Shariah Issue of Warrant Contract:
Empirical Evidence from Warrant Mispricing in Malaysia Market

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Abstract: The objective of this paper is to analyze the "*gharar*" issue of warrant by presenting the empirical evidence of warrant mispricing in Malaysia's market (moneyness and mispricing) and its determinant. The Black Scholes Option Pricing Model (BSOPM) will be used to detect mispricing in a warrant's contract. In addition panel regression will be performed to analyze the determinant if said warrant is mispriced. The result shows that in majority, mispricing happens in warrant, either by Out the Money, or In the Money. Panel regression analysis finds that Stock price, klibor, and maturity are positive and are significant variables to the mispricing of a warrant. Finally, with the use of a warrant mispricing model, this research concludes that there is *gharar* issue in warrant contract.

Keywords: *Gharar*, Warrant, BSOPM, Moneyness.

Introduction

The past decade of Malaysia's Islamic Capital Market (ICM) was marked by rapid product development, arising largely due to adaptation of conventional capital market products, which was instrumental in facilitating growth of the ICM at its infancy. One of the most crucial products currently developed in Islamic finance is the derivative product. Derivative is seen as of importance for managing risk. Some risk management products developed in Malaysia are options, or embedded options, such as equity warrants and call warrants, listed on the ICM of Malaysia.

Warrant is described as long-term call options issued by firms on their own underlying stocks, giving the holder the right to buy the company's stock at exercised price on the expiration date. However, compared to call option, there are a few different characteristics. First, warrants are issued by the firms, while call options are written by individuals. Seconds, the numbers of outstanding stock increases as a warrant is exercised, while exercising a call option does not increase share numbers when said call option is exercised more elaborately. Third, the maturity of the warrant generally has at least several years, while call options expire within nine months, violating the assumption of constant volatility (Veld, 2003).

Via shariah point of view, acknowledging the prominent functions of options or embedded options in the development of ICM, the Shari'ah Advisory Council (SAC) of Securities Commission (SC) of Malaysia has classified embedded options (call warrants and equity warrants) as Shari'ah approved security subjects to the underlying shares being Shari'ah compliant. SAC, in its *fatawa* resolution, further states that warrants have fulfilled the features

and requirements of mal (property) in accordance to Islamic jurisprudence as outlined in the *haq maliy, haq tamalluk* principles. In relation to this, amongst Islamic countries, Malaysia appears to be the most accommodating and most progressive in adapting modern financial instruments within its ICM framework (MIFC, 2011).

Islamic scholars nevertheless appear to have different opinions on options and warrants. Literature shows that there are three views put forward by scholars in examining options. First, examination of the validity of options under the fiqh doctrine of *al-Khiyarat* while second, drawing parallels between options and *bai-al-urbun*. The third view has been the examination of options in light of *gharar*. In at least one other situation, (Abu Sulayman, 1992), have options been viewed as being totally detached from the underlying asset, therefore unacceptable.

One of the main issues that are brought up by some Islamic scholars about permissibility of option, gharar is, according to Ahmad Muhyiddin, categorization of an option, *gharar fahis*. In option, there are no clear situations about the next price of stock that will determine the decision of investors to either continue the contract (exercise) or cancel. Moreover, some investor will take and use this type of contract to merely speculate a transaction. Use of Qoidah fiqhi "*dar'ul mafasid muqoddam min jalbil masholih*", some ulama' don't allow option as an Islamic form of contract.

This study is very crucial in support of the argument of whether the issue of gharar still exists in warrant contract, as some Islamic scholars view differs. *Gharar* issue can be detected via analysis such as mispricing or moneyness. In addition, Black Scholes Option Pricing Model (BSOPM) is a robust set of methods, used to detect said mispricing or moneyness.

The objectives of this paper are divided into two parts. First, presentation of the empirical evidence on the pricing of warrants in Malaysia's markets including examination of the pricing efficiency of the warrant market by using the black-scholes model (moneyness and mispricing). Second, evaluate the determinant of warrant mispricing in Malaysia's market and analyze it with the issue of *gharar,* determining the permissibility of warrant.

Review of Literature

Warrant

There are some financial instruments in the derivative market including, option, forward, swap, warrant, and etc. Option is the securities that give the holder the right but not obligation, to buy shares of common stock at a fixed price for given time periods. This means that in the form of option, its holder can exercise their securities, compared with the market price of stock, during certain periods.

Warrant is the corporate form of security that looks a lot like a call option. It gives the holder the right but not the obligation to buy shares of common stock directly from a company at a fixed price for given time periods (Security Commission 2006). Each warrant specifies the number of shares of stock the holder can buy, the exercise price, and the expiration date. In addition, many cases have warrants that are attached to bond when issued (Ross et al., 1991).

From the perspective of investors, warrants are the same as call option for shares of common stock. Warrant, equal to that of a call option, gives the holder a right to purchase common stock at a specified price. However, from the standpoint of the company, warrants and call options do have significant differences. The most striking difference is that the call option is issued by the individual and the warrant is issued by the company. When a call option is exercised, investors will buy common stock from other investors, the company is not involved. When warrant is exercised, the firm receives some cash and the number of shares outstanding increases (Ross et al., 1991).

Gharar Issue

Contracts in Islam must be clear as to the quantity, specification, price, time, and place of delivery of the contract, as Rosulullah (pbuh) had taught muslims to do as such. Therefore, Islamic scholars have identified the conditions which make a contract uncertain to the extent that it is forbidden. Traditionally, an overwhelming majority of shari'ah scholars include such terms of a possible failure by the parties to deliver the goods exchanged in the scope of *gharar*.

Gharar is uncertainty that will be faced by the people whom enter into the contract. It is useful to view *gharar* in a continuum of risk and uncertainty wherein the extreme point of zero risk is the only point that is well- defined. Beyond this point, risk or *gharar* becomes a variable and the *gharar* involved in a real life contract would lay somewhere on this continuum. Beyond a point on this continuum, the risk and uncertainty or *gharar* becomes unacceptable. Jurists have attempted to identify such situations involving forbidden *gharar*. A major factor that contributes to *gharar* is inadequate information (*jahl*) which increases uncertainty. This is when the terms of exchange, such as, price, objects of exchange, time of settlement etc. are not well defined. *Gharar* is also defined in terms of settlement risk or the uncertainty surrounding delivery of the exchanged articles (Obaidullah, 1998).

There are some types of *gharar* in fiqh known as *gharar yasir* and *gharar fahis*. *Gharar* yasir is acceptable in shariah while gharar fahis (excessive *gharar*) is utterly rejected. This is due to excessive *gharar,* uncertainty, that leads to the possibility of a variety of speculation, which is forbidden (Kamali, 1995). Speculation in its worst form, is gambling. The holy Quran and the traditions of the holy prophet forbid games of chance and all forms of gambling. The term used for gambling is *maisir* which literally means getting something too easily, getting a profit without working for it. Apart from pure games of chance, the holy prophet also forbade actions which generated unearned incomes without much productive efforts.

The question is do Islamic Warrant involve excessive risk or uncertainty (*gharar*) which may be cause of speculation of a variety, akin to a game of chance? The main issue widely used by Islamic scholars about permissibility of embedded option (warrant) is *gharar*. According to Ahmad Muhyiddin, an option is categorized as *gharar fahis*[1]. In embedded option there are no clear situations about the next price of stock that will determine the decision of an investor to continue the contract (exercise) or cancel the contract. Moreover, some investors will use this type of contract to merely speculate a transaction. Under *qoidah fiqhi* (legal maxims) "*dar'ul mafasid muqoddam min jalbil masholih*"[2] some *ulama* don't allow option as an Islamic contract.

However, some jurists grant permissibility to embedded options, subject to the condition that the obligations are implicit in the contract for both parties, and cannot be transferred to a third party. This would effectively curb the possibility of speculation. However, at the same time, this stipulation would also kill the organized market in options.

If we look back to the main concept of option as an hedge instrument, with the objective to reduce the risk of loss especially in current economic situation which fluctuate heavily, option contract holds important meaning, *maslahah* for *ummah*. Issue of *gharar* and *maysir* could happen rarely, when a small number of investors intend to speculate. However, this issue is specific in of which that cannot be used to generalize Option contract as prohibited. In the level of law and regulation, off course, option should be allowable since it plays an altogether important role in the current economic system.

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[1] Gharar fahis mean Excessive Gharar, that both parties will not able to know the price of option in the future.

[2] Means that " Repelling harm is preferable to attain benefit"

Previous study on warrant

Several studies have provided theoretical models for the pricing of warrants. These include the works of Black and Scholes in 1973, Schwartz in 1977 (Lauterbach and Schultz, 1990), Chen (1975), and Galai and Schneller (1978). Black and Scholes (1973) claimed that in many cases their famous model could be used as an approximation to give an estimate of the warrant value. Nevertheless, they warned that given the long life of a warrant, the volatility of the underlying stock might be expected to change substantially. Galai and Schneller (1974) further derived the warrant pricing formula, which regards a warrant as a diluted option of an identical firm without warrants outstanding. Both studies suggested that any call option-pricing model with some minor modifications could be used to price warrants. On the other hand, Chen used a dynamic programming approach to price warrants, while Schwartz generalized the Black-Scholes formulation by employing a finite difference technique to approximate solutions to a partial differential equation that governs the value of a warrant.

Leonard and Solt (1990) concluded that the Black-Scholes model performs just as well as more complicated adjusted Black-Scholes models for warrant pricing. Schulz and Trautmann (1991) using Schwartz-based model, helped to justify option-like warrant valuation, ignoring dilution effect. On the other hand, Lauterbach and Schultz (1990), followed by Hauser and Lauterbach (1997), presented evidence that suggests that the Black-Scholes model is outperformed by a model that assumes a constant elasticity of variance diffusion process for stock price.

Empirical research on warrants, traded at emerging markets, include the work of Shastri and Sirodom (1993), who concluded that a constant elasticity of variance model outperformed Black-Scholes model in pricing Thailand warrants. On the other hand, Kwok (1994) confirmed the practical efficiency of Hong Kong traded warrant market, using Black-Scholes model.

Kyun (2004), in his study, had the objective to test the warrant market behaviour in relation to the application of Black-Scholes model to a relatively small and less liquid market – Kuala Lumpur Stock Exchange (KLSE). His study considered various pricing biases related to warrant strike price, time to maturity, volatility, and pre- and post-Asian financial crisis period. Moreover, he also has tested the model using daily prices of 74 sample warrants in the year 1994-2003. Finally, the results of his study revealed that overall model prices were significantly below market prices further indicating both the model and market prices deviate in certain systematic patterns for the above pricing biases. It was concluded that users of Black-Scholes model should carefully observe the systematic pattern of deviation when choosing an investment of warrants in the Malaysian stock exchange.

Li & Wong (2004) investigated the adoption of a warrant-pricing model to incorporate employee stock options (ESOs) into equity valuation and to account for the dilutive effect of ESOs in the valuation of option grants for financial reporting purposes. Next, they applied valuation approach to examine the fair value estimates of ESO grants, calculated using the option- and warrant-pricing models. The study found that the option-based estimate is larger than the warrant-based estimate for most of the sample firms by at least 12% on average. In additon, the difference is larger for firms that are heavy users of ESOs, small, and R&D intensive, firms that have a broad-based ESO compensation plan. A practical application of the valuation approach was to calculate the ESO-related compensation expenses for non-public companies for financial report purposes.

Johnston examined the valuation of stock options and warrants. It discussed factors relevant to the value of call options, and it explained and discussed the most widely recognized model in use for the valuation of stock options. According to the result of the study, it concluded that the business appraiser is just as well served to use a volatility measure of approximately 46.5% as the input to the Black-Scholes model in valuing long-term out-of-the-money employee stock options. Finally, he suggests that business appraisers

should not use the Shelton model to value employee stock options as other models outperform it in option price prediction.

Research Methods

Sample Selection

In this part, we will describe the sample selection process. We use a training sample to build this model. The training sample is current companies which still have outstanding equity warrant in the market. Originally it contains of 53 equity warrant listed in Bursa Malaysia during period of from 2000 until 2011. Furthermore, the data for some of originator companies are not accessible. As a result, out of total 53 companies issued listed in Bursa Malaysia and only 29 equity warrants are relevant. The data is reduced to 17 equity warrants because we have to make sure that each originator companies have a complete financial data and we drop companies that have missing variables. In addition, to conduct panel regression we focus on the year which has complete data namely 2010 and 2011. Totally in this research we use 3400 data, consist of 17 companies. All financial data are obtained from Bloomberg, and Bursa Malaysia.

Black-Scholes Option Pricing model (BSOPM)

The theory of BSOPM (Black-Scholes Option Pricing Model) is built on several assumptions, the assumptions are deemed to have some same standards as most of the financial models and some assumptions are involved directly into the model. As mentioned by (Black & Sholes, 1973), the assumptions from BSOPM are:

a) The efficient market exist and no attrition trading.
b) No transaction cost.
c) The option model follows the European style which means that it can be exercised only at its maturity time.
d) There is no dividend required from the stock at the time of maturity of option.
e) The logarithmic of stock return are normally distributed.
f) Upon the maturity of the option, the risk-free will stay the same.
g) The volatility of the underlying stock must be constant over the maturity of option

The BSOPM model or the formula for option pricing based on the Black-Scholes assumption is:

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

$$d_1 = \frac{LN\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma.\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

Where:

S	= Spot price of stock
N(.)	= Cumulative standard normal distribution functions
K	= The exercise price of call option
T	= time to maturity (percentage of year)
R	= Risk-free interest rate
e^{rt}	= exponential of variable rf and T

σ   = Deviation

ln(S/K)   = logarithm of S/K

The above model is for calculate the value of call option. However, to be applicable for warrant instrument there are next some adjustment for pricing warrant. The formula as follows:

$$W = \frac{N}{\frac{N}{Y} + m} \, x \, C$$

Where w is the warrant value, N is number of outstanding share in the company. Y as the conversion ratio of warrant, which in this case of warrant should be equal to 1 since 1 warrant has the right to be converted into 1 share. M is the number of outstanding warrant and C as call value calculated based on the previous formula.

In this regard however, one scholar (Bacha, 2012), the provision or assumptions saying that the risk-free rate and volatility should be unchanged or constant seems to be impossible. These two assumptions deemed to be the two assumptions that become the weakness of the BSOPM model. Any change in these two variables will eventually change the whole result of the model.

In addressing research question about warrant efficiency, we examine the extent and the duration of mispricing i.e how long does it take till convergence. We calculate mispricing as follows:

$$\% \text{ daily mispricing} = \ln\frac{R_i}{R^*} . \mathbf{100}$$

R_i, is the actual price of warrant, and $R*$ is the theoretical price of warrants. Moneyness is determined as the difference between current values of stock with the PV of exercise price of warrant. Hence, the formula for moneyness is;

$$Moneyness = \frac{Stock\ Price - Exercise\ Price^{-rT}}{Exercise\ Price^{-rT}}$$

To test the determinant warrant mispricing, panel data analysis with Random Effect will be performed. The random effects model a regression with a random constant term (Greene, 2003). The model is as follows;

$$\% \, misspricing = \beta\_1 + \beta\_(2) \, Stock\ Price + \beta\_3 \, Klibor + \beta\_4 \, volatility + \beta\_5 \, maturity + \beta\_6 \, moneyness + \varepsilon\_it$$

Research Findings

Descriptive

Table 1 describes the average value of some variables in estimation periods, including warrant price, stock price, volatility, maturity warrant value etc. From that table we can get some overview about the selected sample, namely 17 companies listed in bursa Malaysia and its value. In term of warrant price, the highest prices of warrant are KPJ Healthcare, IJM plantation and KFC holding, which each valued at 2.53665, 2.045, and 1.285. The lowest value of warrant is of Instacom with 0.01755 and Hubline, around 0.06105.

Table 1: Descriptive Statistics

Company	Warrant Price	Spot Price	Volatility	Maturity	Warrant Value
Harvest Court (1)	0.2001	0.125275	0.03182	1.296.747.917	0.030866443
Haveabord (2)	0.378525	0.803025	0.19218	1.336.191.667	0.283725643
Hexagon (3)	0.116775	0.2878	0.5038	2.587.020.833	0.088260095
Ho Wah Genting (5)	0.35035	0.42505	0.182364	5.629.666.667	0.222071959
Hovid (8)	0.61375	0.21695	0.037802798	2.320.479.167	2.03E-12
Hubline	0.06105	0.09042	0.034543164	1.259.670.833	2.09E-05
Hunza Properties	0.6551	159.015	0.160743427	57.755	0.891412879
IJM Land	117.565	251.585	0.706487566	3.256.104.167	1.601.382.626
IJM Plant	204.565	27.408	0.195672344	5.000.833.333	1.078.300.954
Instacom	0.01755	0.1767	0.319268426	24.753.125	0.020413002
Integrated Rubber	0.9055	0.183175	0.054138328	6.679.666.667	0.015915547
Iris Bhd	0.11085	0.1848	0.118976028	72.328.125	0.065887701
Iris WA	0.109075	0.2063	0.152101505	7.619.625	0.130194059
JADI Imaging	0.093575	0.19585	0.034868537	6.441.020.833	0.079650206
JAVA	1.116.675	193.255	0.968470531	9.618.916.667	1.609.643.351
KFC Holding	1.285.775	367.185	0.260788559	6.283.291.667	2.152.114.936
KPJ Healthcare	253.665	42.572	0.628884787	5.266.208.333	2.046.045.536

Companies that have a high value of warrant has its stock price quite high. It can be seen from KPJ healthcare with value of stock at 4.2572, the highest value of all observed companies. KFC holding also has a high average stock price around 3.67185. This shows that companies which have a high value of stock will have a higher warrant price. It is understandable, since the warrant is right to buy stock, even with the conversion ratio equal to one.

In addition, the table above also gives some illustration about the volatility of stock, which can be accepted as an indicator of risk. The most volatile stock is JAVA holding, IJM land, and KPJ healthcare, while the least volatile being Harvest Court, Hovid and Hubline.

Moneyness

Moneyness refers to terminologies used to describe whether the warrant is currently profitable or not. In describing moneyness there are two important points. First, moneyness is always viewed from the long position, not from the seller viewpoints. Second, in describing the moneyness, we always compare the present value of exercise price of warrant with the current value of stock price as an underlying (Bacha, 2012).
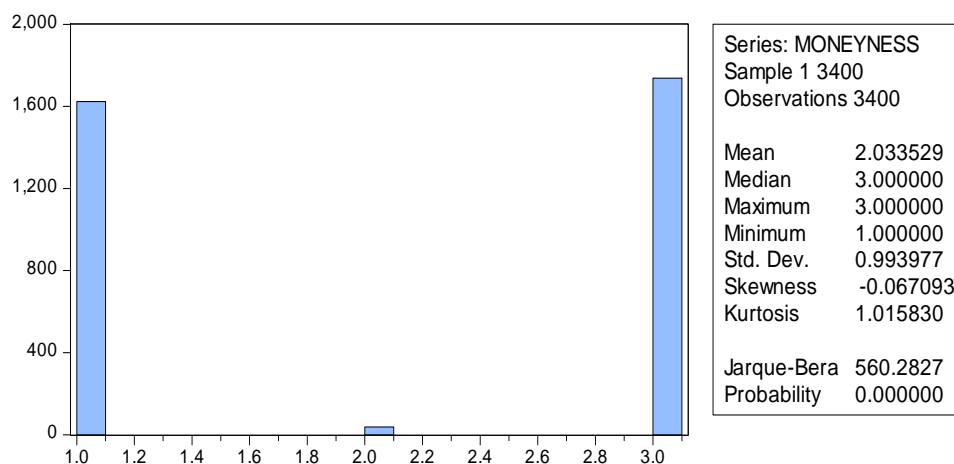
Table 2 provides the results of moneyness of all the observed. This study found that on average the warrants are "*out the money*". OTM means that the value of exercise price is larger than the value of underlying stock. There are 14 companies which "*out the money*" which means that the warrant is not profitable for its holder. While, there are 3 companies which "in the money", means it is profitable, namely JAVA, KFC holding, and KPJ healthcare.

Table 2: Warrant Moneyness

Company	Spot Price	Exercise Price	Moneyness	Status
Harvest Court (1)	0.125275	0.25	-0.92845733	**OTM**
Haveabord (2)	0.803025	1	-0.196975	**OTM**
Hexagon (3)	0.2878	1.956	-0.69516021	**OTM**
Ho Wah Genting (5)	0.42505	0.2	-0.66286956	**OTM**
Hovid (8)	0.21695	0.37	-0.79851127	**OTM**
Hubline	0.09042	0.2	-0.95285107	**OTM**
Hunza Properties	159.015	1.1	0.617899156	**ITM**
IJM Land	251.585	1.35	1.596.733.177	**ITM**
IJM Plant	27.408	2.62	1.596.733.177	**ITM**
Instacom	0.1767	0.35	-0.83736553	**OTM**
Integrated Rubber	0.183175	0.25	-0.8640618	**OTM**
Iris Bhd	0.1848	0.2	-0.87290387	**OTM**
Iris WA	0.2063	0.15	-0.86968461	**OTM**
JADI Imaging	0.19585	0.17	-0.86432087	**OTM**
JAVA	193.255	1	0.93255	**ITM**
KFC Holding	367.185	3	3.584.762.899	**ITM**
KPJ Healthcare	42.572	1.7	3.656.767.982	**ITM**

The warrant is the right to buy of stock which in turn reflects on the expectation of investors to its underlying stock. Hence, from this point of view, we can say that the price of stock does not perform to fulfil the expectation of market about the future value of stock. In another perspective, the investor in the market undergoes over-expectation to future stock performance.

Graph 1: Moneyness in Overall.

Series: MONEYNESS
Sample 1 3400
Observations 3400

Mean	2.033529
Median	3.000000
Maximum	3.000000
Minimum	1.000000
Std. Dev.	0.993977
Skewness	-0.067093
Kurtosis	1.015830
Jarque-Bera	560.2827
Probability	0.000000

Misspricing

The table below describe the average value of mispricing of warrant in Malaysia market. Miss-pricing defined as the different between the current prices of warrant with the theoretical price of warrant. Theoretical price is computed based on the some theory which in this case, this study performs BSOPM.

From the table 2 below we can see that on average there are some warrant which are overpriced, while some, under-priced. To name the few companies that are overpriced; Harvest court, Haveabord, Hexagon, How ah Genting, Hovid, Hubline, IJM plantation, Instacom, Integrated Rubber, Iris Bhd, JADI imaging and KPJ healthcare. Whereas, companies which are underpriced are as follows; Hubza Properties, IJM land, IRIS WA, JAVA, and KFC holding.

In general, the number of companies which are overpriced is larger than the under-priced ones. It has the same relationship with moneyness which explains the reason why, on average, the number of OTM is larger than ITM. This happens since the expectation of investors about the company is quite high, compared with the real condition of company, or the warrant market is not efficient.
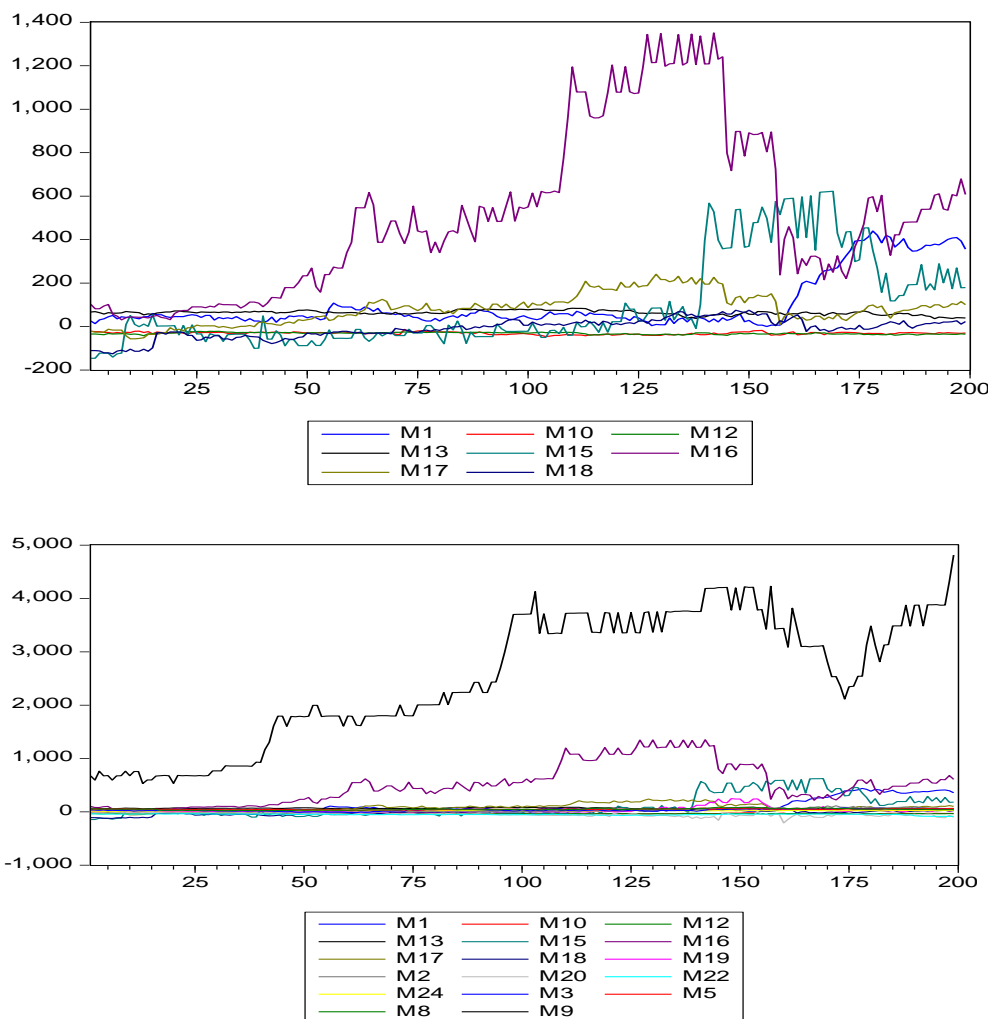
Table 3: Warrant Mispricing (%)

Company	Warrant Price	Warrant Value	Misspricing
Harvest Court (1)	0.2001	0.030866443	103.512.794
Haveabord (2)	0.378525	0.283725643	3.899.745.468
Hexagon (3)	0.116775	0.088260095	3.085.364.539
Ho Wah Genting (5)	0.35035	0.222071959	4.715.974.053
Hovid (8)	0.61375	2.03E-12	4.581.659.599
Hubline	0.06105	2.09E-05	253.368.651
Hunza Properties	0.6551	0.891412879	-309.670.229
IJM Land	117.565	1.601.382.626	-315.299.515
IJM Plant	204.565	1.078.300.954	6.333.985.015
Instacom	0.01755	0.020413002	9.784.083.436
Integrated Rubber	0.9055	0.015915547	5.137.126.118
Iris Bhd	0.11085	0.065887701	789.698.946
Iris WA	0.109075	0.130194059	-909.762.359
JADI Imaging	0.093575	0.079650206	3.047.437.917
JAVA	1.116.675	1.609.643.351	-510.481.725
KFC Holding	1.285.775	2.152.114.936	-516.611.944
KPJ Healthcare	253.665	2.046.045.536	2.130.464.072

In average, the majority of warrant is overpriced, meaning that the current value of warrant is higher than its theoretical value. If the value is overpriced, the chance for the investor to get more benefit dwindle since the probability of warrant decrease is very high.

The graph 2 below is focused on what the extent and magnitude of mispraaicing and its duration. From that graph we can get some important point. First, the number of overpriced is higher than the number of underpriced. Second, the magnitude of overpriced is very excessive. It can be seen from the graph bellows that there are some companies which have very highly overpriced. Third, the under-priced have very low magnitude. Fourth, in term of duration of overpriced and under-priced, the duration of overprice id longer than underprice.

It can be detected from the table that under-priced cases have a very low magnitude within a very short period. In case of under-pricing, investors will react quickly for the mispricing in order to get the short term profit. Hence, the market will move to equilibrium quickly. However, in case of overpricing, the market reacts very late, thus the mispricing will continue until certain periods. In addition, the investor may perhaps have an expectation that the company issued warrant will perform better, causing the increase of stock as an underlying, thus the warrant price is still quite high, although theoretically it should lower.

Graph 2: Mispricing

Determinant of Warrant Mispricing

After identifying the mispricing of warrant in Malaysia's market, this research will analyse the determinant of that mispricing. There are some independent variables that are used in this study including, stock price, klibor, volatility, maturity and moneyness.[3]

Panel regression will be performed to find the impact of independent variables on the mispricing. The regression model tests carried out by using the F test and the t test show, in which significant results of the test F and t tests should be below the level of significance α, it was set at 5%.

F-statistic (5.1903) is significant at 5% level, probability being less than 0.05 (0.00000). Statistically, it means that the model in overall has an impact on mispricing of warrant. R-square is 0.2489 or 24.89%, meaning that the model which includes five variables namely stock price, klibor, volatility, maturity and moneyness can predict 24.89% of the total determinant of mispricing. The 75.11% change of mispricing is determined by other variables not covered in this research.

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[3] Moneyness use dummy variable which is in this study use "100" for ITM, "010", for ATM, and "001" for OTM.

Figure 1: Result of Panel Data Regression

Dependent Variable: MISS?

Method: Pooled Least Squares

Date: 12/23/12   Time: 22:22

Sample: 1 200

Included observations: 200

Cross-sections included: 17

Total pool (balanced) observations: 3400

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1112.706	263.6459	-4.220455	0.0000
STOCK?	25.73401	10.88680	2.363782	0.0181
KLIBOR?	42380.26	8468.690	5.004346	0.0000
VOL?	-426.4059	47.38300	-8.999133	0.0000
MAT?	59.22634	3.109031	19.04977	0.0000
MON?	-176.6063	13.55229	-13.03148	0.0000

R-squared	0.248913	Mean dependent var	201.8450
Adjusted R-squared	0.200956	S.D. dependent var	672.7640
S.E. of regression	601.3786	Akaike info criterion	15.69473
Sum squared resid	1.16E+09	Schwarz criterion	16.06442
Log likelihood	-26476.03	Hannan-Quinn criter.	15.82686
F-statistic	5.190370	Durbin-Watson stat	0.013429
Prob(F-statistic)	0.000000		

All five variables are significant at 5%, these are stock price, klibor, volatility, maturity and moneyness. Stock price, klibor and maturity are the three variables which have a positive sign coefficient. It means that the higher stock price, the higher mispricing, the higher klibor the higher mispricing and the longer the maturity, the higher mispricing.

However, volatility has a negative sign with mispricing, which means that when the volatility is higher than the value of mispricing will be lower. In addition, the negative sign coefficient is also for moneyness, implying that the greater the discount of warrant the lower the mispricing (Sukor and Bacha, 2010).

Discussion

As mentioned in previous paragraphs, opinions differ amongst *fuqoha* about the permissibility of warrant contract or embedded option. Some scholars argue that warrant (embedded option) applied in current Islamic financial system are permissible if their exercise periods was fixed and known, free from *maysir, gharar*, and *la baiatani fi bai'atin*, and provide *maslahah* for mankind. In addition, *ushul fiqh (legal maxim)* rule states "*al-aslu fil umuri bimaqosidiha*", which means that if the objective of warrant is for speculation it is regarded as

gambling or *maysir,* prohibited in Islam. El Gari (1993) argued in favour of transactions in call options using the framework of *bai al-urbun*. In addition, Saaidah Mohamad and Tabatabei (2008) said that *bai' arboon* can be used as an Islamic alternative for some derivative contracts such as warrant or call option. Some Islamic jurists have approved *bai' arboon* like Saidina Omar Al-Khattab, Abdilah ibnu Omar, and some from tabi'in like Mujahid, Ibnu Sirin,etc, also including contemporary Islamic jurists like Al- Qaradawi, Dr. Wahab Al- Zuhaily, Dr.Rafiq Al-Masri, Dr. Al- Sanhoori. During its fourth meeting on 26 July, 1995 the IISG passed a resolution permitting the use of call warrants on condition that the shares involved in the warrants are Syariah approved.

Related to this study, *gharar* can be proved by empirical evidence. Gharar is uncertainty that will be faced by the people when entering a contract. It is useful to view *gharar* in a continuum of risk and uncertainty wherein the extreme point of zero risk is the only point that is well- defined. Beyond this point, risk or *gharar* becomes a variable and the *gharar* involved in a real life contract would lie somewhere on this continuum. Beyond a point on this continuum, risk and uncertainty or *gharar* becomes unacceptable. Jurists have attempted to identify such situations involving forbidden *gharar*. A major factor that contributes to *gharar* is inadequate information (*jahl*) which increases uncertainty. This is when the terms of exchange, such as, price, objects of exchange, time of settlement etc. are not well defined. *Gharar* is also defined in terms of settlement risk or the uncertainty surrounding delivery of the exchanged articles (Obaidullah, 1998).

Contract in Islam must be clear as to the quantity, specification, price, time, and place of delivery of the contract, since Rosulullah (pbuh) guided muslims to do so. Therefore, Islamic scholars have identified the conditions, what makes a contract uncertain to the extent that it is forbidden. Traditionally, an overwhelming majority of shari'ah scholars include terms of a possible failure by the parties to deliver the goods exchanged in the scope of *gharar*.

In the organized and free markets of today for commodities, stocks, currencies, the probability of failure to deliver the same on the maturity date should be no cause for concern. Further, the standardized nature of options contracts and transparent operating procedures on the organized markets is believed to minimize this probability. Some recent scholars have opined in the light of the above that the probability of failure to deliver, leading to *gharar*, was quite relevant in a simple, primitive and unorganized market. It is no longer relevant in the organized options markets of today. Such contention however, continues to be rejected by the majority of scholars. They underscore the fact that options contracts almost never involve delivery by both parties. On the contrary, the contract is settled in price difference only.

An outcome of excessive *gharar* or uncertainty is that it leads to the possibility of speculation of a variety, which is forbidden. Speculation in its worst form, is gambling. The holy Quran and the traditions of the holy prophet forbid games of chance and all forms of gambling. The term used for gambling is *maisir* which literally means getting something too easily, getting a profit without working for it. Apart from pure games of chance, the holy prophet also forbade actions which generated unearned incomes without much productive efforts.

Based on the analysis in this study especially in mispricing, moneyness and determinant of mispricing, we find a few intriguing results. First, although some Islamic scholars allow warrant contract, but they assume that warrant is free from *gharar*. Second, in term of *gharar*, this study proves that there are still excessive *gharar* (*gharar fahis*), which is shown by the high mispricing in warrant contract in Malaysia. *Gharar* can be seen from the mispricing since the definition of *gharar* is the value of something based on the knowledge or the real value of asset or property. In terms of warrant, the real and knowledgeable value is based on the BSOPM. In addition, *gharar* also leads to *maysir* (speculative) activities in the market. Hence, in this point of view, the permissibility of warrant is questionable.

However, speculation caused by *gharar* is based on the intention (*niyyah*) of both contracting parties. The intention is something which cannot be regulated. In addition, since the formal contract of warrant fulfils the shariah requirement, the permissibility of warrant contract is acceptable.

Conclusion

Acknowledging the prominent function of options or embedded options in the development of ICM, the *Shari'ah* Advisory Council (SAC) of Securities Commission (SC) of Malaysia has classified embedded options (call warrants and equity warrants) as *Shari'ah* approved securities subject to the underlying shares being *Shari'ah* compliance.

However, some Islamic scholars nevertheless have different opinion on options. One of the most important reasons about the permissibility of warrant is the *gharar issue*. In at least one other situation, (Abu Sulayman, 1992), options have been viewed as being totally detached from the underlying asset, therefore rendered unacceptable. Hence, this paper was conducted to provide some analytical evidence about the issue of gharar (uncertainty), namely mispricing, moneyness and determinant of mispricing.

In general, the number of companies that are overpriced is larger than under-priced. It has a same form of relationship with moneyness, explaining on average why the number of OTM is larger than ITM. In addition, the magnitude of overpriced is excessive compared with the under-priced that has very low magnitude. In term of duration of overpriced and under-priced, the duration of overprice is longer than underprice.

This study also finds that the majority of warrants are "*out the money*". OTM means that the value of exercise price is larger than the value of underlying stock. In term of average company there are 14 companies which "*out the money*" which mean that the warrant is not profitable for its holder while 3 companies "in the money", meaning it is profitable. In term of frequency, the warrant which is "in the money" and "out the money" is quite balanced, that around 1600 for each, from all 3400 under observation. The number of "at the money is very rare, only around to less than 100. Hence, it is very crucial for the investor interested in buying warrant of a specific company, to choose the best warrant which will give more benefits in the future.

Stock price, klibor and maturity are positive and significant variables to the mispricing of warrant. It means that the higher stock price, the higher mispricing, the higher klibor, the higher mispricing, and the longer the maturity, the higher mispricing. However, volatility has a negative sign with mispricing, which means that when the volatility is higher, value of mispricing will be lower. In addition, the negative sign coefficient is also applicable for moneyness, which implies that the greater the discount of warrant the lower the mispricing (Sukor and Bacha, 2010).

In the shariah perspective, based on some evidence above, this paper concludes that warrant is not permissible if the indicator is gharar and of maysir activity. However, there are many element of contract that will determine the permissibility of contract. In this part, we believe that warrant contract has a positive impact on the society. Hence, the most important aspect is how to eliminate elements that of which are prohibited by shariah. Finally we believe that fiqh maxim *"al-ashlu fil muamalti al-ibahah, illa an yadulla dalilun ala tahrimihi"*.

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