Undisclosed Potential of Muslims' Contribution to Global Economy Development

Tono Saksono, David Martin @Daud Juanil, and Noor Sharipah Sultan Sidi

Abstract—**Despite the advent cognizance of astronomical technique for the calculation of geographically related problems (positioning system, orbital and space navigation), when it comes to the development of Islamic calendar, Muslim scientists are too deeply bound with shariah issues. Majority of Muslim scientists are not in favor of the use of astronomical technique for the determination of the onset of an Islamic month. Hence, a reliable Islamic calendar for business purposes never exists, and the Islamic calendar as the basis of Islamic accounting system is totally neglected. The use of the Gregorian that replaces an Islamic calendar actually has created huge unconsciously embezzled zakat (obligatory alms). Because the Gregorian calendar is some 11.5 days longer than the Islamic calendar, the use of the Gregorian calendar as the basis of Islamic accounting system has therefore created zakat payment deficit of about one year in every thirty-year operation of Muslims' business.**

This paper addresses the development a robust estimation model of the potential loss of the payable zakat from the collective possession of five different assets from stock market. Whilst the period of the assets ownership is only less than twenty years, the total zakat deficit is at the tune of almost US$10 million. With minor modification, the algorithm can be well suited for the use of financial statement data of any Islamic business in the future, inclusive Islamic banking. Advanced numerical and statistical analyses were utilized to achieve a relative accuracy of the estimate better than 0.5% of the stock price.

As zakat is obligatory alms for the purification of Muslim's soul, an appropriate repayment scheme will generate unimaginably potential of Muslims' contribution to the global economy development, especially in eradicating poverty. The paper discloses its potential; hence it is also a breakthrough strategic path for the development of a flawless shariah economy in the future.

Index Terms—**Flawless shariah economy, pseudo shariah economy, Muslims' civilization debt.**

I. Introduction

Calendar is an organization system of time since pre-historic age of men. It reveals one of the greatest achievements of civilization development of men as no men's activity that is independent of the calendar system for their time management system. Likewise, calendar plays a very important role not only in spiritual life of a Muslim but also in his/her mundane life (e.g. business, education and so forth). All shariah sources indicate that Muslims should use Islamic calendar as their time management system.

Unfortunately, majority of Muslim clerics have not accepted astronomical calculation as a viable means to determine the onset of Islamic month as the presence of a new moon after sunset should be visible to the eye. This visibility prerequisite has obscured the existence of a reliable prolepsis Islamic calendar for use in modern business. Whilst an Islamic calendar is used only for Muslims' spiritual life in spite of being enriched with long controversy, Muslims hence take the Gregorian calendar for their trading, banking and other worldly activities.

What Muslims do not realize is the accumulative effect of the use the Gregorian calendar in Islamic business as the Gregorian calendar is actually some 11.5 days longer than the Islamic calendar. As zakat (obligatory tithe) is always attached with any mature possession of certain amount of assets in Islam, the use of the Gregorian calendar also creates the potential zakat payment deficit for any Muslim's business. A rough estimate of the potential zakat payment deficit is about one year unpaid zakat for every thirty-year operation of assets ownership. In essence therefore, if one refers to Iannaccone's classification [1], this study will fall under his third category "religious economics" which ascertains theological principles to criticize the current practice of economic policies.

However, as it is difficult to obtain data of at least twenty consecutive financial statements of any shariah business (e.g. Shariah bank), this paper is using the stock market data as a building block for the development of the algorithm (estimation model) of the potential zakat deficit by comparing the payable zakat when both calendar systems are used as the basis of its accounting systems. With slight modification, the algorithm can be modified when internal financial statement of any Muslim's business is used.

II. Financial Statements of Islamic Banks

The research starts by scrutinizing financial statements of a number of Islamic banks in the world. They include thirteen Islamic banks in Malaysia [2]- [14]. In addition, four shariah banks in Indonesia [15]- [18], one Islamic bank in UK [19], one shariah bank in UAE [20], one in Bahrain [21], and one in Pakistan [22] are also analyzed. Apart from some shariah banks in Malaysia that end their financial statements on the last day of June, all financial reports of all these banks end on 31st December of the corresponding fiscal year. As banks are

Manuscript received July 12, 2011; revised October 31, 2011.

The research has been made possible due to financial aids of the Ministry of Higher Education (MOHE), Malaysia through the Fundamental Research Grant Scheme (FRGS) vote number 0760. Continuous support of the University Tun Hussein Onn Malaysia (UTHM) is also highly appreciated.

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linked with a worldwide network through the Central Banks of each country, and with other financial industries (e.g. assurance and reassurance, leasing, industries, stock market, etc), it seems to be valid to say that, Islamic banking is likely to have totally neglected the use of Islamic calendar as the basis of its accounting system.

The abandoned Islamic calendar for Muslim's business might be affected by the following reasons:

1. Majority Muslims thought that the Islamic calendar is just for spiritual life, whilst for worldly lives, Muslims can use other calendar system;
2. Reluctance in accepting science (e.g. astronomy) as a viable means for determining the onset of Islamic month.

This paper will demonstrate that worldly lives for Muslims cannot be separated from the spiritual ones, and it costs very dearly for Muslims' civilization. The zakat payment deficit because of the use of the Gregorian is snowballing from time to time and will be burdened by the next generation of Muslims as a civilization debt. Simply put, the independent variables of this civilization debt are the period of the Islamic calendar being neglected, and the total assets value of Muslims in the world. If Muslims have been practicing this for 1,200 years, for example, this is equivalent to some 40 years unpaid zakat. As the obligatory tithe (zakat) is 2.5% per annum, hence, all Muslims are actually in a stage of total bankruptcy. On the one hand, this is quite alarming, but on the other hand, it reserves a huge potential of Muslims' contribution to the development of global economy.

III. Data for Algorithmic Development

In order to be able to see the potential loss of payable zakat of the current financial statements from the shariah compliant ones, we need to have financial statements of at least ten consecutive years of any Muslim's business operation (e.g. the above banks). Because such data is difficult to obtain, for the sake of algorithmic development, this research is using simulated possession of assets through stock market. In a way, the developed algorithmic model will be useful for:

1. Estimating the potential of zakat payment deficit of collective possession of assets through capital market available by Muslims in the world;
2. Synchronizing the western capital market with a shariah compliant one;

TABLE I: List of Assets Used for The Development of an Estimation Model

Assets	*Volume*	*Period of Ownership*	
		From - to	months
General Electric	10 million shares	5/1/2000 - 16/6/2009	115
Gold	1,000,000 ounces	2/1/1990 - 5/6/2009	238
Crude oil	10 million barrels	16/8/2006 - 24/2/2011	55
Silver	1,000,000 ounces	1/8/1996 – 26/5/2009	156
Copper	1,000,000 units	10/7/1995 – 7/6/2011	193

With slight modification, the developed algorithm can accommodate the profit/loss data of any Muslim's enterprise in the future. History price of five commodities and shares used in this research are available in public domain through http://finance.yahoo.com/. They are shown in Table I.

IV. Mathematical Formulation

The Gregorian calendar is a solar calendar that was determined according to its 400 year-cycle characteristics with a total number of 146,097 days [23]. Dividing the above number by 400, one will come up with a figure of 365.2425 days for every calendar year. That is the closest number to one-year season which is 365.25636 days when the apparent sun completes one full orbit along the ecliptic.

The Islamic calendar, on the other hand, is a pure lunar-based calendar. If the number of days in a month in the Gregorian calendar is kept fixed (except February), the number of days in a month in the Islamic calendar is determined accurately based on astronomical phenomena. The characteristics of two heavenly bodies, the sun and the moon with respect to an observer on the earth's surface are very important in marking the beginning of an Islamic month. The occurrence of crescent after conjunction when the sun sets in the western local horizon marks the beginning of an Islamic month. However, as sun's and moon's apparent orbits are slightly perturbed along their courses over the year, the number of days in an Islamic month also keeps changing from one year to the next.

General mathematical formula to transform the behavior of two celestial bodies as the basis of different calendar systems is actually a problem in Geodetic Astronomy. Geodesists and other scientists have been able to develop formula to locate the position of any celestial bodies (be it natural or man-made) in space very accurately. The deployment of artificial satellites for different applications (environmental, communication, navigation and positioning, etc.) applies the same geodetic principles [24], [25]. The transformation of positional datum of two celestial bodies (the sun and the moon) for the synchronization of the Gregorian and Islamic calendars has also been solved astronomically. Abundant astronomical software is available; many of them are even free software for the transformation of these two calendar systems. This part is categorized as the transformation in the lower frequency domain, but it is beyond the scope of this paper to discuss. The topic of discussion of this paper is more on the synchronization of these two calendar systems in higher frequency domain.

Basic characteristic of stock market data available in Table I is naturally stochastic. Overall graphical plot of gold price history given in the table is shown in Fig. 1. However, as one zooms in, stock transaction actually occurs only during the weekdays. There is no transaction during weekends and public holiday. If one needs for a point based estimate to calculate assets value at certain date for further calculation of the corresponding zakat, for example, one then has three options. Firstly, he/she applies global modeling to the whole set of the data in Fig. 1; or secondly, construct a global modeling for each fiscal year data series. Either one, the estimation results would be too coarse. From Fig. 1, for example, graphically one can easily suffer from an estimate error of larger than US$ 200. The third option would be to construct a piecewise modeling window as shown in Table II that has fifteen transactions. The calculated zakat is hence

distributed appropriately on a monthly basis.

TABLE II: A PIECEWISE WINDOW OF FIFTEEN TRANSACTIONS DATA

Gregorian Date	Transaction Volume	Stock Price (US$)	Dates require estimated asset value
10/27/2004	16,697,800	33.95	
10/28/2004	14,380,600	34.03	
10/29/2004	18,333,700	34.12	
10/30/2004			
10/31/2004			end of Gregorian month
11/1/2004	12,941,300	34.05	
11/2/2004	16,938,900	34.05	
11/3/2004	18,920,400	34.33	
11/4/2004	25,234,300	35.09	
11/5/2004	20,886,800	35.19	
11/6/2004			
11/7/2004			
11/8/2004	13,422,200	35.12	
11/9/2004	15,814,700	35.42	
11/10/2004	17,046,400	35.32	
11/11/2004	14,375,300	35.80	
11/12/2004	18,835,400	36.25	
11/13/2004			
11/14/2004			1 Syawwal 1425 (new Islamic month)
11/15/2004	14,334,500	36.10	
11/16/2004	13,142,100	36.10	

In general, a piecewise modeling has advantages over the global modeling as listed in TABLE III.

TABLE III: ADVANTAGES OF PIECEWISE MODELING OVER GLOBAL MODELING

Category	Global Modeling	Piecewise Modeling
Robustness	Coarse modeling	Accurate Modeling
Accuracy	Low	High
Flexibility	Inflexible	Highly flexible
Statistical analysis for accuracy improvement	Impossible	High possibility
Computational Burden	High	Low

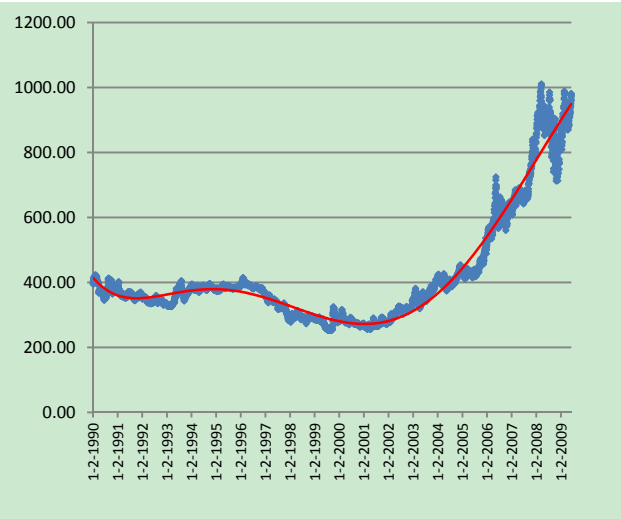

Fig. 1. Gold price history (2/1/1990 – 5/6/2009 in US$) and 6th degree polynomial trend.

V. DETAILED MATHEMATICAL MODELING

Mathematical modeling in the higher frequency domain is approached by introducing a classical higher order polynomial as shown in (1). Preliminary studies and tests have concluded that 10th degree polynomial is very effective in expressing even very volatile stock market in a window ranging from twelve to twenty five observations (i.e. available market price).

$$y_i = p_0 + p_1 x_i + p_2 x_i^2 + p_3 x_i^3 + \ldots\ldots + p_n x_i^n \quad (1)$$

where:

y_i = stock price at i^{th} day;
x_i = i^{th} transaction day;
$p_0, p_1, \ldots p_n$ = unknown parameters to be determined.

Least square principles allow the introduction of small random error v in y. They are then rewritten in a matrix form [26]. The above general observation equations in least squares adjustment is rewritten in a matrix notation as given in (2) and (3):

$$v + y = Ap \quad (2)$$

or

$$v = Ap - y \quad (3)$$

where:

v = a vector of residual error of the observation (stock price);
A = a coefficient matrix (design matrix);
$p_{l(l=0,n)}$ = a vector of parameters of n^{th} degree of the polynomial to be determined;
$y_{j(j=1,i)}$ = a vector of recorded (observed) stock price.

Under Null Hypothesis (H_0), the distributions of $\hat{p}$ and v are defined in (4-a) and (4-b):

$\hat{p} \sim N(p, \sigma_0^2 Q_{pp})$ — $\hat{p}$ is normally distributed with expected value p and precision $\sigma_0^2 Q_{pp}$. $Q_{pp} = (A^t PA)^{-1}$, and q_{pp} is the corresponding diagonal element of the variance-covariance matrix of p, and σ_0^2 is the a-priori variance. (4-a)

$v \sim N(0, \sigma_0^2 Q_{vv})$ — v is normally distributed with expected value 0 (zero) and precision $\sigma_0^2 Q_{vv}$. q_{vv} is the corresponding diagonal element of the variance-covariance matrix of v. (4-b)

Least square principles require that the sum of the squared residuals v be constrained minimum. This leads to the construction of a normal equation for the solution of the estimated parameters p and the precision estimate of the estimation model with respect to the observed data, see (5).

$$p = (A^t A)^{-1} A^t y \quad (5)$$

In simpler form, one writes the above normal equation as in (6):

$$p = N^{-1} K \quad (6)$$

Substituting back p from (5) to (3) will yield v.

VI. DECOMPOSITION OF N MATRIX IN NORMAL EQUATION

As one will see, the design matrix A is in itself badly scaled

which consequently will produce an extremely badly scaled N matrix (i.e. product of A^t and A). In general, N will be a symmetric matrix as given in (7):

$$\boldsymbol{N} = \begin{bmatrix} \boldsymbol{n} & \sum_{j=1}^{i} x_j & \sum_{j=1}^{i} x_j^2 & \cdots & \sum_{j=1}^{i} x_j^n \\ \sum_{j=1}^{i} x_j & \sum_{j=1}^{1} x_j^2 & \sum_{j=1}^{i} x_j^3 & \cdots & \sum_{j=1}^{i} x_j^{n+1} \\ \sum_{j=1}^{i} x_j^2 & \sum_{j=1}^{i} x_j^3 & \sum_{j=1}^{i} x_j^4 & \cdots & \sum_{j=1}^{i} x_j^{n+2} \\ \vdots & \vdots & \vdots & \cdots & \vdots \\ \sum_{j=1}^{i} x_j^n & \sum_{j=1}^{i} x_j^{n+1} & \sum_{j=1}^{i} x_j^{n+2} & \cdots & \sum_{j=1}^{i} x_j^{2n} \end{bmatrix} \quad (7)$$

Equation (7) shows that whilst $N_{(1,1)}$ has a nominal value of n, $N_{(i,i)}$ will nominally be $\sum_{j=1}^{i} x_j^{2n}$. Some programming languages are not capable in handling such extreme condition to return a correct N^{-1} matrix as N is closed to singular. The developed algorithm provides an alternative solution to avoid the inversion of complete N^{-1} by decomposing it into small matrices [27]. The classical algebraic decomposition is given in (8) through (16):

$$\dot{N}\dot{p} + \bar{N}\ddot{p} = \dot{K} \quad (8)$$

$$\bar{N}^t\dot{p} + \ddot{N}\ddot{p} = \ddot{K} \quad (9)$$

Solving for $\ddot{p}$ from (9) yields

$$\ddot{p} = \ddot{N}^{-1}(\ddot{K} - \bar{N}^t\dot{p}) \quad (10)$$

Substituting (10) into (8) yields

$$\dot{N}\dot{p} + \bar{N}\{\ddot{N}^{-1}(\ddot{K} - \bar{N}^t\dot{p}\} = \dot{K} \quad (11)$$

or

$$\dot{N}\dot{p} + \bar{N}\{\ddot{N}^{-1}\ddot{K} - \ddot{N}^{-1}\bar{N}^t\dot{p}\} = \dot{K} \quad (12)$$

$$\dot{N}\dot{p} + \bar{N}\ddot{N}^{-1}\ddot{K} - \bar{N}\ddot{N}^{-1}\bar{N}^t\dot{p} = \dot{K} \quad (13)$$

$$(\dot{N} - \bar{N}\ddot{N}^{-1}\bar{N}^t)\dot{p} + \bar{N}\ddot{N}^{-1}\ddot{K} = \dot{K} \quad (14)$$

$$(\dot{N} - \bar{N}\ddot{N}^{-1}\bar{N}^t)\dot{p} = \dot{K} - \bar{N}\ddot{N}^{-1}\ddot{K} \quad (15)$$

$$\dot{p} = (\dot{N} - \bar{N}\ddot{N}^{-1}\bar{N}^t)^{-1}(\dot{K} - \bar{N}\ddot{N}^{-1}\ddot{K}) \quad (16)$$

Substituting back calculated $\dot{p}$ in (16) into (10) gives the solution for $\ddot{p}$. Finally, substituting these two estimated parameters of the polynomial into (1) will give an estimated stock price on dates when there was no transaction at the end of monthly declaration of assets value. In addition to that, substituting back computed p to (3) will give the residual error of the estimated polynomial model with respect to the real observation of the stock price. This is the precision measure of the estimation model.

VII. Accuracy and Precision of The Estimate

Standard deviation (σ) is an important statistical measure to express how good one's estimate is. It is defined in (17):

$$\sigma = \sqrt{\frac{\sum_{j=1}^{i} v_j^2}{\{i-(n+1)\}}} \quad (17)$$

However, σ is only effective if one does not have functional error in the model [28] - [30]. The big problem comes from the fact that functional error will not appear in the standard deviation. In many cases, when a serious functional error exists, σ is even very small; therefore it is misleadingly representing the actual accuracy of the estimate. In other words, σ will be effective to represent the accuracy of an estimation model only if there is no functional error in the model.

The following cases are when there exist functional errors but it is not reflected in the σ (see Fig. 2). Please note that σ in Fig. 2 that is only $ 0.27 actually has obscured the potential estimation error of about $ 5.00 when one has to estimate on 9/3/2006 or 9/4/2006. This is a dangerous situation as ordinary users might completely rely on the σ.

Two remedies are proposed to remove the possible existence of functional error. Firstly, by having minimum number of three anchor points at both ends of the window. By having minimum three anchor points will geometrically support any possible functional errors from erratic behavior. This is therefore called geometrical remedy (compare Fig. 2 and Fig. 3). In Fig. 3, an additional anchor point at right end of the window has removed the erratic behavior due to the functional error.

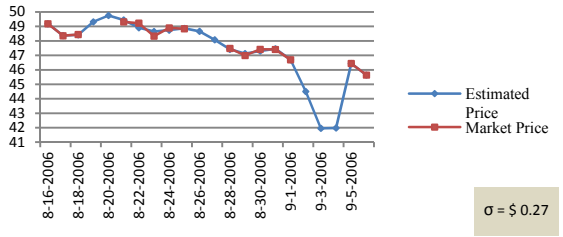

Fig. 2. Spike due to over-parameterization (functional error).

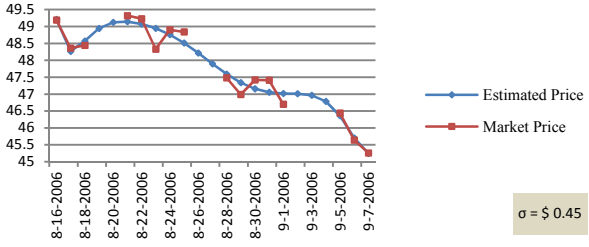

Fig. 3. Spike disappears when two additional anchor points are given at far right end window.

Fig. 4. Spike disappears when parameter no 11 excluded.

Alternatively, a statistical remedy is coded in the estimation module, by referring to (4-a) and (4-b). Under the Null Hypothesis, the unknown parameters p is supposed to be independent to each other. Their status of independence can be monitored from the correlation coefficient matrix that is derived from the corresponding variance-covariance matrix Q_{pp} in (4-a). A typical of functional error is shown in the following correlation matrix (i.e. symmetric matrix) as shown in TABLE IV.

TABLE IV: CORRELATION COEFFICIENT MATRIX OF ELEVEN ESTIMATED PARAMETERS P

	p1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11
p1	1	0.08	0.76	0.32	0.68	0.52	0.61	0.6	0.49	0.58	0.57
p2	0.08	1	0.1	0.79	0.04	0.53	0.03	0.28	0.18	0.12	0.18
p3	0.76	0.1	1	0.43	0.97	0.75	0.9	0.89	0.75	0.87	0.86
p4	0.32	0.79	0.43	1	0.34	0.89	0.2	0.62	0.07	0.39	0.47
p5	0.68	0.04	0.97	0.34	1	0.7	0.98	0.92	0.87	0.95	0.93
p6	0.52	0.53	0.75	0.89	0.7	1	0.6	0.9	0.34	0.74	0.8
p7	0.61	0.03	0.9	0.2	0.98	0.6	1	0.88	0.95	0.97	0.93
p8	0.6	0.28	0.89	0.62	0.92	0.9	0.88	1	0.7	0.96	
p9	0.49	0.18	0.75	0.07	0.87	0.34	0.95	0.7	1	0.88	0.82
p10	0.58	0.12	0.87	0.39	0.95	0.74	0.97	0.96	0.88	1	
p11	0.57	0.18	0.86	0.47	0.93	0.8	0.93		0.82		1

Diagonal elements of Table IV show perfect correlation (=1.0) of estimated parameter p_i with itself. On top of that, however, an almost perfect correlation coefficient occurs between p_{11} and p_{10} (=0.99), and also between p_{11} and p_8 (=0.98). Such situation is a reflection of redundant role between these estimated parameters p_i that is called *over-parameterization* [16] and [17]. In order to be consistent with pre-condition given as Null Hypothesis in (4-a), an additional iteration is then performed by omitting p_{11} in the next estimation process. The result is shown in Fig. 4, and it is called statistical remedy. The plot in Fig. 4 demonstrates that by omitting p_{11}, the functional error in the estimation process is also corrected. Further than that, a closed inspection to σ in Fig. 3 and Fig. 4 even demonstrates that σ resulted from geometric and statistical remedies are about the same level (US$ 0.45 in Fig. 3 and US$ 0.43 in Fig. 4). Although both are significantly larger than the original σ of US$ 0.27 in Fig. 2, the standard deviation now becomes the true statistical measure because the functional error has been removed.

The following cases are both geometric and statistical remedies applied to crude oil data estimation process. Fig. 5, Fig. 6, and Fig. 7 are respectively showing spike in the original window (12/1/06-12/21/06) which consists of fifteen observations, geometric remedy to remove spike, and spike removal by statistical remedy. The same explanation applies also to Fig. 8 through Fig. 10, and Fig. 11 through Fig. 13. Otherwise, the caption of the figures is self-explanatory. This demonstrates the versatility of the developed estimation model for synchronizing the western capital market with shariah compliant one.

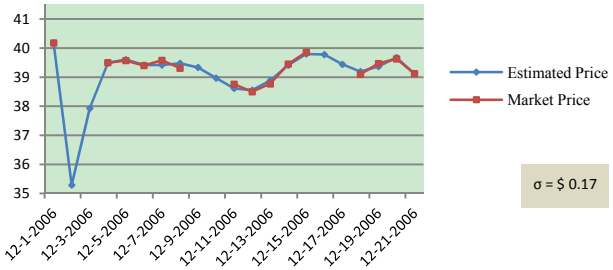

Fig. 5. Spike due functional error and weak window geometry (12/1/06-12/21/06).

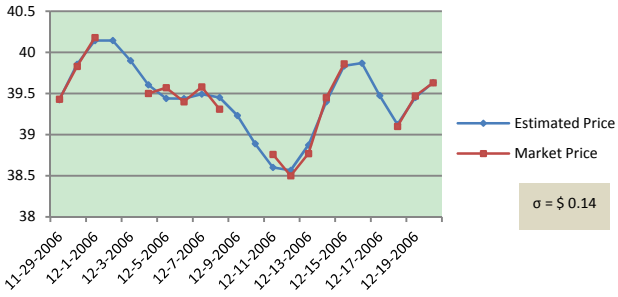

Fig. 6. Stronger geometry by adding two additional anchor points at left end of window in Fig. 5.

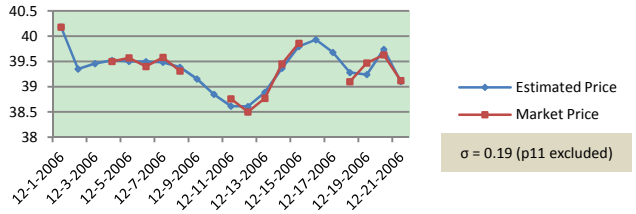

Fig. 7. Statistical remedy by omitting p11 in Fig. 5.

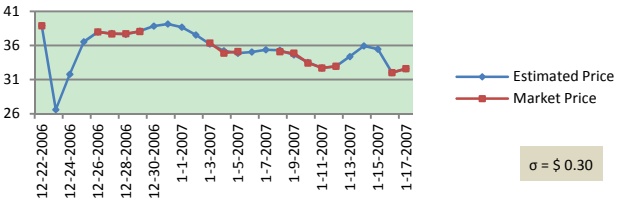

Fig. 1. Spike due functional error and weak window geometry (12/22/06-1/17/06).

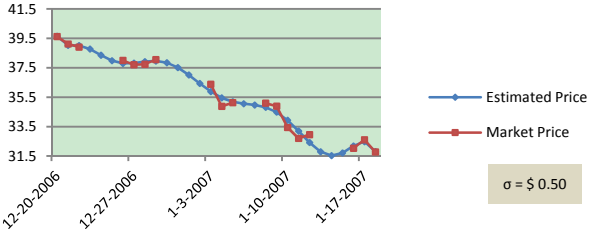

Fig. 9. Geometric remedy by adding anchor points at both ends of window in Fig. 8.

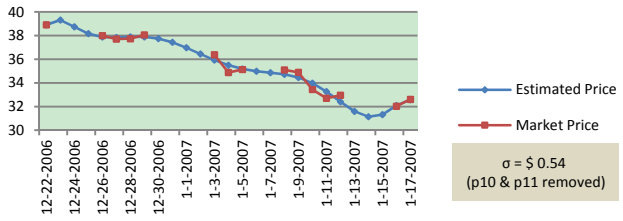

Fig. 10. Statistical remedy by omitting p10 & p11 in Fig. 8.

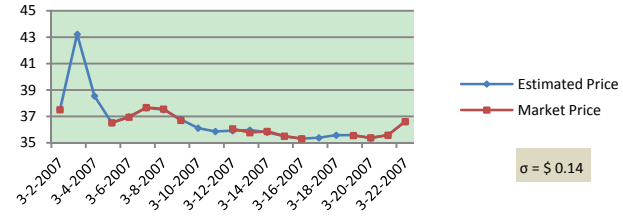

Fig. 11. Spike due functional error and weak window geometry (3/2/07-3/22/07).

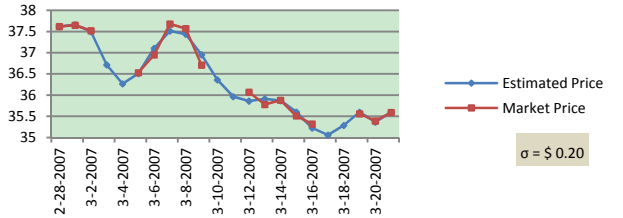

Fig. 12. Geometric remedy by adding two anchor points at left end of window in Fig. 11.

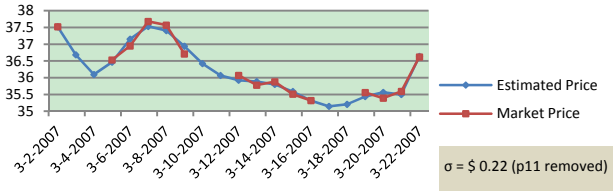

Fig. 13. Statistical remedy by omitting p11 in Fig. 11.

VIII. Results

This research utilizes previously described robust estimation model, and it was coded in high level programming language Matlab environment. By applying the algorithm, five assets as listed in Table I are used to calculate the potential of zakat deficit (i.e. the difference between payable zakat of two calendar systems). When transaction is available on dates required to estimate the assets and its corresponding zakat, the assets is calculated based on the market value. Only if there is no transaction on the dates whereby assets estimation is required, then the estimation algorithm is applied. Payable zakat is calculated proportionally on a monthly basis based on 2.5% prescribed annual zakat for Muslims in two accounting systems (i.e. the Gregorian and Islamic calendars). The results are listed in Table V.

For the case of gold history price in Table V, these are the statistics of the computational details:

1. There are 188 windows of 16 observations;
2. 11 windows of 15 observations
3. 1 window of 17 observations
4. 1 window of 21 observations.

Out of these, the accuracy obtained when it is standardized with respect to average stock price within the corresponding windows is as follows:

1. Best relative accuracy: 0.10%;
2. Worst relative accuracy: 1.14%;
3. Average relative accuracy: 0.46%

This simply means that in average, if the stock price is US$ 100, for example, the error of the estimation model is only about US$ 46 cents. It is of firm belief that this is about the optimum accuracy one can achieve for such volatile data available in stock market.

Above all, it is interesting to see that regardless of the stock price volatility, in all cases, there appears zakat payment deficit. Despite only limited commodities are used in the study, the figure is quite alarming viewed from shariah (Islamic law) standpoint. The results hence have demonstrated that Muslims' mundane lives actually have spiritual consequences, unlike what Muslims thought before. This is actually Muslims' civilization debt and it needs repayment scheme of some sort in one way or the other. In order to estimate the total civilization debt, one needs to know two independent variables in Table V. They are going to be the future objective of this research that will emphasize in scrutinizing:

1. The period whereby Muslims have been neglecting the Islamic calendar as the basis of their accounting system in business;
2. The strategic sampling of commodities representing the total assets of all Muslims' business;

Upon the completeness of the long-term research objective, we then will be able to declare the most probable Muslims' civilization debt. Zakat in Islam is meant not only to cleanse one's wealth, but more importantly to purify his/her soul. Therefore, Muslims all over the world should seek ways of stopping the "bleeding" and find ways of repayment scheme for their unconscious civilization debt. It seems to be unproductive when Muslims develop shariah economy and banking system in order to avoid riba (excessive payment and bank interests) in the one hand, but it allows the nurture of zakat payment deficit by applying wrong accounting system that has created huge potential of zakat payment deficit.

ASSETS	VOLUME	PERIOD From - To	ZAKAT (Greg. Cal. US$)	ZAKAT (Islamic Cal. US$)	Zakat deficit (US$)
General Electric	10 million shares	5/1/2000 - 16/6/2009	81,583,329	83,968,940	2,385,611
Gold	1,000,000 ounces	2/1/1990 - 5/6/2009	206,622,239	212,048,171	5,425,932
Silver	1,000,000 ounces	1/8/1996 - 26/5/2009	3,537,163	3,643,871	106,708
Crude oil	10 million barrels	16/8/2006 - 24/2/2011	41,781,151	42,970,881	1,189,730
Copper	10 million units	10/7/1995 - 7/6/2011	7,403,671	7,478,343	74,671
TOTAL ZAKAT DEFICIT: US$ 9,182,652					

From shariah stand point, therefore, it is imperative that all Muslims in the world seek a strategic way for the repayment scheme in one way or the other. This attempt, on the other hand, will generate an unimaginably huge financial resources preserved by Muslim's world in the development of global economy, especially in poverty eradication program in the third world countries.

IX. Conclusion

The research has demonstrated that the current practice of shariah economy is substantially flawed as it is using the Gregorian calendar as the basis of its accounting system. This is what so called pseudo-shariah economy system. It is unproductive when Muslims develop shariah economy in as an effort to be free from prohibited activities and elements in business such as riba (usury), maisir (gambling) and gharar (ambiguity) that is prohibited in Islam on the one hand, but they are nurturing a system that facilitates zakat embezzlement on the other hand. Muslims all over the world, therefore, should be able to undergo major reform in their business practice by using the Islamic calendar as the basis of their accounting system; otherwise, the zakat deficit will be snowballing unstoppably and will be burdened by next generations of Muslims.

A more comprehensive research is required in order to estimate the actual total zakat deficit due to the flawed practice along Muslims' civilization. Should this be followed by a proper and strategic repayment schemes, Muslims actually reserves a huge potential power to eradicate poverty without being dependent on financial aids of the western world.

Acknowledgment

The research has been made possible through financial aids of the Ministry of Higher Education (MOHE), Malaysia through the Fundamental Research Grant Scheme (FRGS) vote number 0760. Continuous support of the University Tun Hussein Onn Malaysia (UTHM) is also highly appreciated.

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