shorter holding period is more desirable because it is easier to maintain the assumption that the content in the portfolio is unchanged over a defined period. Moreover, there are few confidence levels are often used: 90%, 95% or 99% which represents the probability that actual losses will not exceed the given VaR value. Thus, VaR is a probabilistic measure and is not certain because the actual losses can be much greater depending on the heaviness or fatness of the tail of the loss distribution (Čorkalo, 2011). The current study attempts to highlight the importance of VaR as a measure of 'downside risk' for unit trust funds, an aspect which is completely ignored for performance reporting in Malaysia's context. The concept of Value at Risk as a single risk measure summarizing all sources of downward risk has gained popularity among bankers, portfolio managers and other market practitioners. The contribution of this paper is twofold. First, this study intends to apply VaR measure at 95% confidence level on estimating risk for a portfolio of Islamic equity funds using three standard approaches: Delta Normal also known as Variance-Covariance, the Historical Simulation and Monte Carlo Simulation. Second, this study also attempts to identify the best approach by comparing the accuracy using the Absolute Maximum Percentage Error (MAPE).

II. Literature Review

There are vast numbers of literature that had focused on the analysis of the overall performance evaluated based on the standard measures known as Sharpe, Treynor and Jensen Alpha Indices. Since mutual funds face competition from various alternatives, thus the empirical evidence shows that either international or domestic funds performance was generally not impressive. Early studies in the U.S done by Sharpe (1966), Treynor and Mazuy (1966), Jensen (1968) and Carlson (1970) reported that more than 60 percent of funds did not match their market performance and the rest shows inconsistent performance. This finding is consistent with McDonald (1974) who showed that the majority from the funds observed in the study also underperformed the New York Stock Exchange (NYSE) index.

In regards to performance studies conducted on the Malaysian unit trust industry, Bursa Malaysia has provided seven market benchmark indices as proxies for the market. Due to this, the most commonly employed are Kuala Lumpur Composite Index (KLCI) for the conventional funds while the Islamic funds used Kuala Lumpur Shariah Index (KLSI). Theoretically, it is important to select the most appropriate market benchmark since it should reflect the investment characteristics of the evaluated fund (Low, 2007). It is also supported by Leong and Aw (1997) that examined the sensitivity of fund performance to different benchmark, namely KLCI and Kuala Lumpur Main Board All Share Index (EMAS). Their study reveals that more funds exhibit superior performance than the market when EMAS Index was used. Collectively, the results conveyed from prior researches provide further evidence that on average Malaysia's unit trust investing locally also was not able to outperform the chosen market index (Mohamad & Nassir 1995; Tan, 1995; Low & Ghazali, 2005, 2007).

It can be observed that there is an increasing number of studies conducted to compare the performances between conventional and Islamic unit trust funds in Malaysia. The findings by Ahmad and Haron (2003), Bashir and Nawang (2011) proved that sometimes Islamic or conventional unit trust funds can be better for that certain period because it varies according to the market condition. This finding is consistent with previous studies by Abdullah, Hassan and Mohamad (2007), Elfakhani, Hassan and Sidani (2005) indicated that Islamic funds tend to outperform the market in bearish economic conditions trends while, conventional funds showed better performance than Islamic funds during bullish economic periods. Later, Mansor and Bhatti (2011) denotes that there is a highly strong correlation between the Islamic and Conventional unit trust portfolios with the market portfolio, indicating that market trend has direct impact to the development of the equity market in the Malaysian mutual funds industry. In contrast, their findings also reveal that, on average, both returns performance of the Islamic and Conventional mutual funds' portfolios are higher than the KLCI index from January 1996 to April 2009. However, Islamic funds seemed to have lower risks than conventional funds (Ahmad & Haron, 2003). The lower risk associated with Islamic unit trusts and their ability to be less affected during pessimistic economic trends also had contributed to the increase in its demand. Hence, Abdullah et. al (2007) also recommends that either Muslim or non-Muslim investors should consider Islamic mutual funds during slow market conditions.

Initially, Deb and Banarjee (2009), Sahi, Pahuja and Dogra (2013), Tehrani, Mohammadi and Nejadolhosseini (2014) highlighted the importance of VaR as a measure of 'downside risk'. It is important for fund managers to accurately quantifying market risk because putting a value or price on risk, will help an investor to decide whether a risk is worth taking (Billio & Pelizzon, 2000; Amin, Yahya, Ibrahim & Kamari, 2018). Deb and Banerjee (2009) analyzed weekly VaRs for 349 Indian equity mutual funds from 1999 to 2014. The study used three parametric models namely Moving Average (MA), exponentially weighted MA (EWMA),

GARCH (1,1) and a non-parametric model, Historical Simulation (HS). Overall, the results showed that the Indian equity mutual funds exhibit considerable downside risk during the chosen period and GARCH (1,1) seems to be the most robust of the models. Sahi et al. (2013) compare the performance between 20 open-ended public and private sector mutual funds from 2009 to 2012. The study implements VaR methods such as Historical Simulation approach, Normal Value at Risk and Modified Value at Risk. The result revealed that the entire Indian mutual fund industry has suffered losses during the last three years of the post-recession period. To add on to the literature, Tehrani et al. (2014) addressed the measurement of one-day-ahead Value at Risk (VaR) of Iranian mutual funds using GARCH, a parametric method and Monte Carlo Simulation, a non-parametric method. The Kupiec backtesting results showed that both methods enjoy a high level of accuracy but Monte Carlo simulation produced better results. Furthermore, the adjusted Sharpe ratio using VaR was used to investigate the performance evaluation of the selected Iranian mutual funds. Recently, Naveed et al. (2020) used various measures such as downside beta, relative beta, Value at Risk and expected shortfall to analyses the downside risk between Islamic and conventional funds in Pakistan. The results of this study also clearly show that Islamic funds have a lower risk as compared to conventional funds. Therefore, risk-averse investors are strongly encouraged to invest in *Shariah*-compliant funds.

In Malaysia, there is very limited evidence on measuring risk for Islamic unit trust portfolio using Value at Risk (VaR)-based approach. To the best of our knowledge, only a single study was done by Zakaria and Jaffar (2016) to predict the future VaR of listed stocks in *Shariah*-compliant equity funds. The findings show that the forecast price of unit trust funds and all stocks in the fund portfolio using the Geometric Brownian Motion (GBM) model are highly accurate. Although there are numerous approaches to calculate VaR, this study intends to widen the existing thread of literature by further measuring the monthly 'downside risk' of Islamic equity fund under normal market conditions using three proposed approaches consist of Delta Normal, Historical Simulation and Monte Carlo Simulation.

III. Research methodology

Based on VaR measure of Jorion (2007), this study intends to estimate the downside risk for a hypothetical portfolio consists of eight Islamic equity funds listed on CIMB Principal Management website, https://www.principal.com.my/ as shown in Table 1 below. The historical data comprises monthly Net Asset Value, commonly referred to as NAV were collected from October 2015 until September 2018 for the analysis.

Table 1: List of Islamic Equity Unit Trust Fund in CIMB

No.	CIMB Islamic Equity Unit Trust Fund	Symbol
1	Islamic Al-Azzam Equity Fund	IAAEF
2	Islamic Asia Pacific Equity Fund	IAPEF
3	Islamic DALI Asia Pacific Equity Growth Fund	IDAPEGF
4	Islamic DALI Equity Fund	IDEF
5	Islamic DALI Equity Growth Fund	IDEGF
6	Islamic DALI Equity Theme Fund	IDETF
7	Islamic Equity Aggressive Fund	IEAF
8	Islamic Small Cap Fund	ISCF

3.1 Delta Normal

Delta Normal is also known as Variance –Covariance approach is a parametric method where the distributional assumption made is that the daily geometric returns of the market variables are multivariate normally distributed with mean return zero (Bohdalová, 2007). The initial step is to calculate the daily rate of return, R_t $R_t$of the portfolio for each month for each unit trust fund is given by

$$R_t = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \quad (1)$$

where NAV_t is the closed price for day-t and NAV_{t-1} is the closed price for the day $t-1$. Next, the weightage for every unit trust fund on the portfolio, W_i is given as follows

$$W_i = \frac{P_i}{P_0}; \quad i = 1,2,3,\ldots,N \tag{2}$$

where P_0 is the total investment for all portfolio and P_i is the total investment for every i-th fund. This study assumes that we have RM 80,000 for investment and the respective weight for each Islamic equity fund is 1/8 since they are equally weighted in this portfolio. The variance of the total portfolio, σ_p^2 is given by

$$\sigma_p^2 = W^T \Sigma W \tag{3}$$

where W is a vector of absolute weight for each unit trust fund in the portfolio, W^T is transpose of the weightage vector and Σ denotes Variance-Covariance matrix. A Variance-Covariance matrix is a square matrix that contains the variances and covariance associated with a pair of funds considered in this study. As an example, the 8×8 Variance-Covariance matrix, Σ was constructed based on the monthly rate of return in March, 2018 using Equation (1).

$\Sigma =$

	IAAEF	*IAPEF*	*IDAPEGF*	*IDEF*	*IDEGF*	*IDETF*	*IEAF*	*ISCF*
IAAEF	0.0014	0.0010	0.0010	0.0010	0.0012	0.0012	0.0014	0.0018
IAPEF	0.0010	0.0026	0.0020	0.0012	0.0008	0.0009	0.0010	0.0017
IDAPEGF	0.0010	0.0020	0.0016	0.0011	0.0008	0.0008	0.0009	0.0015
IDEF	0.0010	0.0012	0.0011	0.0009	0.0009	0.0009	0.0010	0.0013
IDEGF	0.0012	0.0008	0.0008	0.0009	0.0011	0.0011	0.0011	0.0015
IDETF	0.0012	0.0009	0.0008	0.0009	0.0011	0.0011	0.0011	0.0015
IEAF	0.0014	0.0010	0.0009	0.0010	0.0011	0.0011	0.0013	0.0017
ISCF	0.0018	0.0017	0.0015	0.0013	0.0015	0.0015	0.0017	0.0028

Figure 1: Example of Matrix Variance-Covariance

Finally, VaR using Delta Normal is given by the following formula

$$\alpha\sigma_p P_0 = \alpha\sqrt{W^T \Sigma W} P_0 \tag{4}$$

where α is the level of significance in the standard normal curve that corresponds to (1-c) if c is the selected confidence level, σ_p denotes the standard deviation and P_0 denotes the total investment. In this study, α is 1.6449 was obtained by the command of NORMSINV (0.95) in Excel. Hence, by using Equation (4), Value at Risk (VaR) at 95% confidence level in March 2018 is given by 1.6449 * 0.0353 * RM 80, 000. Therefore, at 95% confidence level the maximum loss expected to be incurred in March 2018 is RM 4,648 in normal market conditions.

3.2 Historical Simulation

Historical Simulation is the most widely implemented non-parametric approach that eliminates the need to estimate parameters such as means, standard deviation and correlation coefficients. The essence of this approach is based on the underlying assumption that the near future will be sufficiently similar to the recent past for us to be able to use the data from the recent past to forecast the risk in the near future (Abad, Benito & López, 2014). Thus, the observed historical distribution is the best approximation of future uncertainty.

As an example, this study will use the historical rate of returns empirical distribution in February 2018 to approximate Value at Risk for March 2018 that correspond to the 95% probability.

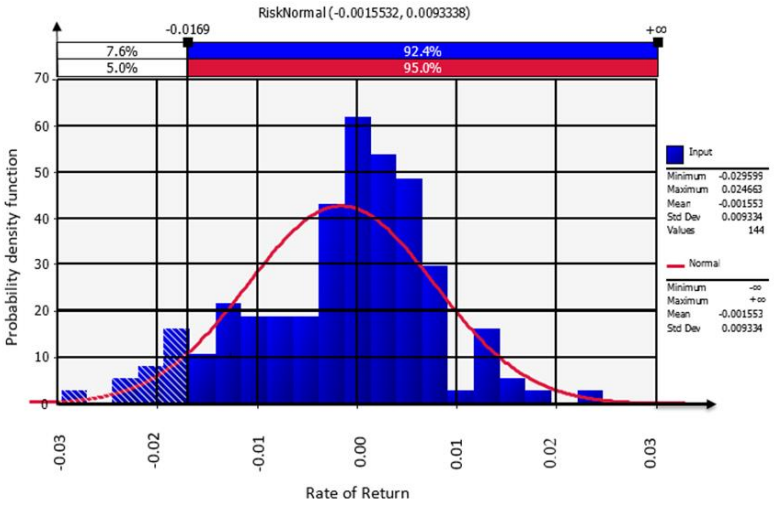

Figure 2: Histogram in March 2018 using the historical rate of returns

Observed that, to determine VaR at 95% confidence level, the focus will be on the left tail which is 5% from the total observation in the distribution. From Fig. 2 above, the VaR at 95% confidence level is -0.0169. Since VaR can be any monetary value, the observed risk needs to be multiplied with the total investment 0.0169 x RM 80,000 = RM 1,352. Notice that, we drop the minus sign because VaR is referred to as a loss. Therefore, at 95% confidence level the largest loss that is expected to be incurred in March 2018 for this particular portfolio is RM 1,352 in normal market conditions.

3.3 Monte Carlo Simulation

Monte Carlo Simulation method is similar to Historical Simulation. Linsmeier and Pearson (2000) stated that the main difference is Historical simulation uses historical data to observe the real-time data changes in the market for that certain period. In contrast, Monte Carlo Simulation uses a random number generator to simulate the potential future changes in asset values.

In this study, the Geometric Random Walk model is used to generate a series of the simulated future price for each unit trust fund is defined by the formula

$$P(t) = P(0)e^{\left(\mu-\frac{\sigma^2}{2}\right)t+\sigma\sqrt{t}Z} \tag{5}$$

where $P(t)$ is the future price of the unit trust price for time t, $P(0)$ is the current stock price, μ is the drift parameter, σ^2 is the volatility, T is the time delay and Z denotes a standard normal distribution.

The Monte Carlo Simulation of 1,000 potential future prices is then performed using @RISK an add-in software in Excel. Next, the rate of return is calculated using Equation (1) and a histogram is then plotted. Figure 2 below shows an example of a histogram consist of 1,000 data of the predicted rate of return for the unit trust fund in March 2018.

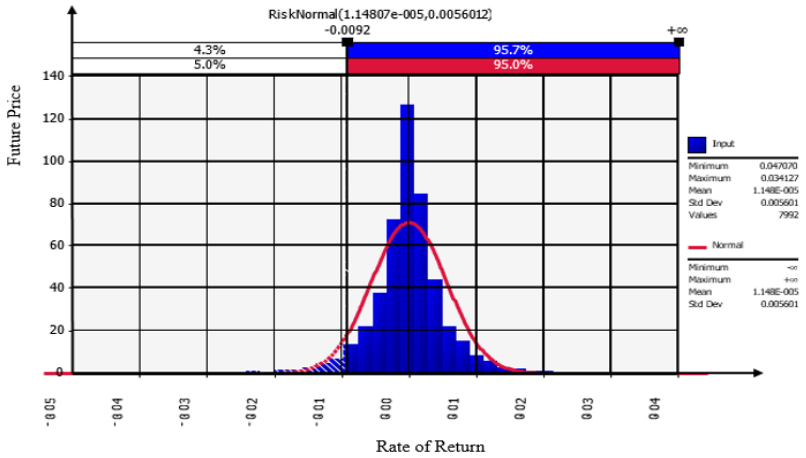

Figure 3: Histogram in March 2018 using the predicted rate of return

In Fig. 3, VaR is -0.0092. Next, the observed risk is then multiplied with the total investment of 0.0092 x RM 80,000 = RM 736. Again, we drop the minus sign in the calculation. Hence, the worst expected loss at 95% confidence level in March 2018 is RM 736 in normal market conditions.

IV. Results and Findings

This study focuses to calculate Value at Risk (VaR) at 95% confidence level using three standard approaches which are Delta Normal, Historical Simulation and Monte Carlo Simulation. The results obtained are then verified with the Actual Value at Risk for each consecutive month from October 2015 until September 2018. For comparison purposes, Table 2 below reports the expected maximum loss for a portfolio of unit trust fund RM 80,000 (in RM) for each consecutive month over three years.

Table 2: Comparison between VaR Approaches and Actual VaR (in RM)

	Value at Risk (RM)			
Method / Month	Delta Normal	Historical Simulation	Monte Carlo Simulation	Actual Value at Risk
October 2015	1912	1470	1250	1244
November 2015	1588	1499	1296	1325
December 2015	1132	1655	1550	1576
January 2016	1298	1074	1042	1066
February 2016	1776	1460	1353	1342
March 2016	1431	916	996	989
April 2016	1654	1788	1855	1867
May 2016	1488	1372	1298	1305
June 2016	1427	1252	1300	1279
July 2016	1742	1550	1559	1536
August 2016	1996	1788	1861	1855
September 2016	1175	1091	996	1068
October 2016	1042	970	941	934
November 2016	2118	1802	1828	1841
December 2016	935	595	488	476
January 2017	1204	967	877	905
February 2017	983	644	529	535
March 2017	838	577	506	487

April 2017	1220	840	932	920
May 2017	698	827	550	534
June 2017	364	538	521	499
July 2017	759	929	998	981
August 2017	828	487	542	532
September 2017	1616	969	1500	1484
October 2017	684	640	440	456
November 2017	730	456	880	984
December 2017	826	984	488	536
January 2017	703	536	1048	1080
February 2018	1479	1080	1312	1352
March 2018	4648	1352	736	1176
April 2018	1082	1176	1904	1896
May 2018	1722	1896	1299	1376
June 2018	1454	1376	1003	952
July 2018	1206	952	1109	1040
August 2018	995	1040	802	752
September 2018	1204	752	584	856
Average	**1,332**	**1,092**	**1,060**	**1,084**

Alternatively, Fig. 4 below shows a graphical summary of predicted VaR using three main approaches discussed compared with the monthly actual VaR as reported in Table 2.

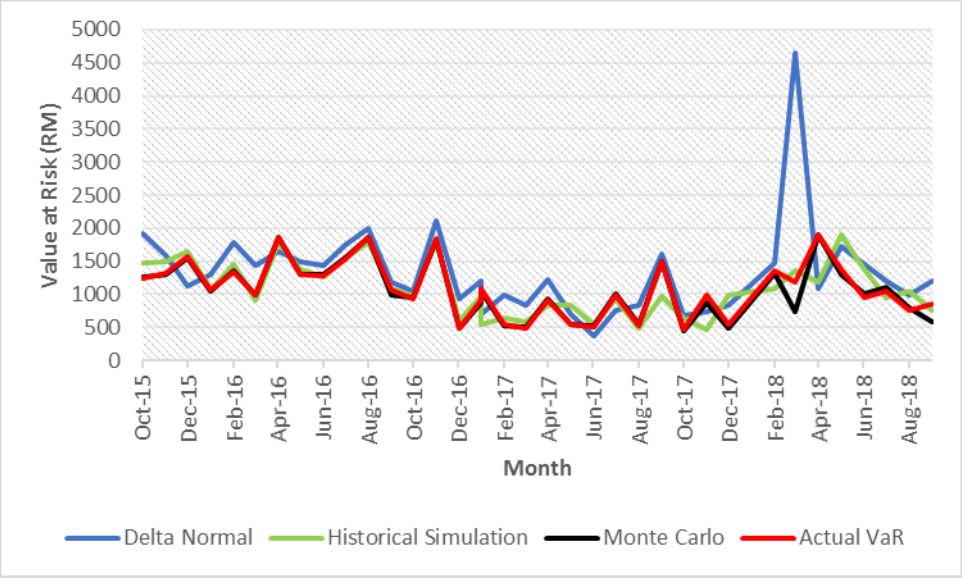

Figure 4: Comparison between predicted and actual monthly VaR (in RM) for the observed period

Overall results show that Delta Normal has the highest calculated VaR among the three standard approaches discussed almost every month. The average VaR using Delta Normal is RM 1,242. Observed that, the Actual VaR with an average of RM 1,084 lies closely in between Historical Simulation and Monte Carlo Simulation with an average of RM 1,092 and RM 1,071 respectively. Initially, it can be concluded that these two approaches are more accurate than Delta Normal to measure the monthly downside risk of an Islamic unit trust portfolio during the observed period.

To further analyse the performances between Delta Normal, Historical Simulation and Monte Carlo Simulation, the Mean Absolute Percentage Error (MAPE) for each method is calculated. The MAPE usually express accuracy as a percentage and is calculated as follows:

$$\text{Mean Absolute Percentage Error} = \left[\frac{1}{n}\sum_{i=1}^{n}\frac{|a_i - p_i|}{|a_i|}\right] X100 \quad (7)$$

where n equal to the total number of observations involved, a_i and p_i are actual and predicted values, respectively. The scale of the judgement of forecasting the accuracy by using MAPE is illustrated in Table 3 below. The approach with a lower MAPE is expected to produce better results.

Table 3: A Scale of Judgement of Forecast Accuracy

MAPE	Accuracy
< 10%	Highly accurate
11% - 20%	Good forecast
21% - 50%	Reasonable forecast
> 51%	Inaccurate forecast

Table 4 reports Mean Absolute Percentage Error (MAPE) using Equation (7) for each consecutive month over three years. Finally, a comparison of accuracy between these three standard approaches: Delta Normal, Historical Simulation and Monte Carlo Simulation are made.

Table 4: Comparison of Mean Absolute Percentage Error (MAPE)

Method	MAPE (%)		
	Delta Normal	Historical Simulation	Monte Carlo Simulation
Average	39.92	19.73	4.66

Based on Table 4 above, Delta Normal approach has the highest average MAPE with 39.92% as compared to Historical Simulation and Monte Carlo Simulation. Due to the existence of fat tails in the distribution of actual returns on most financial assets, this would lead to an underestimation of true VaR since the extreme outcomes occurring much more frequently than would be predicted by the normal distribution assumed previously. Thus, it provides empirical evidence that Delta Normal is the least accurate approach. In contrast, Historical Simulation can be considered more accurate in measuring VaR since the individual average MAPE is approximately 20%. Finally, there is strong evidence to conclude that Monte Carlo is the most accurate in measuring VaR for a portfolio of Islamic unit trust funds because it has the lowest average MAPE, 4.66%.

V. Conclusion and Recommendation

Overall this study has successfully implemented Value at Risk (VaR), a risk measurement technique that considers only negative volatility to determine the maximum loss of an Islamic portfolio of unit trusts. To fulfill the research objectives, this study employs three standard approaches: Delta Normal, Historical Simulation and Monte Carlo Simulation. Based on the results of Mean Absolute Percentage Error (MAPE), Monte Carlo Simulation is proven to be the most precise and accurate method in measuring the downside risk for a portfolio of selected *Shariah*-compliant funds. This is in line with Tehrani et.al (2014). Therefore, financial consultants or fund managers are recommended to use VaR as effective parameters in decision making to suits the needs of the risk-averse Muslim that tends to avoid relatively higher risk investments such as stocks, options and futures. In general, this study attempt to expand the literature on the use of VaR, an aspect which is completely ignored for performance reporting in the Malaysian unit trust industry. For future studies, we recommend to increase the sample size, observation period or compare VaR results using numerous approaches available such as GARCH model, EWMA and Extreme Value Theory (EVT) to provide better and more accurate results.

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