“Analysis of Syariah quantitative screening norms among Malaysia Syariah-compliant stocks”

AUTHORS	Wee Ching Pok

ARTICLE INFO	Wee Ching Pok (2012). Analysis of Syariah quantitative screening norms among Malaysia Syariah-compliant stocks. *Investment Management and Financial Innovations*, *9*(2)
RELEASED ON	Thursday, 07 June 2012
JOURNAL	"Investment Management and Financial Innovations"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES
0

NUMBER OF FIGURES
0

NUMBER OF TABLES
0

Wee Ching Pok (Malaysia)

Analysis of Syariah quantitative screening norms among Malaysia Syariah-compliant stocks

Abstract

The purpose of this study is to investigate whether Malaysian Syariah-compliant quantitative screening adopts criteria, which can be considered more liberal than those used by the DJIM, S&P and FTSE Syariah index providers, and also to assess the financial health of the sample companies. To do these, a sample of 477 Syariah-compliant firms were tested using the financial ratios, namely, liquidity ratio, interest ratio, debt ratio and non-permissible income ratio used by these world leading index providers. The results showed that fewer companies (12.16%) are qualified under the DJIM criteria and even more companies (63.10%) are qualified under the FTSE criteria. The reasons for this difference are: (1) the use of different formulae to calculate the ratio; (2) the use of different thresholds; and (3) the different emphases applied by the world index providers. The results of the financial health screen show that the majority of the Syariah-compliant companies are financially healthy.

Keywords: Syariah-compliant stocks, Malaysia, screening, financial ratios, financial health.
JEL Classification: G10, G11, G15, G18.

Introduction

Islamic finance has been practised since the establishment of the first Islamic communities. However, modern Islamic financial systems began only in the 1960s, when the first Islamic bank was formally set up in Egypt in 1963. The growth has not been significant until the Islamic Development Bank (IDB) was set up in 1975 to formally promote the Syariah-compliant (an Arabic term which means Islamic law) financial practices. In the 1980s and early 1990s, during the global financial deregulation, Islamic finance began to establish footholds in larger international banks in the Western countries. Countries such as the USA and Europe began to adopt Islamic finance and banking by amending some parts of their banking and tax laws and their legal and regulatory frameworks in accordance to Islamic practices in order to attract Islamic investments. After the 1997 Asian financial turmoil, there has been an increasing demand calling for changing Western or conventional financial system with the Islamic financial system. Countries in the Far East such as Singapore, Japan, South Korea and Australia have also joined the Islamic finance bandwagon to support their economic growth (The Edge, October 2010). El Qorchi (2005) cited three main reasons for the significant shift: (1) a strong demand for Syariah-compliant financial products from a large number of Muslims worldwide; (2) a strong demand from oil rich nations especially the Middle East countries which prefer to invest in Syariah-compliant products, and (3) the competitiveness and the ethical focus of the Syariah-compliant products being not only attracting Muslim investors but also to non-Muslim investors. According to the recent Asian Development Bank (ADB) Technical Report (2009), the Islamic finance industry has experienced double digit growth annually (estimated at 10%-20%) with the assets from global Islamic services doubling up from USD530 billion in 2006, to USD1 trillion in 2010 (Scott Smith; Reuters, 2010; Ilias, 2010).

As the number of faithful Muslim investors grows and they become more familiar with the concept of Islamic finance, Islamic investments in stocks and shares are likely to come under greater scrutiny to ensure that their investments fully comply with the Syariah. Hence, Syariah indices that have been established in stock exchanges are expected to come under the spotlight especially if they are used to attract investments, domestically and internationally. The index providers need to be vigilant with issues that are related to Syariah to ensure that the criteria for stock inclusion or exclusion in Syariah indices are constantly reviewed for compliance. Maintaining strict compliance is crucial in order to instil investor's confidence and trust. The world's leading equity index providers such as Dow Jones, FTSE, Standard and Poor's (S&P), MSCI Barra and Russell Investments[1] concur that Syariah-compliant products need to be monitored and reviewed regularly. At the initial screening (also known as qualitative screening), the universe of the stocks from the conventional global equity indices are screened for prohibitive elements[2]. The qualitative processes and

This research is funded by Accounting Research Institute, higher institution center of excellence of Ministry of Higher Education of Malaysia.

[1] Dow Jones debuted its Dow Jones Islamic Market Index family, then FTSE Group developed the FTSE Shariah Global Equity Index Series, Standard & Poor's introduced the S&P Shariah indices, MSCI Barra MSCI Islamic Index Series, and Russell Investments launched the Russell Jadwa Shariah indices.

[2] For example interest (riba), excessive uncertainty (gharar), gambling (maysir) and forbidden products (haram), i.e., companies that are directly involved with alcohol, broadcasting and entertaining, conventional financial services, gambling, hotels, insurance, media (except newspapers), pork-related products, restaurants and bars, tobacco, trading of gold and silver, and weapon and defence.

criteria used by index providers around the world are largely similar with little significant differences (Khatkhatay and Nisar, 2007; Derigs and Marzban, 2008; Abdul Rahman, Yahya and Mohd Nasir, 2010). While there is general consensus on the qualitative screening, index providers diverge in opinions with quantitative or financial ratios screening[1]. For example, when calculating liquidity ratio, interest ratio and debt ratios, Dow Jones and S&P use market capitalization as their denominator whereas FTSE and MSCI Barra use total assets as its denominator. Khatkhatay and Nisar (2007) who compared the criteria of DJIM Islamic Index (DJIMI), Kuala Lumpur Stock Exchange Syariah Index (KLSE SI) and Meezan Islamic Fund Criteria Pakistan found the use of market capitalization as the denominator is inappropriate and recommended the use of total assets instead. In examining the financial ratios, another area of disagreement in opinion is the threshold levels apply to financial ratios. For example, when calculating liquidity ratio, Dow Jones has used 33% as the threshold level, FTSE, 49% and S&P, 50% although the threshold levels are similar for the rest of the financial ratios.

Malaysia had a head start over other countries in East Asia in implementing Islamic finance and banking and it has indeed come a long way since the advent of Islamic capital markets (ICM). Its first Pilgrims Fund (Tabung Haji) was established in 1969 and its first Islamic bank, Bank Islam was set up in 1983. Prior to 1997, the Islamic bank, Bank Islam, initiated a review to determine the Syariah status of listed stocks. Between 1996 and 1997, the Syariah Advisory Council (SAC) of Securities Commission (SC) developed the screening criteria and in June 1997, the SC introduced the official list of Syariah-compliant stocks or securities listed in the Malaysian bourse (henceforth to be termed "Bursa Malaysia"). Furthermore, Malaysia which official religion is Islam has all the ingredients to become a major global hub for Islamic finance and ICM. The government, Bank Negara Malaysia, Securities Commission and Bursa Malaysia have all work in tandem to create a framework of legislation, rules and guidelines to support the growth of this industry. Malaysia is the only country with such a comprehensive framework.

In 2009, Malaysia had recorded the largest share of the global ICM estimated between 60% to 70%. Regrettably, the bulk of the ICM comes from domestic investors (The Edge, 2009). Clearly, Malaysia failed to engage the global community or foreign fund managers or investors, especially the Gulf Cooperation Council (GCC) Syariah-compliant portfolio investors, to actively participate in the ICM. There have been a number of reasons, namely, the illiquidity of many companies, the currency risk involved and ignorance of the needs of the investors. According to the industry players, the main reason has been the perception that Malaysia's interpretation of Syariah is more 'liberal' compared to that of Saudi Arabia and other Muslim nations (Islamic Finance Asia, 2010). There is also a negative perception in the West that this sector has a track record of poor performance, illiquid and serves only Muslim investors (Ismail, 2010). This does not augur well for Malaysia's ICM if it wishes to turn into an international Islamic financial hub. In fact, the Syariah-compliant screening has resulted in a style of investing labelled 'low debt, non-financial, social-ethical' investment (Siddiqui, 2010). Another advantage of Syariah-compliant screening is investors benefit from the greater transparency required for the products and are exposed to lower risk while at the same time gaining modest returns (Hamid, 2010). In order to encourage more foreign participation, therefore, there is a need to clarify the misconception that Malaysia's ICM index screening criteria is more lenient than other ICMs in the world. Paul Hoff, managing director of FTSE Asia Pacific, claimed that the international investors prefer investments with strict Syariah-compliant guidelines (Islamic Finance Asia, 2010). With the recent global financial crisis in 2007 and 2009, the need has become more urgent because there is tremendous opportunity for Malaysia to promote its ICM to the world.

Abdul Rahman, Yahya and Mohd Nasir (2010) have tested DJIM's quantitative screening process using Malaysian Syariah-compliant stocks approved on October 26, 2006. Based on analysis of both liquidity and debt ratios, they find that only 35% of the Malaysia Syariah-compliant stocks qualify under DJIM's quantitative screening. These results seem to indicate that the Malaysia Syariah-compliant stocks are a lot more 'easily qualified' on the Malaysian stock exchange than elsewhere. According to Abdul Rahman et al. (2010), the reasons for such great divergence have been the use of different quantitative screenings by the different stock exchanges in arriving at the qualification of Syariah-compliant stocks. While the results are interesting, it does not extend to that of other world-leading index providers.

Hence, the purpose of this study is to investigate whether Syariah-compliant stock screening in Malaysia is more liberal compared to DJIM, S&P and

[1] Generally, the quantitative screen involves the three main financial ratios, namely, liquidity ratio, interest ratio and debt ratio. Some index providers also examine non-permissible income ratio.

FTSE. This study closes the gap by testing two other world-leading equity index providers that are FTSE and S&P in addition to DJIM. It would be interesting to observe to what extent the Malaysia Syariah-compliant stocks comply with the quantitative criteria set by the world leading equity index providers. Other than being Syariah-compliant, it is also important that the companies are seen to be financially strong.

Many studies have been conducted to predict corporate failure of firms. One of the pioneer studies is that of Altman (1968) who used multivariate discriminate analysis (MDA) to predict the corporate failure of firms one year before their filing for bankruptcy[1]. Following this, the MDA model was used extensively by other researchers[2]. Thereafter, other models began to emerge, for example, the option-to-default methodology by Merton (1974), the logit model or logistic regression introduced by Ohlson (1980), the hazard model by Shumway (2001) and the more recent artificial intelligence systems (expert systems and neural networks)[3]. Several studies involving the prediction of corporate failure of Malaysian firms have been conducted. For example, Low et al. (2001) used the logit model, Zulkarnain et al. (2001) used MDA, Mohamed et al. (2001) used both MDA and the logit model, Mohamad et al. (2005) used the logit model, Nur Adiana et al. (2008) used MDA, the logit and hazard models, etc. Nur Adiana et al. (2008) found that leverage ratio is an important determinant in predicting distressed companies in all the three models. A recent study by Ong et al. (2011) using companies classified as financial distressed from 2001 to 2007 found five financial ratios are useful for corporate failure prediction in Malaysia[4].

Hence, while examining the qualification of the Malaysian Syariah-compliant stock according to the criteria set by world leading equity index providers, it is also appropriate to examine the financial health of each of the Syariah-compliant stocks. Since this study only explores the overall financial health or strength of the companies, an examination using the Altman models would be sufficient. To study this, three Z-score financial health models are used, namely, Altman (1968) Z-score, Altman's (2002) double prime Z-score and private companies model Z-score. Altman (1968) and Altman (2002) are the two primary models used to screen for problematic companies and Private Companies model focuses on non-public-traded companies where book value equity is used rather than market value of equity. The results of this study should reveal to international investors including those from Middle East the relative stringency of Malaysia's Syariah-compliant quantitative screening criteria in relation to the criteria adopted by international index providers such as the DJIM, the FTSE and the S&P while also providing an insight of the overall financial health or strength of these companies. This would help the Malaysia regulatory authorities such as the Syariah Advisory Council of Securities Commission, Bursa Malaysia and even the government to clarify whether Malaysia Syariah-compliant stock screening is too 'liberal' as perceived by the international ICM investors which may hinder the development of the Malaysia's ICM.

This paper is organized as follows. Section 1 presents the past literature and the screening procedure. Section 2 presents the sample of study and the research method. Section 3 presents the results of findings. The final section concludes the paper.

2. Literature review

2.1. Applying Syariah screening. In general, the Syariah-compliant screening process outlined by funds and index providers undergoes a two-level scrutiny process, namely, qualitative screening which is followed by a quantitative screening (Khatkhatay and Nisar, 2007; Derigs and Marzban, 2008; Abdul Rahman et al., 2010). The reason for using a qualitative screening in addition to a quantitative screening is to analyze the intensity with which the investigated companies applied this practice (Derigs and Marzban, 2008). Following what have been discussed by Khatkhatay and Nisar (2007), the qualitative screening is looking at: (1) the structure of the transaction in terms of whether there is any elements that is prohibited in Islam such as interest (riba), uncertainty (gharar), etc; and (2) the nature of the counter-party's (company's) business. A variety of qualitative screenings used for Islamic equity funds or indices have been developed around the world. Derigs and Marzban (2008) did an excellent summary of the qualitative criteria used (and also the quantitative screening) by the world leading equity index providers for screening Syariah-compliant stocks. Table 1 below is an extract of the qualitative criteria used by three prominent international Syariah equity index providers. They are the Dow Jones, the FTSE and the S&P.

[1] Altman (1968) Z-score model was originally designed for U.S. based manufacturing companies. It is found to be 75% accurate in predicting bankruptcy two years prior to the event. Altman's (2002) double prime Z-score model is developed for the health non-manufacturing companies and has also been used on non-U.S. based firms. The private companies model is developed for companies which are not publicly listed.

[2] See for example, Appetiti (1984), Izan (1984), Micha (1984), etc.

[3] Altman and Hotchkiss (2005) provide an excellent discussion of techniques used for prediction of corporate financial distress.

[4] The five financial ratios are current asset turnover, asset turnover, days sales in receivables, cash flow to debt and total liabilities to total assets.

Table 1. Overall comparison of qualitative criteria for Syariah-compliant screening process

	Dow Jones	FTSE	S&P
Alcohol	a.i.	c.b.	a.i.
Broadcasting & entertaining	a.i.	c.b.	a.i.
Conventional financial services	a.i.	c.b.	a.i.
Gambling	a.i.	c.b.	a.i.
Hotels	a.i.	c.b.	a.i.
Insurance	a.i.	c.b.	a.i.
Media (except newspapers)	a.i.		a.i.
Pork-related products	a.i.	c.b.	a.i.
Restaurants & bars	a.i.	c.b.	a.i.
Tobacco	a.i.	c.b.	a.i.
Trading of gold & silver			a.i.
Weapon & defence	a.i.	c.b.	

Source: Extracted from Derigs and Marzban (2008).
Notes: a.i. – any involvement; c.b. – core business.

The Dow Jones Syariah components are selected by filtering the Dow Jones Global Indices through screens for business activities and financial ratios to remove stocks that are Syariah non-compliant[1]. Similar to Dow Jones, the FTSE Syariah has been designed to meet the requirements of Islamic investors globally[2]. However, the Syariah screening is outsourced to Yasaar Research Inc. Standard & Poor's (S&P) introduced the S&P Syariah indices in 2006[3]. For screening, S&P has contracted with Ratings Intelligence (RI) Partners (a London/Kuwait-based consulting company) to filter the stocks for compatibility with Syariah principles.

Quantitative screening involves examining the proportion of: (1) the indebtedness of the company; (2) the interests and other suspect earnings of the company; and (3) the extent of cash and receivables with the company. Khatkhatay and Nisar (2007) have examined the criteria set by Dow Jones (USA), Securities Commission (Malaysia) and Meezan (Pakistan) for Syariah-compliant businesses using financial data (as in March 2005) of the companies included in the BSE 500 index to assess the relevance and stringency of the three exchanges. The results have indicated that the criteria set by Malaysia are the most liberal and USA's Dow Jones is the most conservative. Derigs and Marzban (2008) in their study have criticized the use of different criteria set by different stock exchanges on basis that the discrepancy would lead to different classifications to define companies as permissible (halal) and non-permissible (haram). According to them, this will certainly add confusion to the investors, which may lead to insecurity, distrust and lack of confidence investing in Syariah-compliant stocks. If this continues, it may hinder the further development of the Islamic equity investments and dissuade global funds from investing in ICM.

Furthermore, Syariah scholars also have divergent opinions about the denominator to be used in computing companies' worth measured in terms of market capitalization or total assets. Khatkhatay and Nisar (2007) posited that market capitalization was inappropriate and suggested the use of total assets. Derigs and Marzban (2008) in their study compared the advantages of using moving average market capitalization and total assets as a ratio divisor. Accordingly, the advantages of applying moving average market capitalization are that it will: (1) examine the value of a company from market perspective; (2) eliminate seasonality effects; (3) provide continuous screening; and (4) be more independent of accounting principles. In using total assets for the valuation, the advantages would be the valuation (1) complies to trusted accounting principles; (2) ensures independence from market influences and speculations. A recent study by Abdul Rahman et al. (2010) who examined the financial ratios using total assets as the denominator concluded that only 35% of the Malaysia's Syariah approved companies qualified under the DJIM criteria.

Is there any difference between the conventional financial screening as opposed to the Syariah financial screening? The three main financial ratios used in the quantitative screening are liquidity ratio, interest ratio and debt ratio. According to Derigs and Marzban's (2008), conventional screening views high liquidity ratio positively because it indicates that the company is able to cover its short-term financial obligations more easily than a company with a lower ratio. In contrast, the Syariah views the liquidity gain can only come from the illiquid assets only and the company's assets should be to a high extent in illiquid form and hence, a low liquidity ratio is preferred. As for interest ratio, the Syariah views interest earnings are generally non-permissible. Hence interest bearing securities should be kept low. Interest permissibility is measured by either the amount of interest income generated or the amount of liquid assets (cash and short-term investments) that could generate interest income is at its most limited. In the case of applying debt ratio, the views of conventional practices and the Syariah coincide in that they

[1] http://www.djindexes.com/islamicmarket/ (retrieved September 22, 2011).
[2] http://www.ftse.com/Indices/FTSE_Shariah_Global_Equity_Index_Series/Downloads/FTSE_Shariah_Index_Series_Ground_Rules.pdf (retrieved September 22, 2011).
[3] http://www.standardandpoors.com/servlet/BlobServer?blobheadername3=MDT-Type&blobcol=urldata&blobtable=MungoBlobs&blobheadervalue2=inline%3B+filename%3DMethodology_SP_Shariah_Indices_Web.pdf&blobheadername2=Content-Disposition&blobheadervalue1=application%2Fpdf&blobkey=id&blobheadername1=content-type&blobwhere=1243950619546&blobheadervalue3=UTF-8 (retrieved September 22, 2011).

both favor lower debt ratios. In general, a lower debt level is interpreted as a positive signal to the investors. Companies with lower debt are found to be less likely to experience the probability of default in payment of debt, hence less risky. A less frequently used financial ratio that can be used for Syariah compatibility would be the measure of the level of income generated from Syariah non-compliant activities. This ratio is important in the case that the core business is Syariah-compliant but some of the income is generated from Syariah non-compliant activities. Such screening can be applied, for instance to the hotel business, which core business is generally Syariah-compliant but it becomes necessary to filter out (or measure) the level of income generated by alcohol sales and an associated casino business which are Syariah non-compliant. If this income exceeds a given threshold, then the hotel is marked as being Syariah non-compliant.

2.2. Background of the screening of Malaysia Syariah-compliant stocks. Malaysia has a unique style of screening for Syariah-compliant stocks compared to other world leading equity index providers. In the case of the Malaysia, the screening of Syariah-compliant stocks is done at the central level by the Syariah Advisory Council (SAC) of the Securities Commission (SC). The Syariah-compliant securities constitute part of Malaysia's ICM are stocks that have been vetted by the SAC according to the screening criteria provided in the website of SC[1]. The SC gathers information on the companies from various sources; for example the company's annual financial reports, the company's responses to the survey and the company management's responses to the inquiries. The company's Syariah-compliant status will be regularly reviewed by the SAC and the list of Syariah-compliant firms will be issued by the SAC twice a year that is in June and December. The SAC has applied a standard criterion to evaluate the business activities of the companies listed on Bursa Malaysia and companies whose activities are not contrary to the Syariah principles will be classified as Syariah-compliant securities.

At the qualitative screening stage, first focuses on core business activities of the companies under scrutiny to ensure that they are not be Syariah incompatible. Accordingly, companies will be classified as Syariah non-compliant stocks if their core business activities have elements like interest (riba), excessive uncertainty (gharar), gambling (maysir) and forbidden products (haram) are excluded. In addition, activities related to conventional insurance, entertainment activities that are not permissible according to Syariah and tobacco-based products are also classified Syariah non-compliant stocks. In the case of companies with mixed activities that have both permissible (haram) and non-permissible (haram) elements, the SAC will use two additional criteria: (1) the public perception or image of the company must be good; and (2) the core activities of the company are important and considered public interest (maslahah) beneficial to the Muslim community (ummah) and the country, and the non-permissible element is very insignificant and involves matters such as common plight and difficult to avoid (umum balwa), custom (uruf) and the rights of the non-Muslim community which are accepted by Islam. In this mix of activities, the SAC has established benchmarks of tolerance towards the non-permissible activities. The benchmarks of tolerance are as follows: (1) a 5% benchmark is applied to activities that are clearly prohibited (haram) for example, interest (riba), gambling, alcohol and pork-related products; (2) a 10% benchmark is applied to activities that are of common plight and difficult to avoid (umum balwa) for example, interest income from fixed deposits in conventional banks; (3) a 20% benchmark is applied to rental received from Syariah non-compliant activities for example, rent received from business premises that is involved in gambling, liquor sales, etc and (4) a 25% benchmark is applied to activities that is of public interest (maslahah), for example, hotel and resort operations, share trading, etc. Other than this, no restrictions are imposed on the proportion of debt or proportion of liquid assets in total assets. Based on the above, as June 30, 2011, the SAC of SC has approved 846 (88%) of the securities listed on Bursa Malaysia to be classified as Syariah-compliant, representing around 2/3 of Malaysia's market capitalization.

3. Sample and research method

3.1. Data collection. The purpose of this study is to see whether the criteria used to qualify a company for Syariah-compliance in Malaysia is more liberal compared to criteria used elsewhere. More specifically, this study examines whether the Malaysia Syariah-compliant stocks comply with the quantitative criteria set by the three world leading equity index providers, DJIM, FTSE and S&P. Based on the list released by SC on May 31, 2010, in total there are 846 Malaysian public-listed companies which are Syariah-compliant. Of this number, only 477 (56.3%) companies are chosen to constitute sample[2]. Table 2 below presents the composition of

[1] Refer to http://www.sc.com.my/eng/html/icm/sas/sc_syariahcompliant_101126.pdf (retrieved September 22, 2011) and Khatkhatay and Nisar (2007).

[2] The sample is selected solely on the basis of data availability.

the sample taken from the eight industries. As shown in Table 2, the top three industries that has the highest number of Syariah-compliant stocks are industrial products (162 companies), trading or services (110 companies) and consumer products (82 companies). Each of these respectively contributes 34%, 23% and 17% to the selected sample. For each company, the relevant financial ratios for the end of 2010 are calculated.

Table 2. Composition of sample according to the industries

Type of industries	No. of companies	Percentage
Construction	37	7.76
Consumer products	82	17.19
Industrial products	162	33.96
IPC	5	1.05
Plantations	26	5.45
Properties	28	5.87
Technology	27	5.66
Trading or services	110	23.06
Total	477	100.00

3.2. Methodology. *3.2.1. The quantitative screening.* The three main financial ratios used by the world leading equity index providers (DJIM, FTSE and S&P) as quantitative screening are: (1) liquidity ratio; (2) interest ratio; and (3) debt ratio. FTSE and S&P use an additional non-permissible income ratio for their quantitative screening.

Liquidity ratio measures the ability of firms to pay off their short-term debt obligations. To measure, the company's most liquid assets are compared (or divided by) with the short-term liabilities. From the conventional view, a high liquidity ratio is preferred because it shows that the company is able to cover its short-term financial obligation. According to Derigs and Marzban (2008), from the Syariah perspective, returns or gains should come from a high degree of non-liquid assets. Therefore, liquidity screening will measure the ratio of current assets elements to a company's worth and this should not exceed the acceptable thresholds. Following the method used by the world leading equity index providers, liquidity ratio is obtained by taking the accounts receivables divided by either market capitalisation or total assets value of firm.

Interest ratio provides a general view of proportion of liquid assets especially cash and interest bearing securities in relation to a company's worth. From the Syariah perspective, the lesser it is the better because maintaining highly liquid cash and interest bearing securities are not encouraged. Again, following the method used by the equity index providers, interest ratio is by taking cash and interest bearing securities divided by either market capitalization or total assets of a firm.

Debt ratio provides a view of the overall financial risk of a company which its shareholders face. The greater the debt ratio, the greater the financial risk of bankruptcy. To measure the financial risk, the company's level of debt is divided by either market capitalization or the total assets of firm. Here, the conventional and Syariah views favor lower debt ratios.

The purpose of a non-permissible income screening is to determine whether a company's income from Syariah non-compliant activities have exceeded the allowable level. Again for instance, in the hospitality business, there is a need to know the percentage of income derived from alcohol sales or casino gambling. If the non-permissible income ratio exceeded the bench of threshold, the company is deemed to be Syariah non-compliant. The non-permissible income ratio is obtained by taking non-permissible income other than the interest income divided by total revenue of firm.

Table 3 summarizes the financial ratios used by the three prominent international index providers. One distinctive characteristic of Syariah-compliant quantitative screening compared to the conventional quantitative screening is Syariah-compliant quantitative screening includes threshold levels for all the ratios computed. It specifically states that a certain ratio should not exceed a certain percentage regardless of the industry the firm falls under. As for conventional quantitative screening, the ratios computed are normally compared with the industry averages to see if the company is better off or worse off than other firms in the industry. As seen in Table 3, threshold levels of not exceeding 33% are used for interest ratio and debt ratio and threshold level of not exceeding 5% is used for non-permissible interest ratio. For liquidity ratio, there is a divergence of opinion among the index providers as to the threshold level. As seen, DJIM uses 33%, FTSE uses 49% and S&P uses 50%.

Table 3. A summary of the financial ratios used by the indices providers

Ratios	Dow Jones Islamic market indices	S&P Shariah indices	FTSE Shariah global equity index series
Liquidity ratio	$\frac{AR_i(t)}{MC_{24i}(t)} < 33\%$	$\frac{AR_i(t)}{MC_{36i}(t)} < 49\%$	$\frac{AR_i(t)+C_i(t)}{TA_i(t)} < 50\%$
Interest ratio	$\frac{CSI_i(t)}{MC_{24i}(t)} < 33\%$	$\frac{CSI_i(t)}{MC_{36i}(t)} < 33\%$	$\frac{CSI_i(t)}{TA_i(t)} < 33\%$

Table 3 (cont.). A summary of the financial ratios used by the indices providers

Ratios	Dow Jones Islamic market indices	S&P Shariah indices	FTSE Shariah global equity index series
Debt ratio	$\frac{TD_i(t)}{MC_{24i}(t)} < 33\%$	$\frac{TD_i(t)}{MC_{36i}(t)} < 33\%$	$\frac{TD_i(t)}{TA_i(t)} < 33\%$
Non-permissible income ratio (NPI)	*NA*	$\frac{NPI_i(t)}{TR_i(t)} < 5\%$	$\frac{NPIIi(t)}{TR_i(t)} < 5\%$

Notes: $AR_i(t)$ refers to accounts receivable of i at time t, $C_i(t)$ refers to cash of i at time t, MC_{24i} refers to market capitalization for last 24 months of i at time t, $MC_{36i}(t)$ refers to market capitalization for last 36 months of i at time t, $TA_i(t)$ refers to total assets of i at time t, $CSI_i(t)$ refers to cash and interest bearing securities of i at time t, $CSIE_i(t)$ refers to cash and interest bearing securities exclude Syariah-compliant debt & instruments of i at time t, $TR_i(t)$ refers to total revenue of i at time t, $TD_i(t)$ refers to total debt of i at time t, $TDE_i(t)$ refers to total debt exclude Syariah-compliant debt & instruments of i at time t, $NPI_i(t)$ refers to non-permissible income other than interest income of i at time t and $NPII_i(t)$ refers to non-permissible income including interest income of i at time t.* The calculation of NPI S&P Shariah indices is based on the interpretation of FTSE Shariah global equity index series.

3.2.2. The financial health screening. To screen for financial health, we use the following three models, Altman (1968) Z-score model, Altman (2002) double prime Z-score model and private companies model. The Altman (1968) Z-score is derived from the following equation which is based on five weighted financial ratios.

$$AZ - score = 1.2X_1 + 1.4X_2 + 3.3X_3 + \\ + 0.6X_4 + 0.999X_5, \quad (1)$$

where X_1 = Working capital/Total assets, X_2 = Retained earnings/Total assets, X_3 = EBIT/Total assets, X_4 = Market value of equity/Total liabilities and X_5 = Sales/Total assets.

A firm is considered to be in good financial health if it achieves a score of more than 2.99. If the score is below 1.81, the firm is categorized as financially distressed.

The Altman's (2002) double prime Z-score is derived from the following equation:

$$ADPZ - score = +6.56X_1 + 3.26X_2 + \\ + 6.72X_3 + 1.05X_4, \quad (2)$$

where X_1 = Working capital/Total assets, X_2 = Retained earnings/Total assets, X_3 = EBIT/Total assets, X_4 = Total shareholders' equity/Total liabilities.

As seen in the above equation, numerator of X_4 has been changed to total shareholders' equity and variable X_5.is excluded. A firm is considered to have strong financial health standing if it scores above 2.6 and if it is below 1.1, the firm is considered to be of weak financial standing.

According to Malaysian Business (2007), a private companies model is useful to evaluate the 'true financial strength' of Malaysian public listed companies as their financial strength can be overstated during the bullish market thus exaggerating their true market values. This model uses the same variables as the Altman (1968) Z-score model except the denominator of X_4 has been changed from market value of the equity to its book value. The private companies Z-score model is derived from the following equation:

$$PCZ - score = 0.717X_1 + 0.847X_2 + \\ + 3.107X_3 + 0.420X_4 + 0.998X_5. \quad (3)$$

A firm having a score higher than 2.90 is said to be within the 'safe zone' whereas a score lower than 1.23 deemed to fall into the 'distress zone'.

4. Results and findings

4.1. Descriptive statistics. In quantitative screening, for each company, four financial ratios i.e., liquidity ratio, interest ratio, debt ratio and non-permissible income ratio are calculated using the formula provided by DJIM, S&P and FTSE. Table 4 presents the descriptive statistics of the financial ratios for the 477 companies.

As shown in Panel A of Table 4, the means of the liquidity ratio of the sample companies for DJIM (1.061) and S&P (0.967) are higher than FTSE (0.253). The difference in results could be attributed to the different denominators used to calculate the liquidity ratio in which DJIM and S&P use average market capitalization[1] and FTSE uses total assets. The standard deviation under DJIM and S&P is also much higher compared to FTSE which reflected by a high value in skewness and kurtosis.

[1] Specifically, for DJIM, the average market capitalization for last 24 months is used and for S&P, the average market capitalization for last 36 months is used.

Table 4. Descriptive statistics of the financial ratios of the companies

Ratio	N	Mean	Median	Max	Min	Std. deviation	Skewness	Kurtosis
Panel A. Liquidity ratio								
DJIM	477	1.061	0.574	12.635	0.006	1.527	3.546	16.352
S&P	477	0.967	0.507	12.436	0.005	1.415	3.669	17.771
FTSE	477	0.258	0.230	0.914	0.004	0.166	0.947	0.905
Panel B. Interest ratio								
DJIM	477	0.494	0.345	3.449	0.000	0.508	2.519	8.719
S&P	477	0.447	0.314	3.283	0.000	0.463	2.502	8.433
FTSE	477	0.140	0.100	1.704	0.000	0.147	3.683	28.358
Panel C. Debt ratio								
DJIM	477	1.327	0.537	21.089	0.000	2.148	4.217	28.159
S&P	477	1.172	0.485	21.089	0.000	1.893	4.398	32.369
FTSE	477	0.207	0.175	2.102	0.000	0.204	2.652	17.852
Panel D. Non-permissible income (NPI) ratio								
DJIM	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
S&P	477	0.007	0.003	0.245	0.000	0.0178	8.8387	100.6100
FTSE	477	0.007	0.003	0.245	0.000	0.0178	8.8387	100.6100

Note: n/a – not available.

With respect to the interest ratio, Panel B of Table 4 showed that the means of interest ratio for DJIM (0.494) and S&P (0.447) are higher than that of the FTSE (0.140). Again this difference may be due to different denominators being used; DJIM and S&P use average market capitalization and FTSE use total assets. The results also show that there are companies that have zero interest ratio i.e., having zero cash and interest bearing securities.

Panel C of Table 4 consists of the results of debt ratio for the sample companies. The mean (1.356 and 1.199) and median (0.563 and 0.508) under DJIM and S&P, respectively, are higher compared to FTSE, with a mean of 0.206 and median of 0.179. The result also reveals that there is a company that has achieved maximum debt ratio of 21.089. However, the highest ratio recorded under the FTSE criteria is only 2.102. Again, this difference may be due to different denominators being used. The zero minimum indicated that there are companies that have zero debt.

S&P and FTSE include non-permissible income ratio in their quantitative Syariah-compliant screening. The identical results in Panel D of Table 4 is due to of the same formula being used to calculate the NPI ratio. The value for mean and median is 0.008 and 0.003, respectively.

Table 5 below presents the descriptive statistics for the Z-scores calculated from the three models. The means of the Altman (1968) Z-score and Altman's (2002) double prime Z-score show that on average, the firms are in healthy condition. However, the minimum values show there are some firms, which are in quite bad shape to the extent that they face the risk of bankruptcy. The mean of the private companies model Z-score shows a score below the healthy firm cut-off, which implies that on average firms are not in the 'safe zone'.

Table 5. Descriptive statistics of the Z-scores of the companies

Financial health model	N	Mean	Median	Max	Min	Std. deviation	Skewness	Kurtosis
Altman's Z-score	477	3.198	2.310	45.405	-9.616	4.335	4.860	35.662
Altman's double prime Z-score	477	3.053	3.290	20.115	-34.680	3.767	-2.904	26.917
Private companies' Z-score model	477	2.371	2.062	19.612	-6.185	2.141	2.722	17.403

Notes: Altman's Z-Score cut-off point for healthy firm is above 2.99. Altman's double prime Z-score cut-off point for healthy firm is above 2.60. Private companies' Z-score model cut-off point for healthy firm is above 2.90.

4.2. Results and findings. *4.2.1. The quantitative screening.* Table 6 presents the financial ratio results of the sample firms measured according to the formula provided by three international index providers that is the DJIM, the S&P and the FTSE. The results of the liquidity ratio show that 32.91% of the sample firms meet the DJIM threshold. In other words, 157 out of 477 sample companies have liquid assets constituting less than 33% of their companies' worth. The S&P criteria shows a higher percentage of companies (48.01%) meet the threshold. As for the FTSE, more companies (91.19%) passed the liquidity screening. What could have attributed to these different results? Between DJIM and S&P, the difference in percentages of qualification is due to a more relaxed threshold imposed by S&P. The difference in results between

DJIM, S&P and FTSE is the result of different formula used to calculate the liquidity ratio[1] and also the different thresholds[2] imposed by the indices providers.

For interest screening, all three indices providers are using the same threshold i.e., 33%. The results show only 49.06% of the sample firms meet the acceptable threshold for DJIM and 52.62% for S&P which is quite a close range. In contrast, 90.99% of the sample firms qualified under the FTSE. What could have attributed to the different results between DJIM and S&P together and FTSE? It can be seen that FTSE has used total assets as its denominator where it has more stable values which makes it easier for the firms to qualify.

For debt screening, all three indices providers are also using the same threshold 33%. The results show that 40.88%, 42.56% and 78.20% conform to the threshold of DJIM, S&P and FTSE, respectively. Again the different results are attributed to the different denominators used in calculating the ratio.

Table 6. Analysis of companies according to ratios and thresholds set by the indices providers

Ratio	N	DJIM			S&P			FTSE		
		Threshold	No. of companies	%	Threshold	No. of companies	%	Threshold	No. of companies	%
Liquidity	477	< 33%	157	32.91	< 49%	229	48.01	< 50%	435	91.19
Interest	477	< 33%	234	49.06	< 33%	251	52.62	< 33%	434	90.99
Debt	477	< 33%	195	40.88	< 33%	203	42.56	< 33%	373	78.20
NPI	477	n/a	n/a	n/a	< 5%	470	98.53	< 5%	470	98.53

Note: n/a – not available.

Lastly, for non-permissible income screening, only two index providers have considered this in determining the Syariah-compliant companies i.e. S&P and FTSE. By using the threshold of 5%, 98.23% of the sample firms qualified. This identical result is the result of the same formula applied to non-permissible income ratio. For a company to be considered as Syariah-compliant it has to simultaneously satisfy all the financial thresholds set. Table 7 presents the results of sample companies qualifying the financial thresholds set by the index providers.

Table 7. Analysis of companies according to the set of financial ratios set by the indices providers

Ratios	N	DJIM		S&P		FTSE	
		No. of companies	%	No. of companies	%	No. of companies	%
Liquidity	477	157	32.91	229	48.01	435	91.19
Liquidity & interest	477	99	20.75	148	31.03	399	83.65
Liquidity, interest & debt	477	58	12.16	81	16.98	304	63.73
Liquidity, interest, debt & NPI	477	58*	12.16	80	16.77	301	63.10

Note: * DJIM does not include NPI ratio in its screening process.

By looking at the DJIM quantitative screening in Table 7, from an initial 477 sample firms, only 157 companies (32.91%) are considered fit to be further tested for Syariah-compliance. However, out of 157 companies that comply with the liquidity ratio threshold, only 99 companies (20.75%) meet with the interest ratio threshold. After been screened for debt ratio, only 58 companies (12.16%) are identified to be Syariah-compliant under the DJIM criteria.

When we compare the results of the S&P quantitative screening set with the DJIM, there are a higher number of companies potentially classified as Syariah-compliant. Initially, 229 (48.01%) firms satisfy the minimum thresholds for liquidity ratio. Then, 148 (31.01%) sample firms qualify for both liquidity and interest ratio thresholds. Finally, 80 (16.77%) firms are Syariah-compliant under the S&P criteria.

Using the FTSE criteria, a greater number of Malaysian Syariah-compliant firms qualify. At the onset, 435 (91.19%) sample firms qualify for the liquidity ratio threshold. At the next stage, 399 (83.65%) sample firms satisfy both the liquidity and interest ratio thresholds. When debt ratio is included as additional criteria, 304 (63.73%) of the sample firms qualify. Finally, 301 (63.10%) sample firms are Syariah-compliant under the FTSE criteria.

To summarize, the results of Table 6 has shown that between 33% and 49% of the sample firms surpass the financial thresholds set by the DJIM. Between 43% and 99% of the sample firms fall below the threshold levels imposed by S&P and between 78% and 99% of the firms meet the thresholds imposed by FTSE. From the results of percentages of qualifi-

[1] DJIM and S&P have used average market capitalization as denominators to calculate the liquidity ratio whereas FTSE has used total assets as the denominator.
[2] DJIM has applied 33% as its threshold and S&P has applied 49% as its threshold.

cation, the low percentage does seem to indicate that DJIM has a stricter criteria and the FTSE has criteria that are more lenient. Similarly the results of the Table 7 have shown that only 58 (12.16%) sample firms are qualified under the DJIM compared to 80 (16.77%) sample firms under S&P and 301 (63.10%) sample firms under the FTSE criteria. From the results of qualification of companies (or percentages of qualification), the low number does seem to indicate that DJIM has a tighter criteria and FTSE has more lenient criteria and the higher percentage of qualification in FTSE has also implied that Malaysia's Syariah-compliant quantitative screening resembles closely that of the FTSE. However, when examining the cause of different results there is no evidence to indicate such. As discussed above, the different results are due to the different formula used to calculate the liquidity ratio and also the different thresholds imposed by the index providers.

On closer examination of the guidelines to the Syariah quantitative screening provided by DJIM, S&P and FTSE compared to Malaysia, it is observed that Malaysia has placed greater emphasis on the qualification of income and business activity and excluding the examination of financial ratios whereas DJIM and S&P have emphasized the use of financial ratios for quantitative screening. The different emphasis could have also be contributed to a totally inconsistent results with other leading indices providers.

Hence, the results do not support the hypothesis that DJIM quantitative screening process is stricter compared to S&P and FTSE. The difference in results is simply the result of different formula used in calculating ratios, the different thresholds applied and different emphasis placed on stock screening.

4.2.2. The financial health screening. Table 8 presents the results of the financial health models categorized into financially healthy, distressed and grey areas. Using Altman (1968) Z-score model, the results show only 35.43% of the sample firms fall under financially healthy category, 37.53% in the distressed category and 27.04% in grey area. For Altman's (2002) double prime Z-score model where the sales turnover is excluded in the computation of the score, the results show a higher percentage of qualification of financially healthy firms (59.75%) and a lower percentage of financial distressed firms (18.87%). Private companies Z-score model focuses on the use of book value of equity over market value of equity. As seen in Table 8, 28.72% of the sample firms are financially healthy, 23.69% of the sample firms are financially distressed and a big percentage of the sample firms (47.59%) fall under the grey zone.

Table 8. Analysis of companies according to the financial health models

Financial health model	N	Financially healthy			Financially distressed			Grey		
		N	Mean	%	N	Mean	%	N	Mean	%
Altman Z-score	477	169	6.451	35.43	179	0.731	37.53	129	2.360	27.04
Altman's double prime Z-score	477	285	8.180	59.75	90	-1.804	18.87	102	1.878	21.38
Private companies Z-score model	477	137	5.598	28.72	113	0.498	23.69	227	1.998	47.59

Notes: Altman Z-score using cut-off score of above 2.99 as financially healthy and below 1.81 as distress, Altman's double prime Z-score using cut-off score of above 2.60 as financially healthy and below 1.10 as distress. Private companies Z-score model using cut-off score of above 2.90 as financially healthy and below 1.23 as distress.

Summary and conclusion

The aim of this study is to examine whether the Syariah-compliant screening criteria adopted by SAC of SC of Malaysia is a lot more liberal than that of the world's leading index providers. To achieve this, the study examines the extent to which Malaysia's Syariah-compliant stocks listed by the SAC qualify the quantitative criteria set by the three indices providers i.e. the DJIM, the S&P and the FTSE. The results of this study would provide an indication of whether the Malaysia Syariah-compliant stocks undergoes less rigorous screening in Malaysia's stock exchange than elsewhere.

The quantitative screening results show that less than 50% of the sample firms qualify under the DJIM-set criteria. There is a higher percentage of firms which are qualified to the S&P standards and the FTSE-set criteria records the highest qualification. The vast difference in the results are due to the combination of the following reasons: (1) the use of different denominator where DJIM assessed company's worth based on average market capitalization and FTSE assessed based on total assets value; (2) the use of different threshold level for example, DJIM imposed a stricter threshold of 33% on liquidity ratio whereas S&P impose a bigger margin threshold which is 49% and FTSE impose 50%; (3) different emphasis applied by the index providers where SAC of Malaysia in its screening process focuses on examining the qualification of income and business activity and excluding examining the financial ratios whereas the world leading index providers have placed emphasis on examining financial ratios for qualification. Other than being Syariah-compliant, it is important that the companies are seen to be financially strong. Based on

the results, we observed that between 62% and 80% of the Syariah-compliant companies have not fallen under the category of financially distressed. This augurs well because if Malaysia is to promote its Syariah-compliant stocks to the international investors especially to investors from the GCC countries, the firms must also be qualified as financially healthy or strong.

It is proposed that this study is extended in several ways. One way is to apply Malaysian Syariah-compliant stocks to the screens used by other indices providers such as the GCC countries. An alternative would be to apply Malaysia's Syariah-compliant screening criteria to the world leading indices providers of this study, the GCC countries or technology industry. By applying the Malaysian Syariah-compliant screening to other universes for Syariah compliance may remove the reason ICM investors might be reluctant to invest in Malaysia i.e., the perception that screening in Malaysia for Syariah-compliant is too 'liberal'.

Acknowledgement

I would like to thank Ministry of Higher Education, Malaysia for financial and research funding support under ARI-HiCOE Fund.

References

1. Abdul Rahman, A., Yahya, M.A., & Mohd Nasir, M.H. (2010). Islamic norms for stock screening: A comparison between the Kuala Lumpur Stock Exchange Islamic Index and the Dow Jones Islamic Market Index, *International Journal of Islamic and Middle Eastern Finance and Management*, 3 (3), pp. 228-240.
2. Altman, E.I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy, *Journal of Finance*, 23 (4), pp. 189-209.
3. Altman, E.I. (2002). Revisiting Credit Scoring Models in a Basel II Environment, Prepared for "Credit Rating: Methodologies, Rationale, and Default Risk", London Risk Books 2002.
4. Altman, E.I. and Hotchkiss, E. (2005). *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyse and Invest in Distressed Debt*, 3rd edition, New Jersey, John Wiley & Sons.
5. Appetiti, S. (1984). Identifying the unsound firms in Italy, *Journal of Banking and Finance*, 8 (2), pp. 269-279.
6. Derigs, U. & Marzban, S. (2008). Review and analysis of current Shariah-compliant equity screening practices, *International Journal of Islamic and Middle Eastern Finance and Management*, 1 (4), pp. 285-303.
7. Dow Jones Islamic Market Indices. *Screens for Shari'ah Compliance.* Retrieved September 22, 2012 from http://www.djindices.com/islamicmarket/.
8. El Qorchi, M. (2005). Islamic finance gears up, *Finance & Development*, 42 (4), December, pp. 46-49.
9. FTSE. *Ground rules for the Management of the FTSE Shariah Global Equity Index series.* Retrieved September 22, 2012 from http://www.ftse.com/Indices/FTSE_Shariah_Global_Equity_Index_Series/Downloads/FTSE_Shariah_Index_Series_Ground_Rules.pdf.
10. Hamid, H. (2010). Islamic finance players urged to up their game, *Business Times*, 29 July.
11. Ilias, S. (2010). Islamic finance: Overview and policy concerns. *CSR Report for Congress*, November, 7-5700, www.crs.gov, RS22931.
12. Islamic Finance Asia (2010). Does standardization bring greater compliance? Retrieved August 10, 2012 from http://www.islamicfinanceasia.com/article.asp?nm_id=18694, July/August.
13. Ismail, Z.I. (2010). Continue efforts to dispel negative image, *Business Times*, 1 December.
14. Izan, H.Y. (1984). Corporate distress in Australia, *Journal of Banking and Finance*, 8 (2), pp. 303-320.
15. Khatkhatay, M.H. & Nisar, S. (2007). Shari'ah compliant equity investments: An assessment of current screening norms, *Islamic Economic Studies*, 15 (1), pp. 47-76.
16. Low, S., Fauzias, M.N. and Zainal Ariffin, A. (2001). Predicting corporate distress using logit model: The case of Malaysia, *Asian Academy of Management Journal*, 6 (1), pp. 49-62.
17. Malaysian Business (2007). Accounting fraud: The tell-tale signs, 1 July.
18. Merton, R. (1974). On the Pricing of Corporate Debt: The Risk Structure of Interest Rates, *Journal of Finance*, 29 (2), pp. 449-470.
19. Micha, B. (1984). Analysis of business failures in France, *Journal of Banking and Finance*, 8 (2), pp. 281-291.
20. Mohamad, I.H., Annuar, M.N., Shamsher, M. and Taufiq, H. (2005). Prediction of corporate financial distress of PN4 companies in Malaysia: a logistic model approach, *Journal of Restructuring Finance*, 2 (2), pp. 143-155.
21. Mohamed, S., Li, A.J. and Sanda, A.U. (2001). Predicating corporate failure in Malaysia: An application of the Logit Model to financial ratio analysis, *Asian Academy of Management Journal*, 6 (1), pp. 99-118.
22. Nur Adiana, H.A., Halim, Abd., Hamilton, H. And Rohani, M.R. (2008). Predicting Corporate failure of Malaysian listed companies: Comparing Multiple Discriminant Analysis, Logistic Regression and the Hazard Model, *International Research Journal of Finance and Economics*, 7 (15), pp. 201-217.
23. Ohlson, J. (1980). Financial Ratios and Probabilistic Prediction of Bankruptcy, *Journal of Accounting Research*, 18 (1), pp. 109-131.
24. Securities Commission. *List of Shariah-compliant Securities by the Shariah Advisory Council of the Securities Commission Malaysia.* Retrieved September 22, 2012 from http://www.sc.com.my/eng/html/icm/sas/sc_syariahcompliant_101126.pdf.

25. Shumway, T. (2001). Forecasting Bankruptcy More Accurately: A Simple Hazard Model, *Journal of Business*, 74 (1), pp. 101-124.
26. Siddiqui, R. (2010). De-linking from conventional benchmarks, *Business Times*, 23 November.
27. Standard & Poor. *S&P Shariah Indices Methodology*. Retrieved September 22, 2012 from http://www.standardandpoors.com/servlet/BlobServer?blobheadername3=MDT-Type&blobcol=urldata&blobtable=MungoBlobs&blobheadervalue2=inline%3B+filename%3DMethodology_SP_Shariah_Indices_Web.pdf&blobheadername2=Content-Disposition&blobheadervalue1=application%2Fpdf&blobkey=id&blobheadername1=content-type&blobwhere=1243950619546&blobheadervalue3=UTF-8.
28. The Edge (2009). Special Focus: Exciting times ahead for Islamic capital markets, 10 August.
29. The Edge (2010). Special Focus: Islamic finance's potential is undertapped, 25 October.
30. Zulkarnain, M.S., Mohamad Ali, A.H., Annuar, M.N. and Zainal Abidin, M. (2001) Forecasting corporate failure in Malaysian Industrial sector firms, *Asian Academy of Management Journal*, 6 (1), pp. 15-30.