Journal of Islamic Finance, Vol. 3 No. 2 (2014) 039 – 048.
IIUM Institute of Islamic Banking and Finance
ISSN 2289-2117 (O) / 2289-2109 (P)

Derivatives, Pricing Efficiency and Gharar: Evidence on Embedded Options in Malaysia

Razali Haron[a]

[a]*Department of Finance and Graduate School of Management, International Islamic University Malaysia*

Abstract

Derivatives, despites their extensive usage as risk management tools, receive differing arguments among the Muslim scholars. Focusing on embedded option contracts, the resolution of Islamic Fiqh Academy, Jeddah No (63/1/7) under the financial markets considers the currently applied option contracts as different from the *Shariah* nominated contracts and being neither a sum of money nor a utility or a financial right which may be waived, makes it forbidden in *Shariah*. Most Islamic scholars accuse option contracts of containing *gharar* and are transacted for speculative gains thus, prohibited in *fiqh muamalat*. Therefore, this study intends to investigate the accusation of the *gharar* elements in the option contracts. The Black Scholes Option Pricing Model (BSOPM) is used to examine the pricing of 183 outstanding embedded options (equity warrants) from January 2006 to December 2012. Cases of mispricing were detected in reference with their theoretical values indicating inefficiency in the Malaysian market and speculative activities taken place which are prohibited in Islam. Speculation contains *gharar* (uncertainty) and leads to *maysir* (gambling) and may result in wealth accumulation at the expense of other parties' *jahl* (ignorance). Violating the concept of *adl* (justice), not serving the concept of *maslahah* (public interest) and not complying with the *Maqasid al Shariah* make speculation forbidden. The existence of *gharar* is empirically and statistically evidenced in the speculation activities indicated by the excessive mispricing detected in this study. This study contributes significantly in the literature by providing empirical evidence which is very much lacking in the study of options in Islamic Finance.

Keywords: Equity warrants, Black Scholes Option Pricing Model, Gharar, Maqasid alShariah

1. Introduction

The presence of risk is inevitable in the business world. Two types of risks are recognizable which are business risk and financial risk. When talking about financial risk we are actually dealing with the uncertainty of interest rates, exchange rates, stock prices, and commodity prices. The tools needed in dealing with financial risks are called derivatives. Derivatives, financial instruments whose returns are derived from those of other financial instruments, act as a mean to transfer any undesired risk to other parties who, for a price, are willing to assume that risk. Some risk management products developed in Malaysia are futures, forward, options and swap. One most active and popular derivatives under options is equity warrants. Equity warrants are exchanged traded derivatives of a share, an option which "gives the holder the rights to subscribe for a given number of ordinary shares with the conversion ratio of 1 to 1 in the company at a predetermined exercise price within a specified time period" (Haron, 2006 pp.7). Equity warrants essentially are an embedded option, where it has features like an option. So, equity warrants can be put into the family of call option.

Derivatives are financial asset dependent on the value of its underlying asset. Being so, from the Islamic perspective, the sale of the underlying asset must adhere to the *Shariah* principles for it to be permissible. The underlying assets must not involve in prohibited core activities like *riba* (interest) based financial services, *maisir* (gambling) and gaming, manufacturing or selling of non-*halal* products or related products, any activities containing an element of *gharar* (uncertainty) like conventional insurance, entertainment activities which are non-permissible according to *Shariah,* manufacturing or selling of

tobacco-based products or related products, stockbroking or share trading in non-*Shariah* compliant securities and other activities that are not in harmony with the *Shariah* principles (Securities Commission of Malaysia). Not just that they must be *Shariah* compliance, the underlying assets must currently exist in their physical, sellable form and the seller should have legal ownership of the asset in its final form (Obaidullah, 1999).

Nevertheless, regardless of its prominent emergence in the market, derivatives, in this case, the use of options, receive disputing arguments from the Islamic scholars worldwide. The *fiqh al-muamalat*(Islamic jurisprudence) asserts that financial contracts must satisfy a number of requirements, which are lacking in the use and trading of conventional derivatives. Literature witnesses several prominent views by the scholars in evaluating the permissibility of this financial instrument. The validity of options is evaluated under the concept of *al-khiyar* (options) and also by drawing parallel between options and *bai-al-urbun* (deposit).

On the other hand, options are accused of having the element of *gharar* (uncertainty) and are transacted for speculative gains (Obaidullah, 2002) thus is not favourable to certain scholars. The Jeddah Fiqh Academy in its Seventh Session in Jeddah, Saudi Arabia in 1992 has ruled in the Resolution No: 63/1/7, that "Options contract as currently applied in the world financial market are a new type of contracts which do not come under any of the Shariah nominated contracts. Since the object of the contract is neither a sum of money nor a utility or a financial right which may be waived, then the contract is not permissible in Shariah. As these contracts are primarily prohibited, their handling is also prohibited". In addition to the resolution, Abu Sulayman (1992) of the Jeddah Fiqh Academy views options as being totally detached from the underlying asset, therefore unacceptable.

Therefore, in the light of the above contrasting arguments and opinions, this study aims to investigate the non-permissibility of embedded options on the basis of *gharar* and that embedded options are transacted for speculative gains (Obaidullah, 2002). This study will examine the existence of *gharar* element in equity warrants pricing especially in the case of mispricing through the informational efficient market perspective. The Black Scholes Option Pricing Model (BSOPM), a robust set of methods, is used to analyze the pricing efficiency of warrants market and to detect any mispricing in warrants contracts in Malaysia. Then the mispricing detected will be analyzed with regards to the issue of *gharar* in order to determine the status of embedded options from the *Shariah* perspective. This investigation allows this study to contribute significantly to the body of knowledge by providing empirical evidence in addressing the issue of permissibility of option contract from the *Shariah* perspective pertaining to the existence of *gharar* element in the contract.

The rest of this study is organized as follows. Next is the literature review covering past studies on embedded options mispricing and the status of options from the Islamic perspective. Later follows by the methodology of BSOPM employed in determining the existence of mispricing in embedded options. The fourth section discusses and analyses the finding in relation to the issue of *gharar* and the final section concludes the whole study.

2. Literature Review

2.1 Warrants (Options) Mispricing

Warrants essentially are an embedded option, where it has features like an option. So, equity warrants can be put into the family of call options. Call option as it is being defined, is the right (not obligation) to buy the underlying asset at a predetermined price before maturity. However, there are some criteria that make options and warrants differ in nature. In the event of exercising the warrants, the issuing company satisfies the exercise by delivering new shares to the warrants holder. As the consequence, the number of shares outstanding in the company increased even though concurrently the assets, cash flows and other operating fundamentals remain fixed. As such, this event reduces the value of share price, which leads to ownership dilution. This is the main difference between warrants and options, even though warrants belong to the family of call options, the exercising of options never bring to the changes of number of shares outstanding and stock prices, thus there is no dilution effect. For the maturity period, warrants have longer maturity than options. Normally, warrants maturity in Malaysia varies from 5 to 10 years while options have maturity of less than a year.

When the actual market prices are similar or are only slightly different from the theoretical prices they are considered as fairly and efficiently priced. Macbeth and Merville (1979) test on the Black-Scholes on options and find that the Black-Scholes model under-prices the in-the-money options and over prices the out-of the-money options. Kuwahara and Marsh (1992) follow a similar pattern when they report discrepancies between the Black-Scholes model value of Japanese equity warrants and the observed market price, where the in-the-money option being under-priced. Chung *et al*. (2014) investigate the efficiency of warrants prices based on the Taiwan warrants market. They support Fama (1970) holding statement that arbitrageurs are the key factor to the efficiency of warrants market. An efficient market will cause an immediate and complete react to the valuable information. The existence of arbitrage opportunities means lack of efficiency in the market. Therefore, Chung *et al*. (2014) conclude that the warrants market price in Taiwan is inefficient since the exploitable arbitrage activities existed. In a perfect market, the option and the underlying must simultaneously reflect new information. Byoun and Park (2009) reveal that the information flow between the option market and the underlying stock market in Korea may not be efficient as there exist significant arbitrage activities in the market.

Most studies on warrants pricing documented mispricing in relation to the theoretical values computed using the BSPOM (Liu and Rangan, 2011). Nevertheless, Chan and Sy (1997) employ the BSOPM to price Malaysian warrants and found that the model produced quite accurate pricing compared to the actual market prices for 9 of the 12 warrants studied. Haron (2006), however, found pricing deviations in warrants pricing for the trading period of 100 days in 2014, thus concluded that there was pricing inefficiency in the Malaysian warrants market. Sukor and Obiyathulla (2010) also documented pricing inefficiency in the Malaysian market during January 1998 to December 2005, in line with Haron (2006). Chang *et al*. (2013) found that Chinese warrants are much over-priced compared with the theoretical price derived from the Black-Scholes. They also reported that warrant prices in the Chinese market are usually much higher than their theoretical values. This was especially so during the two-year bull market in 2006 and 2007.

2.2 Mixed Opinions on the Validity of Warrants (Options) from the Islamic Perspectives

2.2.1 Al-Khiyar

Warrants/options are acceptable when its validity is based on the concept of *al-khiyar*. Al-Zuhayli (2003) documented a number of *khiyar* that provide the contracting parties the choice to proceed and carry on with the contract or terminate it. The parties to the contract must be reasonably certain and informed about the values being exchanged, and the implications of the contract. Any uncertainty, or the absence of relevant information, termed as *ghara*r, should be carefully observed and avoided for a valid contract. *Al-khiyar* reduces *gharar* and makes it acceptable. Moreover, *al-khiyar* options have a 'reassessment' or 'cooling-off period' over which they can proceed or terminate the contract (Helliar and Alsahlawi, 2011). *Fiqh* literature documented several categories of *khiyar*. Among others are *khiyar al-shart* (stipulation condition*), khiyar al-ru'yah* (inspection), *khiyar al-'ayb* (discovery of a defect) and *khiyar al-ta'yin* (the selection option). *Khiyar al-shart* is acknowledged as the most suitable alternative to the conventional warrants/options as claimed by Kamali (1997), Obaidullah (1999) and Al-Amine (2008*). Khiyar al-shart* (option of stipulation) is an option within a certain period after the agreement made by both contracting parties during which either parties may decide to cancel it, implying that the contracting parties are given some time to evaluate the benefits of the contract. The argument in favor of the validity of *khiyar al-shart* is based on an authentic hadith.

A man (Hibban ibn Munqidh) complained to the Prophet (p.b.u.h.) that he was a victim of frequent cheating in sales. The prophet advised him, "When you conclude a sale, say, there must be no fraud" (Sahih al-Bukhari, 1422:3:65)

Corresponding to the above hadith, Al-Bayhaqi reported the following addition to it: *"Then you may reserve for yourself an option lasting for three nights. If you are pleased, keep it; and if you are displeased, return it" (Al-Bayhaqi, 1344:5:273)*

Kamali (1995) put forward a firm stand in favour of the option contract that granting an option, exercising it over a period of time or charging a fee for it bear nothing that are objectionable. It is permissible (*mubah*) and Kamali claims that it is simply an extension of the basic liberty that the Quran has granted.

However, in objection, Muhayyuddin (1986) argues that, the maturity of the option contract must not exceed three days as per *Khiyar-al-shart* (with the exception by Hambali Mazhab) and if it is beyond three days it is unacceptable. Ahmad Muhayyuddin also claims option contract of being oppressive and unjust since the buyer of an option will benefit more than the seller.

2.2.2 Bai-al-urbun

Another opinion on the validity of warrants/option is based on the *bai al-urbun* concept. "A *bai al-urbun* contract is a predetermined sale contract that involves a penalty for cancellation. A *bai al-urbun* can be used for hedging transactions, but not for speculation, and protects the cost against adverse future price movements but also allows the buyer to benefit from forward price movements" (Helliar and Alsahlawi, 2011, pp 122). Kamali (1997) describes *al-urbun* as anearnest money which the seller takes from the buyer with the understanding that it becomes part of the price in the event that the sale is ratified, but that it will belong to the seller in the event the buyer fails to ratify his initial agreement. In validating the *urbun*, Imam Ibn Hambal relied on the report of Nafi' ibn Harith (ra), *Caliph 'Umar's officer in Makkah, that states to the effect that he bought from Safwan Ibn Umayyah (RA) a prison house for the Caliph 'Umar (RA) for four thousand dirhams on the condition that if the caliph approved of it, the deal would be final; otherwise, he (Safwan) will be given four hundred dirhams (that is about ten percent of the actual price as compensation).*

In a sale of this kind, the buyer asks the seller to reserve the goods for him and agrees not to ask for the return of the deposit if he changes his mind. ElGari (1993) also argues in support of transactions in options by referring to the framework of *bai al-urbun*. Following Ibn Hanbal school of *Fiqh*, the argument supporting this type of sale is based on the *Athar* (practices of sahabah) which is reported in al-Bukhari from Ibn Sirin: *"A man told the operator of a caravan, I would like to join your passengers, but if I did not depart with you on a certain day, you would be entitled to a sum of one hundred dirhams. When he did not depart on the set date, he willingly agreed to comply with the condition."*

Contrastingly, Salehabadi and Aram (2002) when comparing an option with *bai-al urbun*, argue that option is different from *bai- al urbun* where an option premium is not a part of the selling price while *bai-al urbun* is a part of the selling price. The *urbun* (deposit) will be taken by the seller as compensation for terminating the sales agreement and this practice is prohibited by Rasulullah p.b.u.h. (Ibnu Majah Hadith). Moreover, all the schools of *fiqh* except the Hanbali School prohibit *bai-al urbun* (Obaidullah, 2002). TaqiUsmani (1996) states that an option contract when viewed as a promise is acceptable, nevertheless, charging a fee and trading them are unacceptable.

2.2.3 Gharar

On the ground of *gharar*, another standing on the non-permissibility of warrants/options is by Obaidullah (2002) where he stresses that the majority of the Islamic scholars reject the conventional options for they involve *gharar* and are transacted for speculative gains. The prohibition is based on an authentic hadith of the Prophet (p.b.u.h) narrated by Muslim, Abu Dawud, Al-Tarmizi, Al-Nasai, and IbnMajah on the authority of Abu Hurayrah, that the Prophet has forbidden *gharar* sales. Though there is no verse in the Qur'an to proscribe *gharar* explicitly, vanity (*al-batil*) is forbidden in many verses:

"And do not eat up your property among yourselves for vanities, nor use it as bait for the judges" (Al-Baqarah:188).

"O ye who believe! Eat not up your property among yourselves in vanities; but let these be amongst you traffic and trade by mutual good will" (An-Nisa:161).

A number of Quranic interpreters agree that the word 'vanity' above means *gharar* (Al-Saati, 2003). Al-Saati also quoted Ibn Al-Arabi's explanation that vanity (*al-batil*) is unlawful because it is prohibited by *Shariah* such as usury and *gharar* and Zamakhshari's understanding that the acts which are forbidden by *Shariah* are considered as vanity such as theft, dishonesty, gambling and *gharar* contracts. Having no consensus on its definition, *gharar* is said to be the result of *jahl* (ignorance), inadequate information and a lack of transparency. Therefore, on this ground, warrants/options are not permissible for not being in

harmony with the *Maqasid al Shariah* (overall objective of *Shariah* principles) and obviously very far from the concept of *adl* (justice) that should prevail in all exchange contracts (Anwar, 1995) as emphasized in the Qur'an (An-Nisa':29).

Gharar in this study refers to the uncertainty in relation to price in an exchange contract. It violates the fundamental *Shariah* condition that parties to a sale contract have full knowledge of the price. *Gharar* is divided into two categories, *gharar fahish* (excessive *gharar*) and *gharar yasir* (minor *gharar*). Scholars derive that if *gharar fahish* is found in a trading transaction or investment, it will affect the validity of the contract (International Shariah Research Academy for Islamic Finance – ISRA, 2011).

2.2.4 Shariah Advisory Council (SAC), Securities Commission of Malaysia

Despite those apparent objections from the scholars, for the case in Malaysia, the SAC regards derivatives, being a hedging instrument, as creating *maslahah* to the investor and the economy in general. Validated on the basis of *hikmah al-tashri'iyyah* (creating *maslahah*) and *'urf al-iqtisadi al-khas* (common practices specifically occurring in economic activities), its permissibility is justifiable if being used purely for hedging purposes. Nevertheless, if it is speculative in nature, then the *Shariah* ruling should be imposed. There is benefit (*maslahah*) in genuine hedging activities but the costs associated with potential pure speculative derivatives trading cannot be ignored. The SAC has also announced that embedded options (equity warrants) are classified as *Shariah* approved securities as long that the underlying assets are *Shariah* compliant. The SAC has also agreed that warrants have fulfilled the requirement of *mal* (property) which have satisfied the concept of *haqmaliy* (rights on assets with financial value) and *haqtamalluk* (ownership rights) principles (SC of Malaysia). This resolution is following the Maliki, Shafi`i and Hanbali Mazhab and some jurists of the Hanafi Mazhab of the later generation whom have accepted that warrants is something that can be possessed and benefited from and one can transfer his rights to any one, either by getting money for it, or for free (Obaidullah, 2002).

2.2.5 Jeddah Fiqh Academy Resolution

The Jeddah Fiqh Academy in its Seventh Session in Jeddah, Saudi Arabia in 1992 has ruled in the Resolution No: 63/1/7, that "Options contract as currently applied in the world financial market are a new type of contracts which do not come under any of the *Shariah* nominated contracts. Since the object of the contract is neither a sum of money nor a utility or a financial right which may be waived, then the contract is not permissible in *Shariah*. As these contracts are primarily prohibited, their handling is also prohibited". Despite being 22 years in the resolution, it is still being used by the Jeddah Fiqh Academy and not being countered by any new *fiqh* resolution although the business risk and financial risk are getting more advanced and sophisticated over the years.

3. Data and Methodology

This study covers the period of six years from January 2006 to December 2012 on 183 outstanding equity warrants as at December 2012. As mentioned earlier, equity warrants are embedded options and exchanged traded hence data for empirical study are made available. In order to ensure a certain level of liquidity, the warrants under study should be listed for at least 3 years in the market, therefore the warrants that start inception in 2011 and 2012 are excluded in this study. Thus, after considering the three years minimum listing, there are only 73 warrants were analyzed out of the 183 warrants. The daily closing prices of the underlying and warrants are employed starting from January 2006 until December 2012.

The Black-Scholes Option Pricing Model (BSOPM) is applied in determining the theoretical price of warrants traded during the study period. BSOPM is originally designed to value options, however due to some similar characteristic in options and warrants, the BSOPM is widely used to measure warrants price provided with some adjustment done due to the dilution effects. After the theoretical warrants price is examined, this paper analyses the degree of mispricing in warrants. This is done by comparing the actual market price of warrants with the theoretical priced derived from the BSOPM.

3.1 The Black-Scholes Option Pricing Model (BSOPM)

The pioneers of this model, Fischer Black and Myron Scholes (1973) have developed the BSOPM to value options. The model is arguably one of the most elegant models in finance. The biggest advantage of the BSOPM is that it provides a closed-form solution to option pricing. The model is also suitable and practical in estimating warrants price (Obiyathulla, 2012). Their model has been widely used by investors as this model offers a robust and reliable result. The model is also used by the Bursa Malaysia, the official stock exchange of Malaysia. Bursa Malaysia states that the main objective of the pricing model is to value the prices of the option fairly and bring better awareness to investors before they decide to buy or sell the options. Bursa Malaysia continues to stress that when a fair price of the options is made known to the public, a narrow spread between the Bid-Ask price can be created, thus enhancing market liquidity and avoiding a wide spread between the Bid-Ask price.

The designated formula for options valuation is as follows:

$$C = S.N(d_1) - K e^{-rt} .N(d_2) \quad (1)$$

$$d_1=(ln(S/K)+ [r+ (\sigma^2/2)]t)/(\sigma\sqrt{t})(2)$$

$$d_2= d_1- \sigma \sqrt{t}(3)$$

where,

C= call value derived from BSOPM; *S*=daily closing price of the underlying; *K*= exercise price of the warrants; *t*=time to expiration (as % of year) for period of trading; *r* = risk free interest rate based on KLIBOR-3 month; e^{-rt} = exponential function of *r* and *t*; N (.) = cumulative standard normal distribution function; *ln (S/K)* = natural logarithm of *S/K*; σ = volatility of the underlying as measured by standard deviation; Annualized σ = daily volatility (σ) x √240.

One of the main differences between options and warrants is, in the event of exercise of the warrants, there is increasing number of shares outstanding, thus dilution effect occurs. Thus, theoretical value derived from the BSOPM will be adjusted to integrate with the dilution effect following the warrants conversion (Dubofsky, 1992).

$$W_A = N/(N/ \Upsilon + M)C(4)$$

where,

W_A= theoretical value of warrants after dilution effect; *C* = call value computed using BSOPM; *N* = number of shares currently outstanding; *M* = number of warrants issued; Υ = conversion ratio of 1:1 as determined by the Securities Commission of Malaysia.

To determine the degree of mispricing in warrants, the following is applied:

$$\% \text{ Daily mispricing} = (W_p - W_A)/W_A \times 100 \quad (5)$$

where;

W_p= actual closing market price of warrants; W_A= theoretical price of warrants after dilution effect.

$$\% \text{ Average Daily Mispricing} = \sum \% \text{ Daily Mispricing/ Number of observations.} \quad (6)$$

4. Finding and Analysis

4.1 Warrants Mispricing

This study finds substantial mispricing in the 73 warrants traded within the period of 2006-2012. This study supports Haron (2006) and Sukor and Obiyathulla (2010) that warrants market in Malaysia are not efficiently priced. The deviations in pricing between the theoretical values derived from BSOPM and the actual prices traded indicate pricing inefficiency in the Malaysian warrants market. The study finds that 30

out of the 73 warrants (41.10%) are overpriced during the period understudy. The average daily overpricing ranges from 5.45% to 132.18% with LABICAP-WA and OSKVI-WA recorded the highest and lowest overpricing by 132.18% and 5.45% respectively. On the other hand, 39 warrants (53.42%) are underpriced with average daily underpricing ranges from 5.18% to 86.45%. LIONCOR-WB is the most underpriced warrants at average daily underpricing by 86.45%, followed by ASDION-WA by 72% with IJMLAND-WA with the least underpriced by 5.18%. Although most of the warrants (69 out of 73) are found to be mispriced (underpriced or overpriced), four warrants (5.48%) recorded insignificant mispricing with the market prices being close to the BSOPM theoretical values. LATEXX-WA is found to be the most efficiently priced with only 0.10% deviation from its theoretical value, followed by SEG-WA (0.78%), TGOFFS-WB (2.55%) and FAJAR-WA (4.63%). Thus, the study concludes that there are significant mispricing (underpricing or overpricing) recorded on Malaysian warrants during the period understudy (see Table 1).

Table 1. Descriptive Statistics of Warrants Mispricing

No.	Equity Warrants	Mean (%)	Maximum (%)	Minimum (%)
1	LBICAP-WA	132.18	321.51	-14.69
2	TRC-WA	120.19	215.02	45.18
3	EAH-WA	107.21	271.46	29.51
4	GPACKET-WA	99.73	475.76	6.67
5	MPCORP-WB	94.51	376.23	10.06
6	GRANFLO-WA	90.51	211.33	0.48
7	HEXAGON-WA	78.27	695.93	-67.04
8	HOVID-WA	75.11	670.78	-35.18
9	FRONTKN-WA	43.90	120.86	-35.72
10	JADI-WA	41.68	155.95	7.89
11	PERDANA-WA	40.50	137.45	-20.40
12	HUBLINE-WA	39.05	107.92	9.05
13	GADANG-WA	33.01	99.40	-29.67
14	MASTEEL-WA	26.20	49.33	6.47
15	PJDEV-WC	24.99	69.68	-24.83
16	NOTION-WA	24.58	99.25	-64.85
17	REDTONE-WA	21.92	66.57	-12.84
18	HWGB-WB	20.01	50.75	-19.93
19	CENTURY-WB	19.57	49.25	-11.50
20	TIGER-WA	12.96	73.77	-41.69
21	KYM-WA	12.14	41.69	-19.25
22	IRIS-WB	12.04	51.70	-30.92
23	LBS-WA	11.94	86.64	-60.55
24	YUNKONG-WA	11.34	43.63	-38.10
25	IRCB-WA	10.87	34.25	-21.46
26	HUNZPTY-WB	6.86	45.65	-25.49
27	UNISEM-WA	6.43	84.18	-32.17
28	SALCON-WA	5.74	67.15	-46.49
29	IJMPLNT-WA	5.57	44.82	-16.33
30	OSKVI-WA	5.45	60.38	-42.72
31	FAJAR-WA	4.63	24.60	-43.96
32	TGOFFS-WB	2.55	92.13	-50.13
33	SEG-WA	0.78	25.95	-17.12
34	LATEXX-WA	0.10	55.99	-29.09
35	IJMLAND-WA	-5.18	41.40	-35.33
36	KPJ-WA	-6.15	48.32	-20.91
37	DIGISTA-WA	-7.31	38.61	-51.21
38	GAMUDA-WD	-7.55	15.95	-31.53
39	MLAB-WA	-8.92	43.41	-34.75
40	PANTECH-WA	-9.10	23.76	-38.12
41	WCT-WB	-11.81	80.13	-49.86
42	ASIAEP-WB	-17.75	11.74	-44.49
43	HEVEA-WB	-20.21	6.63	-41.10
44	BORNOIL-WB	-20.97	16.75	-62.32
45	HARVEST-WA	-22.68	26.89	-58.25
46	MEDIA-WB	-23.50	21.10	-40.07
47	IJM-WC	-23.78	1.66	-43.66
48	SPSETIA-WB	-24.70	7.79	-55.25
49	CRESNDO-WA	-25.13	1.44	-67.99

50	YTLPOWR-WB	-25.41	-12.63	-49.95
51	RAPID-WA	-27.22	27.76	-53.13
52	FFHB-WB	-28.04	27.79	-80.11
53	DIJACOR-WA	-28.05	20.49	-43.17
54	BIOSIS-WA	-30.06	1.43	-52.58
55	PA-WA	-32.01	39.31	-69.89
56	GUNUNG-WB	-33.90	-2.03	-54.93
57	DPS-WA	-34.12	40.32	-74.69
58	HLSCORP-WA	-35.34	200.18	-87.40
59	MTOUCHE-WB	-36.57	15.26	-64.66
60	ZECON-WA	-38.28	10.50	-88.13
61	BTM-WA	-39.12	32.55	-58.13
62	BJASSET-WA	-39.96	11.32	-69.14
63	ENGTEX-WA	-41.68	7.71	-64.50
64	FCW-WB	-43.31	6.89	-75.58
65	GBH-WA	-48.77	-20.15	-68.90
66	WWTKH-WB	-55.97	16.12	-89.51
67	MTOUCHE-WA	-57.83	86.85	-84.23
68	FUTUTEC-WA	-62.61	37.23	-78.27
69	RALCO-WB	-62.90	-49.64	-80.70
70	WAHSEONG-WA	-65.58	-46.53	-78.74
71	FIAMMA-WB	-68.82	-57.12	-84.67
72	ASDION-WA	-72.00	-29.76	-84.32
73	LIONCOR-WB	-86.45	-46.59	-91.48

4.2 The Issue of Gharar

In relation to the permissibility of warrants contract, as discussed earlier, this issue receives differing arguments among Islamic jurists. The permissibility of warrants contract is generally denied by the majority of scholars on the basis that it involves *gharar* and is primarily transacted for speculative gains. A major factor that contributes to *gharar* is *jahl* (inadequate information) which increases uncertainty (Obaidullah, 1999). This is when the terms of exchange, such as, price, objects of exchange, time of settlement are not well-defined which implies a lack of transparency. Based on the Efficient Market Hypothesis, a market is said to be efficient with respect to an information set if the price fully reflects that information set (Fama, 1970). Therefore, inadequate information and a lack of transparency indicate market inefficiency in disseminating information and this is reflected by the substantial price deviations in warrants market detected in this study. Price deviations are the results of speculations due to inadequate information released to the market participants. Warrants, as an embedded option, are often used to speculate, not to protect the value of the underlying assets but to gain from the increase in value of the underlying asset.

The ability of this instrument to speculate the future prices of the underlying asset due to random fluctuation in prices leads to random gains and losses which resemble *maysir*, a game of chance or gambling, thus is objected in Islam (Obaidullah, 2002). When speculation is used to transfer wealth from one party to another, it would amount to a zero-sum game, akin to gambling, which is strongly prohibited in Islam (El Diwany, 2003). Therefore, this study claimed that there is an element of excessive *ghara*r (*gharar fahish*) in the event of substantial average daily mispricing in warrants market as a result of speculative activities due to the informational inefficient market.

5. Conclusion

The issue of the permissibility of the use of derivatives in Islamic finance is still unresolved. The conventional derivatives manage risk by shifting or transferring the risk to those who, for a price, are willing to assume the risk. Notwithstanding, risk-shifting activities in derivative violate the basic principles of *Shariah*, thus are not readily accepted by *Shariah* scholars as permissible financial instruments (Obaidullah, 2002). Market volatility strongly influences the performance of these derivative instruments like embedded options. Some scholars allow the use of derivatives on the basis of hedging purposes. Nonetheless, only a small percentage of derivatives are used for that objective.

Some Islamic scholars do not find any standardization and harmonization in the ruling regarding this issue. In the attempt to shed some relevant light into this matter, this study investigated warrants pricing of 73 Malaysian equity warrants traded within the six year period by employing the BSOPM. There seems to

be deviations of pricing where 94.52% (69 out of 73) of the warrants traded are substantially mispriced in reference with their theoretical values. This mispricing of warrants indicated inefficiency in the Malaysian warrants market. Therefore, based on the argument above and the extent of mispricing revealed in the analysis, this study found the element of excessive *gharar* in warrants contract when viewed from the pricing inefficiency. Mispricing of warrants in Malaysian market indicates speculative activities and speculation is not allowed in Islam. According to Obaidullah (1999), pp 16;

"Any attempt to speculate in the hope of the theoretically infinite gains is, in all likelihood, a game of chance for such participants. While the gains, if they materialize, are in the nature of maysir or unearned gains, the possibility of equally massive losses do indicate a possibility of default by the loser and hence, gharar".

Speculation may contain *gharar* (uncertainty) and *maysir* (gambling) which are all prohibited in Islam. Islam forbids these because they may result in wealth accumulation at the expense of other parties (Helliar and Alsahlawi, 2011). This activity violates the concept of *adl* (justice), does not serve the concept of *maslahah* (public interest) and does not follow the *Maqasid al Shariah*. Excessive speculation impacts negatively to the economic productivity, social dynamics and financial system. Thus, to avoid them, certain awareness have to be observed like having a long term horizon, ensuring that the basis for decision-making should be logic and not emotions, and for the Muslim investors, establishing the motivation of *niyyah* of partaking in equity investments as a form of worship or *ibadah*, and not merely representing greed for material gain. This will be consistent with principles embodied in *Maqasid al-Shariah*.

Findings from this study revealed that Islamic financial engineering is in dire need to come up with an instrument which is at par if not better than the existing conventional instrument for risk management that complies with the *Shariah* principles, does not violate the *maqasid* and can offer and accommodate risk management without allowing any speculations that may lead to wealth accumulation of one party only; an instrument which may be an adaptation of the concept of *khiyar al-shart* and is perhaps parallel with the concept of *bai-al-urbun* discussed earlier, not just replicating the existing conventional innovations and merely adapt it to the Islamic atmosphere. The instrument should also satisfy the characteristics of an option contract which falls under any one of the option contracts nominees recognized by the Jeddah Fiqh Academy to encourage standardization and harmonization in the use of Islamic financial instruments worldwide.

The principle of the prohibition of *gharar* is to ensure the fullest acceptance and satisfaction of the parties involved in risk management. This acceptance will only be achieved through certainty, full knowledge, full disclosure and transparency of information about the object of the contract. With the compliance of the principle of prohibition of *gharar*, the injustice and exploitation among the contracting parties can then be avoided.

References

Ahmad Muhayyuddin, H. (1407/1986).AmalSharikat al-Istithmar al-Islamiyyahfilsuq al-Alamiyyah,*Al-Dar al-Saudiyyahlil-NashrwalTawzi*, 268-271.

Al-Suyuti, Al-Asybahwa al-Naza'ir, Dar al-Kutub al-'Ilmiyyah, Beirut, 1994.

Al-Amine, M.M.A. (2008). *Risk Management in Islamic Finance an Analysis of Derivative Instrument in Commodity Market*. Brill : The Netherlands.

Al-Bukhari, (1422). Al-Jami' al- Musnad al Sahih, Dar Tuq al Najah.

Al-Bayhaqi, (1422). Al-Sunan al-Kubra. Beirut: Dar' al Kutub al 'Ilmiyah.

Al-Saati, A.R. (2003). The Permissible *Gharar* (Risk) in Classical Islamic Jurisprudence. *J.KAU: Islamic Econ*,16(2), 3-19.

Al-Zuhayli, W. (2003). Financial Transaction in Islamic Jurisprudence. Translated by El-Gamal M.A, Damascus: Dar al-Fikr (1).

Abu Sulayman, A.W.I. (1413H/1992). Al-Ikhtiyarat: DarasahFiqhiyyaTahliliyyahMuqaranah, Mujallah al-Buhuth al-FiqhiyyahalMuasarah, 4(15), 32-33.

Anwar, M. (1995). An Islamic Perspective on Capital Markets and "Islamic" Securities in Malaysia. *The Pakistan Development Review*, 34(4), 865-878.

Black, F. and Scholes, M. (1973). The Pricing of Options and Corporate Liabilities. *The Journal of Political Economy*, 81(3), 637-654.

Byoun, S. and Park, H.Y. (2009). Arbitrage Opportunities and Efficiency of An Option Market at its Initial Stage: The case of KOSPI 200 options in Korea. *Research in Finance*, 25, 269-301.

Chan, FL and Sy, M. (1997). Pricing Warrants in Thin Markets: Jump Diffusion vs Modified Black-Scholes in the Kuala Lumpur Stock Exchange, RMIT, Unpublished.

Chang, EC., Luo, X., Shi, L. and Zhang, JE. (2013). Is Warrant Really a Derivative? Evidence from the Chinese Warrant Market. *Journal of Financial Markets*, 16(1), 165-193.

Chung, S.L., Liu, W.R. and Tsai, W.C. (2014). The Impact of Derivatives Hedging on the Stock Market: Evidence from Taiwan's Covered Warrants Market. *Journal of Banking and Finance*, 42 (1), 123-133.

Dubofsky, D.A. (1992). *Options and Financial Futures: Valuation and Uses*. McGraw-Hill: New York.

El Diwany, T. (2003). *The Problem with Interest*. Kreatoc Ltd : London.

El Gari, M.A. (1993). Towards an Islamic Stock Market. *Islamic Economic Studies,* 1(1), 1-20.

Fama, E.F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance,* 25(2), 383–417.

Haron, R. (2006). The Pricing Efficiency of Equity Warrants: A Malaysian Case. *The ICFAI Journal of Derivatives Markets*, 3(3), 6-22.

Helliar, C. and Alsahlawi, A. (2011). Islamic Derivatives. *Journal of Corporate Treasury Management*, 4(2), 120-128.

International Shariah Research Academy for Islamic Finance (ISRA) (2011). *Islamic Financial System. Principles & Operations*. Kuala Lumpur: ISRA.

Jobst, A. and Sole, J. (2012). Operative Principles of Islamic Derivatives-Towards a Coherent Theory,International Monetary Fund Working Paper.

Kamali, M.H. (1997). Islamic Commercial Law: An Analysis of Options. *The American Journal of Islamic Social Sciences*, 14(3), 17-37.

Kuwahara, H. and Marsh, T.A. (1992). The Pricing of Japanese Equity Warrants. *Management Science*, 38(11), 1610-1641.

Liu, M.H. and Rangan, N.K. (2011). The Information Content of the Implied Volatility of Retail Equity Option Market. Proceedings of Macao International Symposium on Accounting and Finance.

Macbeth, J.D. and Larry, J.M. (1979). Tests of the Black-Scholes and Cox Call Option Valuation Models. *The Journal of Finance*, 35(2), 285–301.

Obaidullah, M. (1999). Financial Options in Islamic Contracts: Potential Tools for Risk Management. *KAU Journal of Islamic Economics*, 11, 3-26.

Obaidullah, M. (2002). Islamic Risk Management: Towards Greater Ethics and Efficiency. *International Journal of Islamic Financial Services*, 3(4), 30-48.

Obiyathulla, I.B. (1999). Derivative Instruments and Islamic Finance: Some Thoughts for a Reconsideration. *International Journal of Islamic Financial Services*, 1(1), 9-25.

Obiyathulla, I.B. (2012). *Financial Derivatives Markets and Application in Malaysia*. Mc-Graw Hill: Kuala Lumpur.

Salehabadi, A. and Aram, M. (2002). Islamic Justification of Derivative Instruments. *International Journal of Islamic Financial Services,* 4(3), 11-17.

Sukor, M.E.A. and Obiyathulla, I.B. (2010). Pricing Efficiency of Stock Rights Issues in Malaysia. *Applied Financial Economics*, 20(22), 1751-1760.

Usmani, M.T. (1996). Futures, Options, Swaps and Equity Investments, *New horizon*, *Institute of Islamic Banking and Insurance*, 59, 10.