

Are Shariah-Compliant Structured Products Able to Withstand Global Financial Shocks? A New Perspective on the Performance of Shariah-Compliant Structured Investment-Linked Plans in Malaysia

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Islamic structured product is a shariah-compliant asset class that is considered as an innovation in the financial market. In view of the increasing presence of Islamic finance in the global financial scenario, research on Islamic structured product has captured substantial interests among the investment community searching for new alternatives, particularly during uncertain market conditions. This study aims to serve as one of the pioneering empirical references for investors to evaluate Islamic structured investments, and for the regulators to strengthen the regulatory framework for such products in order to continuously protect investors' interests and provide a conducive environment for further growth of the Islamic finance industry.

Keywords: Islamic finance, structured products, investment-linked, financial crisis

JEL Classifications: E44, E52, G21, G32

1. Introduction

Structured products have been getting fast attention from both retail and institutional investors as one of the investment alternatives in the Malaysian capital market. Apart from its key feature of “principal guarantee” upon maturity, structured products are well sought-after for its flexibility as these are tailor-made products with its investment performance linked to specific underlying assets such as security, index, currency, commodity or a combination of any of these, based on the risk and return profile of the investors.

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With this development, it is not surprising to witness the emergence of Shariah-compliant structured products in the Malaysian capital market, with the Islamic financial institutions such as banks and mutual fund managers taking the opportunity to meet the demand from Shariah-compliant investors by offering structured investments products through the issuance of structured deposits and structured unit trust funds. Interestingly, Takaful (Islamic insurance) operators have also been taking similar initiatives to attract retail and institutional contributors by offering structured investment-linked plans that comply with the Shariah requirements. Prior to the 2007/2008 global financial crisis, several of these products have received impressive take-up by the Takaful participants. Given the complexity of structured products and economic vulnerability of the global financial market post-crisis, this paper aims to explore the ability of the Shariah-compliant structured products in offering better investment returns as compared to the generic type of investments.

In view of the relatively recent nature of Islamic structured products and the role of Malaysia as the leader in Islamic finance industry, this research intends to increase the awareness on Islamic structured products and describe the evolution of these products in Malaysia. It provides an assessment of the impact of the global financial crisis in 2007/2008 on a specific segment of the Islamic financial market, that is by examining the performance of Shariah-compliant structured investment-linked plans offered by Takaful operators in Malaysia during the crisis. This research aims to serve as one of the pioneering empirical references for investors to evaluate the Islamic structured investments, and for the regulators to strengthen the regulatory framework for such products in order to continuously protect investors' interests and provide a conducive environment for further growth of the Islamic finance industry.

The following section provides a brief discussion on the nature and basics mechanisms of structured products including the risks associated with the products. Section 3 discusses the evolution of the Islamic structured product with a specific focus on Shariah-compliant structured investment-linked plans offered by Takaful operators in Malaysia. The performance analysis, which includes data and methodology employed, together with a discussion on the findings is presented in section 4.

Section 5 concludes the paper by highlighting the major findings of the study and provides suggestions for future research.

2. Structured Investment Products

2.1 What Are Structured Products?

Structured products were initially introduced in Malaysia in 2007 in the form of structured deposits offered by the local and foreign banks. With ample liquidity in the financial system, low and stable interest rate environment together with developing derivatives market, structured deposits become one of the most innovative banking products to offset the return from the low-interest rate environment. In view of the perceived high-risk nature in the use of derivatives for structured products, regulatory bodies have been vigilant in regulating investments associated with structured products. Prior to the issuance of specific guidelines on structured products, there are several guidelines issued by the central bank of Malaysia, Bank Negara Malaysia (BNM), in regulating the use of derivatives to structure an investment product³.

Accordingly, in December 2003, the Securities Commission of Malaysia (SC), the authority that is responsible for regulating the Malaysian capital market issued the *Guidelines on the Offering of Structured Products*⁴ which stipulate criteria that must be met with regard to any issuance, offer for subscription, or makes an invitation to subscribe structured products. By definition, the SC defines structured product as any investment product that falls within the definition of securities under the SC Act 1993 which provides the holder with an economic, legal or other interest in another asset (the underlying asset⁵) and derives its value by referring to the price or value of the underlying asset.

³ The relevant guidelines include 'Investment Linked to Interest Rate Derivatives – Sept 2002', 'Guidelines on New Product Approval Requirements – March 2003' and 'Investment Linked to Derivatives – May 2003'

⁴ Revised edition dated 27 April 2007

⁵ Underlying asset means any security, index, currency or other combination of such assets (Securities Commission, 2007, Guidelines on the Offering of Structured Products – Revised Edition)

By the same definition, BNM together with the Association of Banks in Malaysia (ABM) highlighted two main features of structured investments⁶ being:

- i) a fixed term investments which may be held to maturity depending on the features of the products. Redemption before maturity may result in investors losing part of the returns and/or principal;
- ii) can either be a principal protected or non-principal protected structured investment. The risks involved in non-principal structured investments are much greater than principal protected structured investments as there is no guarantee on the amount of money the investors will receive even if it is held to maturity.

ISRA (2011) on the other hand defines structured product as below⁷:-

“Structured products are investment instruments specially created to meet specific needs that cannot be met from the standardised financial instruments available in the markets. Structured products can be used as an alternative to a direct investment; as part of the asset allocation process to reduce risk exposure of a portfolio; or to utilise the current market trend.”

Due to their complexity, structured products used to be available only to institutional and high net-worth investors. However, as investors become more sophisticated and well-informed on various investment options, risk profiles have increased, hence basic asset classes of the money market, equities and bonds are no longer adequate to meet the ever growing needs and return expectations of these investors. Together with the regulatory liberalisation in Malaysia, structured products are now accessible to the general investors via several structured investments such as structured deposits, structured unit trust funds and even structured investment-linked insurance plans.

⁶ As highlighted in Structured Investment Info Guide – First edition. 1 February 2007. <http://www.bankinginfo.com.my>

⁷ International Shariah Research Academy for Islamic Finance (2011) *Islamic Financial System – Principles and Operations*, pp. 610

In terms of returns to investors, it is important to note that the returns on structured products vary, usually are not guaranteed, and highly dependent upon the performance of the underlying assets during the investment period (BNM and ABM, 2007). The stipulated coupon will only be paid if certain conditions are satisfied and/or maintained over the life of the investment. To a certain extent, losses may incur should the performance of the underlying assets differ from the initial expectation or if investment is withdrawn before maturity.

In Malaysia, some of the common structures offered are the interest rate-linked notes and equity-linked notes where the underlying or reference assets are the interest rates and listed equity, respectively. The performances of these interest rate-linked and equity-linked structured products are thus dependent on the performance of the respective underlying assets. Other structures available as outlined by the SC include the bond-linked notes, index-linked notes, currency-linked notes, commodity (contracts) linked notes and credit-linked notes.

2.2 How Do Structured Products Work?

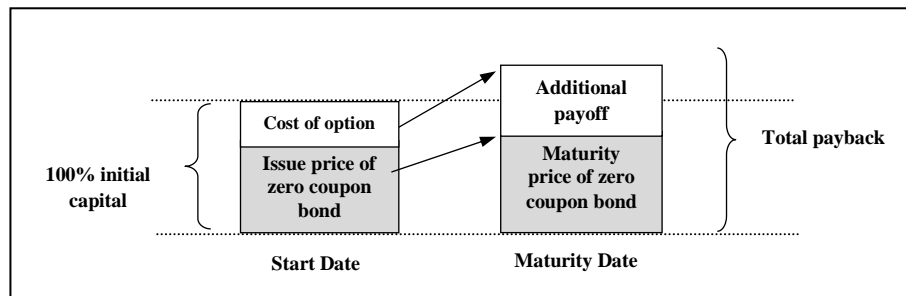
The most appealing feature of a structured product is its flexibility and tailored investment approach (BNP Paribas, 2010). For example, structured product is able to offer investors full or partial capital protection coupled with an index linked performance for yield enhancement. Understanding how this is made possible with the use of derivatives particularly options is essential in order to comprehend the mechanism and risks embedded in the investment.

According to BNP Paribas (2010), structured product is normally comprised of two parts:

- (a) a **fixed income security**, typically a zero coupon bond, which protects part or all of the invested principal at maturity;
- (b) an **option-like instrument**, which provides a payoff in addition to the fixed income payments. This additional payoff is linked to the performance of an underlying asset, given specific conditions, and takes the form of either regular coupons or a one-off gain at maturity.

Hence, upon maturity, the zero coupon bond will be redeemed at par and provides investor with the capital protection or some may refer to as “principal guarantee”, whereas the option, which offers investors’ participation into the underlying asset, an index for example, pays out the performance should it meets all the specific condition outlined earlier in the structure (Figure 1).

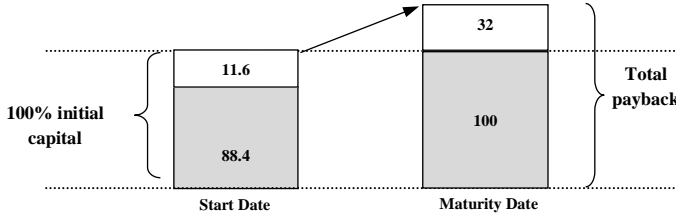
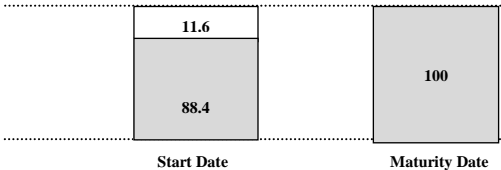
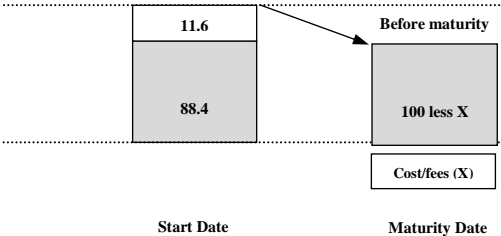
Figure 1: Mechanisms of Structured Product



With reference made to BNP Paribas (2010) and BNM and ABM (2007) on the modus operandi of the structured products, Table 1 below illustrates the structure of an index linked notes. Typically, this technique is applicable to all structured products with the difference mainly on the type of underlying assets selected.

Table 1: Illustration of Index-Linked Notes

A 5-year capital protected structured product with index linked performance exposure	
Initial investment	RM100,000
Underlying asset	FBM Kuala Lumpur Composite Index (FBMKLCI)
Structure	<p>The RM100,000 initial investment is taken as 100 in percentage form by the structure provider, with full amount to be paid to investor upon maturity.</p> <p>Assuming a five-year Malaysian Government Securities (MGS) yields 2.5% p.a., hence a five-year zero coupon bond is worth 88.4, i.e. 100 in five years is worth 88.4 now. This leaves the structure provider with 11.6 (100 – 88.4) to purchase an option on the FBKMLCI and pay for administration costs and commission.</p>

	<p>Suppose a five-year FBMKLCI option costs 12, and adding 2 for administration and management fee costs, the investor will benefit from an 80% [i.e. $(11.6 - 2) / 12$] participation in the FBMKLCI upside, while having 100% protection on capital at maturity.</p>
<p>Payback upon maturity</p>	<p><u>Optimistic Scenario</u></p> <p>If FBMKLCI goes up by 40% over the 5-year investment period, the investor will obtain a return of 32% of the initial investment (80% x 40%) on top of the capital.</p>  <p><u>Pessimistic Scenario</u></p> <p>If FBMKLCI is down by 30% after 5 years, the investor will receive only the initial capital at maturity.</p> 
<p>Early redemption</p>	<p>Withdrawal or cancellation of investment prior to maturity will result in investors receiving less than the initial capital due to the cost or fees payable to the structure provider.</p> 

Source: BNP Paribas (2010) and BNM and ABM (2007).

2.3 Risks Associated with Structured Products

According to Hasan (2010), structured products have no resemblance to any particular asset class or any standardised financial instruments, where some investment managers believe that it provides return profiles that are distinct from another form of investments. In other words, structured products can be designed for risk averse investors with the capital protection element, but at the same time, aiming at investing in risky assets which are normally intended for risk taker investors. Accordingly, a number of risk factors are associated with structured products that should be fully comprehended by investors as explained in Table 2 below.

Table 2: Risk Factors Associated with Structured Products

Risk factors	Details
Coupon income risk	The risk of obtaining lower return or even zero, as compared to the returns generated from traditional deposits or fixed income securities with similar credit quality and maturity, should the underlying asset do not meet the predetermined conditions during the life of the investment.
Credit risk	The risk of losing part or the entire investment capital as the capital protection feature is dependent upon the credit quality of the issuer, which is normally evaluated and rated by local and international rating agencies. As credit ratings reflect the independent opinion of the rating agencies, it is not a guarantee of credit quality. In the case of default, an investor may lose all or part of the principal as well as any accrued interest.
Liquidity risk	Early redemption may deter the whole structure of the structured product which may cause the resale price to be lower than the purchase price. Even though secondary market exists for the underlying assets and instruments used to ensure capital protection upon maturity, there is no guarantee that there exist a wholesale market where these instruments can be traded easily.
Call risk	As most structure may be called by the issuers prior to its maturity, investors may face reinvestment risk or risk of losing higher interest deposits or investments.
Exchange rate risk	Value of investments denominated in foreign currencies is subject to fluctuation in the currency market

Source: Maybank Investment Guide – Structured Products

In view of such risks, the structured investment brochure produced jointly by BNM and ABM in 2007 have meticulously listed down a checklist to be considered by the investors in order to ensure that they are well informed before making any commitments on structured investments.

3. Islamic Structured Products

With the innovation of structured products that are well accepted by the Malaysian investors, there exist growing needs for Islamic structured products among the investors that are shariah-observant as well as for those investors who would like to diversify their portfolios. While having basically similar mechanisms as the conventional structured products, the Islamic structured products use only the permissible Shariah compliant contracts.

3.1 Shariah Contracts Used in Islamic Structured Products

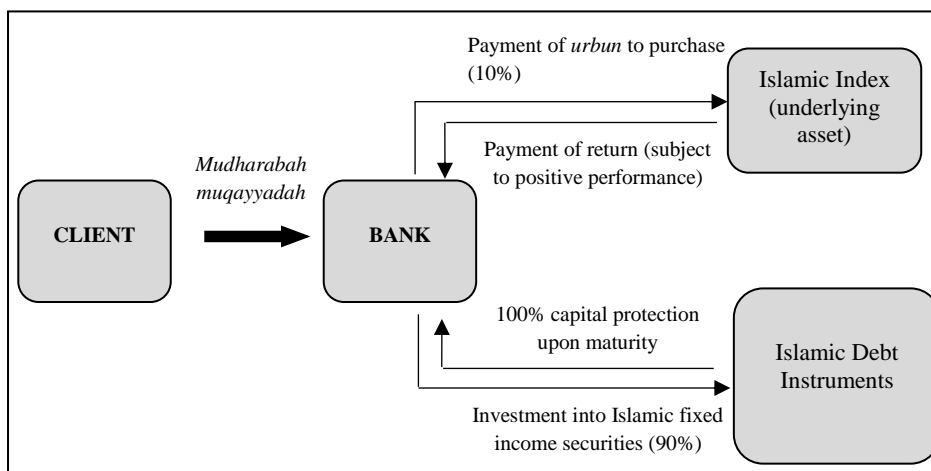
With reference to the relevant guidelines issued by the regulators, Shariah advisors together with industry practitioners have held comprehensive discussions in the effort to endorse structured products that are strictly compliant to the Shariah principles. Hence, countless conferences and workshops have been conducted in order to educate the public and address the issues in relation to the Islamic structured products.

Hasan (2010) highlighted that the most important element in designing the Islamic structured products lies on the nature of the contract. As with any Islamic finance products, Islamic structured products must adhere to the fundamental guidelines in Islamic finance such as free from *ribawi* elements, no *gharar* or gambling features, and must be fair and just to the parties of the contracts. There is also the need for continuous *ijtihad* in determining the nature and scope of the contracts.

Accordingly, the Shariah contracts to be utilised can be in the form of sale-based contract (like *murabaha* or *tawarruq*), participatory contract (like *mudaraba* and *musharaka*) or agency appointment for investment purpose (*al-wakalah bi al-istithmar*). As the use of option to provide exposure to the underlying assets is not possible in forming the Islamic structured product, the Islamic solution in the form of promise (*al-waad*)

and *urbun* (earnest money) have been widely used⁸. Figure 2 below illustrates one of the most common structure used under the Islamic structured product in Malaysia.

Figure 2: Islamic Index Restricted *Mudharabah* (*Mudharabah Muqayyadah*) Structured Investment-i



Source: Securities Industry Development Corporation (SIDC), the training and development arm of Securities Commission Malaysia.

3.2 Islamic Structured Products in the Market

As with the conventional structured product, the Islamic structured products were initially in the form of structured deposits, with prominent products such as Maybank Structured Islamic Deposit (Stride-i), CIMB Islamic All-Stars Global Restricted Mudharabah Structured Investment-i, Bank Islam *An-najah* NID-i and many more.

In addition, it is also observed that a number of new launches of Shariah-compliant structured unit trust funds and investment-linked plans have taken place in the Malaysian capital market, especially before

⁸ For a comprehensive discussion on structuring Islamic structured products, please refer to Hasan, A., (2010). *Islamic Structured Products: Issues and Challenges*. Chapter 11 of *Current Issues in Islamic Banking and Finance, Resilience and Stability in the Present System*. World Scientific Publishing Co. Pte. Ltd, Singapore, pp. 189-228

the global financial market was stunned by the derailing impacts from the US subprime crisis in 2007/2008. As shown in Table 3 below, structured products in the form of Shariah-compliant unit trust funds and investment-linked plans with different kind of structures and underlying assets have managed to garner impressive take-up from the investors with the closing fund size of not less than RM100 million in 2007.

3.3 Shariah-Compliant Structured Investment-Linked Plans

With regard to the investment-linked Takaful plans, the year 2007 had witnessed the Takaful operators' commitment to remain competitive and stay abreast with the rapid development of the Islamic finance industry by introducing new Takaful products that would match the current market demand and appetite of the investors. Amidst the US financial market turmoil leading to the 2007/2008 global financial crisis, it was also observed that the Malaysian investors had found comfort in capital protected investments. As such, the Takaful operators have introduced investment-linked plans that combine both protection and investment tailored to provide the element of structured products offering the opportunity of capital protection upon maturity and yield enhancement based on the performance of the specific underlying assets.

Typically, a Shariah-compliant investment-linked plan is a single contribution plan⁹ with fixed term of maturity. In order to incorporate the structured product features into the investment-linked plan, Takaful operators collaborate with a structure provider, normally a banking institution. The inclusion of the structured product element will then allow the Takaful operators to offer protection on the initial investment capital plus some potential returns subject to the performance of the underlying assets. This arrangement is similar to the illustration in Figure 2 and can be in the form of any Shariah contracts as specified earlier.

Other features of the investment-linked fund as guided by the “*JPI/GPI 33 – The Guidelines on Investment-linked Business*” issued by BNM

⁹Single-contribution plan is a one lump-sum contribution (payment) for Takaful products, as oppose to regular-contribution plan which can be either monthly, quarterly, semi-annually or annually. For further details, please refer to http://www.insuranceinfo.com.my/choose_your_cover/secure_your_future/investmentlinked_insurance.php?intPrefLangID=1

detailing out the Takaful coverage plan, the breakdown of contribution, fees applicable, penalties imposed for early redemption and other related matters must still be adhered to by the Takaful operators in offering the structured investment-linked plans. As shown in Table 3, there are two Shariah-compliant structured investment-linked plans offered to the general public namely the Takaful Global Giant by CIMB Aviva Takaful Berhad and HLTM Takaful Capital Protection Investment-linked by Hong Leong MSIG Takaful Berhad, being the first few Shariah-compliant investment-linked plans offered in Malaysia.

4. Performance of Shariah-Compliant Structured Investment Linked Plans

Previous studies examining the performance of investment-linked plans appear to be very scarce. Apart from the recent nature of the industry, an intuitive explanation to this is that investment-linked plans are regarded to be more of an insurance (coverage) plan, rather than an investment instrument plan. As such, the investment performance is treated only as a side income where the policy holders or participants (for Takaful) are expected to benefit more from the insurance/takaful coverage, i.e. death benefit, disability and critical illness. Notwithstanding that, a study undertaken by Noor (2009) provides some preliminary background on the available Shariah-compliant investment-linked offered by Takaful operators in Malaysia but is more focused on the use of the contracts from the Shariah perspective.

In the context of performance analysis, it is important to highlight that the investment-linked plan is linked to the unit price of an investment fund, hence the total value of the plan fluctuates with the movements in the unit price. For the purpose of evaluating the performance of Shariah-compliant structured investment-linked plan, it is essential to understand that the total value of the plan is also based on the investment fund which consists of the value of the fixed income instrument plus the performance of the underlying assets. Similar to the unit trusts funds, the prices of the investment-linked plans are also published daily in the newspaper for monitoring purposes.

Given that the valuation of the investment-linked plans resembles that of the unit trust funds, standard performance analysis can be undertaken by

referring to the methodology normally used to assess the performance of unit trust funds. Based on the seminal work of McDonald (1974) who utilises the pioneered methods of the Treynor Index, Sharpe Ratio and Jensen Alpha in measuring portfolio performance of United States of America's mutual funds, the use of these methods have grown extensively. By means of adjusting the return to the appropriate risks, these measures have been widely used as it could rank the portfolios on the basis of realized performance, as well as taking into account the selectivity and timing abilities of the fund managers. In addition, a newer method of risk-adjusted performance measuring in percentage terms was later introduced by Modigliani and Modigliani in 1997.

Similar approaches have also been undertaken for examining the unit trusts performance in Malaysia. A number of issues were addressed with regards to risk-return performance (see for example, Shamsher and Annuar, 1995; Shamsher, Annuar and Taufiq, 2000), selection and market timing (Annuar, Shamsher and Ngu, 1997), performance of Islamic and conventional funds across different economic conditions (Fikriyah, Taufiq and Shamsher, 2007; Onur, Ed and Ajay, 2007) and many more. With that, it is of interest to evaluate the performance of the Shariah-compliant structured investment-linked plans by referring to the appropriate measure previously used to measure the performance of unit trust funds.

4.1 Data and Methodology

With regards to the performance analysis of the Shariah-compliant structured products, this study provides a new perspective on the performance of Shariah-compliant structured investment-linked plans by means of a case study. A 3-year and 5-year Shariah-compliant structured investment-linked plans in Malaysia offered by Hong Leong MSIG Takaful Berhad¹⁰ and CIMB Aviva Takaful Berhad¹¹ respectively are selected for the case study. The 3-year plan, HLTM Takaful Capital Protection Investment-linked (CPIL) which was launched on October 2007 garnered RM100 million at the closing and put forward the expected

¹⁰ Previously known as Hong Leong Tokio Marine Berhad.

¹¹ Previously known as Commerce Takaful Berhad.

return of 15% per annum based on the back-testing¹² of the underlying assets. On the other hand, the 5-year Takaful Global Giant (TGG) was launched in June 2007 with the closing fund size of RM500 million. Monthly data from October 2007 to October 2010 for the CPIL are used, while for the TGG, the data cover from July 2007 to December 2011¹³.

The return on the FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBMVKLCI) serves as a market benchmark, while the risk free rate is proxied by the three month BNM Treasury bills. In consideration of the changes in the Malaysian economic conditions as a result from the recent global financial crisis sparked in 2007, the data is divided into two periods in order to assess the impact of the crisis to the performance of the selected investment plans. The two periods are during the crisis (2007-2008) and post crisis of (2009-2010) and (2009-2011) for CPIL and TGG, respectively.

4.1.1 Measurement of performance

It is important to note that the selected plans will be evaluated individually in view of the different investment period. Essentially, these plans will be assessed whether they are able to provide the yield enhancement as compared to the traditional capital protected investment instruments such as fixed deposits or fixed income securities with similar term of maturity. The vulnerability of the plans will also be examined in view that the investment period encompasses the trying times of the 2007/2008 global financial crisis.

In this study, the risk-adjusted performance measure introduced by Modigliani and Modigliani in 1997 (hereafter referred to as M squared) is the most suitable methodology to measure the risk-adjusted performance of the respective CPIL and TGG. The advantage of M-squared over the standard techniques of Treynor, Sharpe and Jensen is that it reports the risk-adjusted performance of a fund as a percentage, which is easier for the lay investors to comprehend and to compare

¹² Back-testing is the process of evaluating a strategy, theory, or model by applying it to historical data (<http://en.wikipedia.org/wiki/Backtesting>) accessed on 14 April 2012

¹³ The maturity date for TGG is on 26 July 2012. The analysis on TGG will be since its inception month of July 2007 up to December 2011.

against the return of other investment assets. The formula for calculating the M squared is as follows:-

$$\text{M squared} = \frac{R_i - R_f}{\sigma_i} * \sigma_m + R_f$$

where R_i , mean return on fund i ; R_f , mean risk-free rate of return (3-month BNM treasury bills); σ_i , standard deviation of returns for fund I ; and σ_m , standard deviation of returns for the market as represented by FBMKCLI.

Table 3: Shariah-Compliant Structured Capital Protected Funds Launched in 2007

No	Name of Fund	Fund Type*	Fund Owner	Structured Provider**	Fund Structure	Fund Tenor (Years)	Fund Size (RMm)	Expected Return [#]	Inception Date
1	Islamic All-Stars Global Restricted Mudharabah Structured Investment-i	UT	CIMB	CIMB	Restricted Mudharabah with the returns being referenced to Islamic Global Giants Structured Product issued by CIMB	5	300	Year 1: 8.00% p.a. Year 2: 8.50% p.a. Year 3: 9.00% p.a. Year 4: 9.50% p.a. Year 5: 10.00% p.a.	24 Jan 2007
2	ING Baraka Capital Protected I	UT	ING Funds Berhad	SGAM	Urbun concept with exposure into SGAM Al Baraka Index	3	516	19.18% p.a.	9 May 2007
3	Takaful Global Giant	ILP	CIMB Aviva Takaful Berhad	CIMB	Restricted Mudharabah with the returns referenced to the 5-year Islamic Global Giants Structured Product*** issued by CIMB	5	500	Year 1: 6.00% p.a. Subsequent years of up to 7.50% p.a.	27 July 2007
4	ING Baraka Capital Protected II	UT	ING Funds Berhad	SGAM	Urbun concept with exposure into SGAM Al Baraka Index	3	600	19.55% p.a.	30 July 2007

Table 3: Shariah-Compliant Structured Capital Protected Funds Launched in 2007

No	Name of Fund	Fund Type*	Fund Owner	Structured Provider**	Fund Structure	Fund Tenor (Years)	Fund Size (RMm)	Expected Return [#]	Inception Date
5	HLTM Takaful Capital Protection Investment-linked (CPIL)	ILP	Hong Leong MSIG Takaful Berhad	Citibank	Murabahah and Wa'ad concept with exposure into European and Japanese real estate investment trusts (REITs)	3	100	15% p.a.	19 Oct 2007
6	Prudential Shariah FX Fund	UT	Prudential	Prudential	Urbun concept with exposure into Shariah-compliant stocks which are linked to a set of foreign currencies	3	300	21% over 3 years or 7% p.a.	15 Aug 2007
7	ING Baraka Commodities Capital Protected	UT	ING Funds Berhad	SGAM	Urbun concept with exposure into 30 stocks from basic materials and oil & gas sectors	3	300	88.9% over 3 years or 29.3% p.a.	02 Oct 2007

Notes:

*UT = Unit Trust; ILP = Investment-linked Product. ** SGAM = Societe Generale Asset Management – now known as Amundi; CIMB = CIMB Islamic Bank Berhad; Prudential = Prudential Fund Management Berhad. *** Consists of selection of Shariah-compliant stocks from the emerging and global stock markets. [#] All expected returns are based on back testing with a specified range of period. Past performance is not indicative of future performance.

Sources: Respective product brochures, performance reports, newspapers and websites

4.2 Results and Discussion

The average return for the selected plans, risk-free asset and market proxy together with the related standard deviation are presented in Table 4 below with Panel A refers to TGG and Panel B for CPIL. For the whole investment period under review, both TGG and CPIL managed to record positive monthly average returns of 0.0549 percent and 0.0891 percent, respectively. While the average returns turned negative during the crisis, the turnaround of positive return post crisis may be due to the improvements of the underlying assets performance for both plans. The risk of the TGG is also observed to fluctuate during the crisis with higher standard deviation of 4.1801 recorded as compared to other periods. This is similar to the risk of the market proxy being the FBMKLCI as it recorded the highest standard deviation during the period of crisis. However, this is not the case for CPIL as very less movement is recorded for the price throughout the crisis period. Hence, the risk of the fund appeared to be stable throughout its investment period.

Based on this information, M-squared is computed to assess on the risk-adjusted performance for TGG and CPIL. Both TGG and CPIL recorded negative risk-adjusted performance of 0.1148 percent and 0.4693 percent, respectively for the whole investment period, while positive performance was only achieved post the global financial crisis. Given that these plans are a fixed term to maturity plans, not only the negative performances indicate the inferiority of the plans against the market, it also shows that the expected yield enhancement from the structured products element did not materialize. An intuitive explanation is that the 2007/2008 global financial crisis may have eroded the values of the underlying assets for these plans given that the negative performance was largely recorded during the crisis. Nevertheless, the positive performance in the post-crisis period reflects that the funds are quick to recover to register positive performance despite the prolonged market downturn and uncertainties in the global financial crisis.

A similar result is also obtained by assessing the non-risk-adjusted return for both plans. For example, the CPIL matured at the price of RM1.03092 on 18 October 2010, generated a return on investment of 3.092 per cent over the three year investment period as compared to its initial price of RM1.00. As for the

TGG, the price was recorded at RM1.0145 on December 2011, indicating a return of 1.45 percent since its inception. These returns are much smaller than the yearly average return of the low-risk traditional deposits¹⁴ that commonly yield 3.46 per cent and 3.346 per cent over the respective investment periods for CPIL and TGG.

With very limited yield enhancement generated for the 3-year CPIL, the participants of the plan have benefited only from the Takaful coverage and their initial investment capital at maturity. The TGG which is maturing in July 2012, have also shown relatively poor performance as compared to the market and traditional deposits for the investment period under review. As such, despite the flexibility and tailor-made features of the structured products embedded into the Shariah-compliant structured investment-linked plans, they are not excluded from the negative impacts arising from the recent global financial crisis.

Table 4: Summary of Average Return, Risk and M-Squared Risk-Adjusted Return

Panel A: TGG						
	Average Return			M squared		
	All	During	Post	All	During	Post
R_i	0.0549	-0.2327	0.1908	-0.1148	-0.3955	0.1181
R_f	0.2304	0.2847	0.2048			
$R_i - R_f$	-0.1755	-0.5174	-0.0140			
σ_i	2.3770	4.1801	0.5897			
σ_m	4.6765	5.4956	3.6522			
Panel B: CPIL						
	Average Return			M squared		
	All	During	Post	All	During	Post
R_i	0.0891	-0.2961	0.3342	-0.4693	-2.8777	0.7541
R_f	0.2223	0.2831	0.1837			
$R_i - R_f$	-0.1333	-0.5792	0.1505			
σ_i	0.9617	0.9228	0.9232			
σ_m	4.9915	5.0362	3.4989			

Notes: 'All' refers to the whole investment period under review, while 'During' and 'Post' refer to during crisis (2007-2008) and post crisis (2009-2010) and (2009-2011), respectively for CPIL and TGG.

¹⁴ Refer to the 12-month fixed deposits rate offered by the investment bank as compiled by Bank Negara Malaysia.

5. Conclusion

This paper aims to assess the impact of the recent financial crisis in a new perspective, by examining the performance of Shariah-compliant structured investment-linked plans offered by the Takaful operators in Malaysia. With the growing interests on the structured products by the investors, financial institutions in Malaysia have been aggressive in offering both conventional and Islamic structured products in the various forms of investments such as structured deposits, structured unit trusts funds and structured investment-linked plans. In order to assist the understanding of this newly innovative investment instrument in Malaysia, the foundation of structured products, the evolution of the Islamic structured products together with the modus operandi are highlighted in this study.

By means of case study on the first two Shariah-compliant structured investment-linked plans offered by Takaful operators in Malaysia, this paper discovers that the risk-adjusted returns calculated by using Modigliani and Modigliani (1997) are inferior to the return from the market. In addition to that, the calculated non risk-adjusted returns also indicate inferior performance of these plans as compared to the return from the traditional deposits during similar investment period for the respective plans. Hence, the flexibility and tailor-made features of structured products embedded into the Shariah-compliant structured investment-linked plans was not able to withstand the negative impacts arising from the 2007/2008 global financial crisis.

This study is an initial effort to evaluate the performance of structured products by assessing the Shariah-compliant structured investment-linked plans in Malaysia during the recent global financial crisis. It is hoped that this study could serve as a reference for investors on evaluating the structured products. In addition, more educational programs on the risks associated with investment into structured products is hoped to be conducted by the regulators and industrial practitioners in order to continuously protect the investors' interests. With more Shariah-compliant structured investment-linked plans being offered after 2007, this research could be extended to include these new plans to strengthen the deductions on the performance of structured products in Malaysia. The evaluation on the performance of other types of structured investment products may also be an interesting area of research in the future.

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