Measuring Islamic-Driven Buyer Behavioral Implications: A Proposed Market-Minded Religiosity Scale

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Abstract: Islam is one of the major monotheistic religions in the world. Its importance is growing as the number of Muslim adherents is increasing, currently around 1.57 billion worldwide. The wealth of Muslim Arab countries is affecting the global economy as well as the international trade. Since religiosity has a major impact on consumer behavior, it was paramount to have an Islamic Behavioral Religiosity scale, measuring the degree of Muslims' religiosity from the behavioral perspective. The Islamic Behavioral Religiosity Scale (IBRS) could be used by marketers to assess the degree of consumers' religiosity and it could be linked to consumer behavior and work as a predictor to purchase patterns. The scale presented in this paper is a modification to the Islamic religiosity scale presented in 2007 by Chang-Ho C. Ji and Yodi Ibrahim. The scale was modified to include all divisions of Islam; belief, worship, legislation, and morality as well as behavior measurement. The modified scale was evaluated twice. First time was using a sample of 284 Muslim respondents in May and June 2010 and the second time was using 400 Muslim respondents in November and December 2010.

1. Introduction:

The past religiosity scales were measuring religiosity per se (Faulkner & DeJong, 1966; Wilkes, Burnett, & Howell, 1986; Dudley & Kosinski, 1990; Hill & Jr. Hood, 1999; King & Crowther, 2004; Vitell, Paolillo, & Singh, 2005). Some of the Islamic religiosity scales were adapted from the Christianity scales (Ji & Ibrahim, 2007). Other group of literature measuring Islamic religiosity was not measuring the behavioral aspect or grouping respondents into clusters based on their religiosity degree (Krauss *et al.,* 2005; Tezcur & Azadarmaki, 2008; Tiliounine, Cummings, & Davern, 2009). The presented scale in the current research was adapted from Ji and Ibrahim (2007) scale, and then it was presented to experts in Islamic *Shari'ah,* sociologists, as well as marketing professors. Then quantitative survey was conducted to assess validity and reliability of the scale. The scale was validated and assessed twice. The first time was in May and June 2010 where the scale was presented to experts and then 256 surveys were used. The second time was during November and December 2010 where the scale was solved by 400 respondents.

Literature Review

The literature review section is divided into sub-sections. The first one is discussing the nature of Muslim consumers and their value. Secondly, religiosity is defined along with variations in religiosity degrees that lead to variations in consumer behavior. Thirdly, religiosity measurement attempts are presented. Fourth, the challenges facing researchers in measuring religiosity are presented.

Muslim Consumers

Islam is considered one of the major world religions and it originated 14 centuries ago. The Islamic market is a huge unsatisfied segment. It is estimated at about 1.4-1.8 billion consumers (Siddiqui, 2001;Sedgwick, 2006)[1] and 2.0 trillion dollars in 2010. The presence of oil in gulf countries has created wealth in that region and have attracted multi-national to locate in the gulf area *(*Al-Khatib*et al*., 2005; Anonymous, 2006). It has been forecasted and anticipated in about 20 years that third of world's population would be Muslims, two third of Muslim population would be 18 years of age (Quelch, 2001). The Muslim population is increasing with the rate of 1.84% annually.

Muslim consumers have a huge purchasing power in countries such as Egypt, Iran, India, Malaysia, Morocco, Turkey, Saudi Arabia and South Africa (Ba-Yunus & Siddiqui, 1998). The percentage of Muslims in the EU-15 is forecasted to be 10-15% by 2025, in 2006, it was 4.3%. In Germany and UK, Muslims are around 3% of the population; in France, it is around 9%. Muslims in Europe are diverse in terms of gender, age, and origins (Porter & Schwab, 2008). Muslims in Western Europe and US are growing minority however they are playing an active and effective role in the civil society and in affecting the governments of those countries. The growing percentage of Muslims in many countries worldwide,

have aroused people curiosity in better knowing and understanding the Islamic religion (Porter & Schwab, 2008). There has been an increase interest in Islam especially after the events of 11 September 2001. The information regarding Muslims and Middle East is currently available through media as there is an increase interest to write about this region and this religion(Khalili *et al*., 2002; Haque, 2004).

Marketing ethics bound by Islam is different than other marketing ethics as it has two major added aspects (Saeed *et al*., 2001). The first one is Islamic marketing ethics based on the principles mentioned in *Quran*, which is stable, fixed, and absolute and *Maqasid Ash Shari'ah*(Chapra, 2008). The second aspect is value maximization aim, Islamic marketing ethics aims at value maximization for the benefit of the whole society and not to merely maximizing profits (Saeed *et al*., 2001; Marinov, 2007). Even in financial services, there is an Islamic law, which governs and rules such services. An application of that is the interest, charging interest on credit is banned in Islamic law. Marketers cannot claim this feature in their financial service and promoting the interest is not accepted by the majority of Muslim consumers (Marinov, 2007).

Religiosity

One tool for measuring religion is through measuring religiosity. Religiosity is a "continuous rather than a discrete variable" (Beit-Hallahmi & Argyle, 1997). Religiosity is not an all or none question but every individual will have a certain degree of it. Religiosity is defined by McDaniel and Burnett (1990) as "a belief in God accompanied by a commitment to follow principles believed to be set by God." Another definition for religiosity is the condition or state of being religious (O'Brien & Palmer, 1993). Religiosity is not a unidimensional concept (Glock, 1962; Faulkner & DeJong, 1966; Allport & Ross, 1967; Stark & Glock, 1968; King & Hunt, 1972). It includes various elements of religion; namely belief, practice, knowledge, experience and the effects of those elements on daily activities (O'Connell, 1975).

Weaver and Agle (2002) had shown that religiosity has an impact on human behavior and attitudes. According to Hunt-Vitell model (1986, 1992), religiosity is one of the main personal elements embedded in the character of human beings. Religious self-identity has its impact on behavior, and this is shaped by the role expectations offered and defined by religion (Vitell *et al*., 2005). Religious affiliation and religiosity play a powerful and influential role in attitude formation (Hirschman, 1981), value choices (Keng & Yang, 1993) and is

very much related to questions of why people consume (Hirschman, 1983).

Personal religiosity is a profound construct that aids in finding the differences in moral judgments, and this is referred back to the fact that religious ideology shapes people's judgments of what is right and wrong (Rest *et al*., 1986; Magill, 1992). Magill (1992) assumes that personal religiosity is what gives the explanations to the ethical nature of behavior. Religiosity is expected to have an effect on consumer's ethical beliefs. People who are more religious are more ethical in terms of their beliefs (Girogi & Marsh, 1990). Kennedy and Lawton (1998) had shown that there is a negative relationship between religiosity and behaving unethically. There have been numerous studies in an attempt to explain the effect of religiosity on behavior (Hunt & Vitell, 1986). One of the main propositions presented through their studies are; Personal deontological norms which are concerned with the basic moral ideals and teleological evaluations which are concerned with the situational influences (Hunt & Vitell, 1986, 1992).

In Hunt and Vitell (1986, 1992) research model where personal religiosity influences ethical judgment in at least three ways(As Cited in Clark & Dawson, 1996). Firstly, personal deontological norms composition is a function of religious belief and training, thus the individual's deontological evaluations may differ. Secondly, the relative importance of each individual philosophical viewpoint within the framework of his/her judgment process impacts both his/her deontological and teleological norms. People who are more religious give more weight to deontological considerations when evaluating situational ethical content (Rest *et al*., 1986; Hunt & Vitell, 1992; Clark & Dawson, 1996). Thirdly, religiosity imposes limitations on the considerations of alternative actions. Certain alternatives may be unacceptable to more religious people. Therefore, those alternatives are not expected to appear in the evoked set of actions. Hansen (1992) suggested that broad based ethical judgments are mainly used to screen and filter what would be accepted and what would not be accepted. Therefore, the impact of religiosity on selection is a significant matter. Teleological evaluations could be applied on the evoked set of alternatives, so one can deduce that the differences in perceived alternatives may result in differing ethical judgments.

Another assertive view of the effect of a person's religiosity on ethical considerations is the functionalist theory in sociology. This theory states that religion is a promoter to the norms enhancing social cohesion and religiosity is one of the effective determinants of people's values (Huffman, 1998).

Religiosity has the upper hand over beliefs and behaviors (Light *et al.*, 1989). Theological dimension of ethics is a peculiar motivating power for human action and this dimension provides a motivation for moral action. Singh (2001) noted that by looking at various religious scriptures, books, teachings, one would find that all religions strongly motivate ethical behaviors and morality thus affecting people's behavior and decision-making.

Variations in Religiosity Degrees leading to Variations in Behaviors

Majority of the believers and worshippers have doubts. Thus, they differ in their commitments and religious degrees. This would explain why in the same religious group, there might be variances in religiosity measures (Beit-Hallahmi & Argyle, 1997). Muslims are divided into *Sunnis*, *Shi'tes*, and other subgroups; Christians are divided into Catholics, Protestants, and Orthodox Christians; Jews are divided into Hasidim, reform, and other subgroups. Another source of variations in the application of religion is the differences in political, legal, economic, social, linguistic, educational, attitudinal and religious beliefs and standards in every country (Melewar *et al.,* 2000). Saudi Arabia and Gulf countries, as an example, are theocratic countries claiming to be totally based on *Shari'ah*, whereas there are other Middle Eastern countries such as Egypt blending between Islam and civil law. On the political rights freedom scale, Bahrain, Egypt, Jordon, Lebanon and Yemen are rated as partly free whereas Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia are rated as not free (Melewar*et al.,*2000).

There is a clear difference in religious degrees when studying Muslims. Some Muslims are adhering to all Islamic rules, i.e. seen as pious whereas others are more secular. The degree of commitment to Islam of both traditional and modern Muslims changes from extremely devout to merely nominal. Between those two poles, there are many levels describing the level of commitment of Muslims(Sedgwick, 2006). This depends on race, ethnicity, and social class of the individuals studied (Porter &Schwab, 2008). The common ground on which all Muslims agree upon is the monotheism baseline, i.e. the oneness of God and the prophet hood of Muhammad. *Quran* is differently understood and implemented, leading to differences in the implementation of Islam worldwide (Porter & Schwab, 2008). There are clear guidelines in Islam related to *Halal* and *Haram*(c.f. Al-Qardawi, 1999)*,* and there are some debatable issues whereby Muslims are encouraged to think and debate on (Harold, 2004). There are several versions of *Shari'ah*, which produce different denominations of Islam (Sedgwick, 2006).

Religiosity Measurement Attempts

Studying religiosity is very complex and not an easy task as there is no single quality describing whether an individual is religious or as relatively or more religious than another individual (McGuire, 2002). There were various attempts and scales designed to measure religiosity. One of the prominent books in that field is *"Measures of Religiosity"*edited by (Hill & Jr. Hood, 1999) and (c.f. Faulkner & DeJong, 1966; King, 1967; King & Hunt, 1969, 1972;Genia, 1996; Peacock & Poloma, 1999; Khashan & Kreidie, 2001; Worthington *et al.,* 2003; King & Crowther, 2004;Ji & Ibrahim, 2007; Krauss *et al.,* 2007;Tezcur & Azadarmaki, 2008; Saat *et al.,* 2009; Tiliouine *et al.,* 2009; Sedikides & Gebauer, 2010). The following paragraphs are presenting some of the scales measuring religiosity per se.

Glock (1962) formed four dimensions to measure religiosity, which are ideological intellectual, ritualistic and experiential. In 1964, the consequential dimension was added(Glock & Nicosia, 1964). Those dimensions are religious beliefs, practices, knowledge, and experience. In addition, the fifth dimension would be consequential dimension, where Stark and Glock (1962) grouped the effect of the first four dimensions on the day-to-day lives of people. Faulkner and DeJong (1966) don't use the fifth dimension, as it does not highly correlated with the other dimensions. Many researchers do not use this fifth dimension in their studies (Faulkner & DeJong, 1966). Following is a brief explanation of the dimensions describing the religiosity term:

- The experiential dimension: is concerned with any feelings or sensations related to the communication with the divine essence. A feeling of the individual that he has been saved or cured from a certain disease, a feeling of a relationship with the sacred.
- The ritualistic dimension: includes religious practices such as worship, prayer, and participation in certain sacraments.
- The ideological dimension: refers to the content and scope of beliefs to which members of a religious group are expected to adhere.
- The intellectual dimension: includes the person's knowledge about the beliefs of his religion and the groups' religion as well as the sacred scriptures.
- The consequential dimension: includes how much religion, expressed in terms of religious beliefs, practices, and experiences, affects the individual's behavior in any context especially the non-religious contexts.

Allport and Ross (1967) constructed the intrinsic/extrinsic religiosity scale, which is using 5-points likert scale questions. The intrinsic scale is composed of eight items. The items are sentences like "I try hard to live my life according to my religious beliefs." The extrinsic scale contains six items and has sentences like "I go to religious services because it helps me to make friends" (Allport & Ross, 1967). Operationalizing the religiosity construct could be done through intrinsic and extrinsic variables. This is representing the backbone of empirical research in the psychology of religion (Kirkpatrick & Hood, 1990). Allport and Ross (1967) defined extrinsically motivated person as someone who uses his religion, and intrinsically motivated person comes in the other pole, which is the person who lives his religion. The nature of religious motivation of extrinsic person is personal and utilitarian. On the other hand, there is the intrinsic religiosity, which is motivated by internalized beliefs. The intrinsic people tend to develop a way of life matching those beliefs. It could be deduced that intrinsic religiosity have more impact on behavior than extrinsic religiosity, and intrinsic religiosity has a strong relationship with one's ethical beliefs. Extrinsic religiosity does not involve spirituality, but is concerned with how social networks perceive one's religion, and how this religion would comfort and make the individual at ease (Vitell *et al.,*2005). In Islam, only concentrating on extrinsic religiosity is considered as *Riya'*, which is a sinful act and unislamic. However, for the sake of linking between religiosity and behavior both intrinsic and extrinsic religiosity measures were included in the scale modified for the purpose of the current research.

Every question used in Allport's Intrinsic-Extrinsic scale has the phrase such as "the only reason" or "the main reason" reflecting the elements related to the core of the personal's religiosity. Without those indicators, one cannot differentiate between the phrases related to intrinsic and the ones categorized as extrinsic (Gorsuch *et al.,* 1997). With those statements, respondents would choose what is best describing their core and central reason for being religious (Spilka *et al.,* 2003). One of the main flaws in the intrinsic/extrinsic model is that extrinsic items are not exactly on the other side of intrinsic items. They did not correlate negatively with the intrinsic items (Spilka et al, 2003). For example, using the phrase "the only reason" was not enough for respondents to treat the intrinsic and extrinsic as mutually exclusive as people are normally not bounded very much by logic and reasoning especially in religious matters. Kirkpatrick and Hood (1990) had explained the reasons of the insufficiency of extrinsic scale and the reasons why it has low internal

consistency and reliability. They mentioned that the scale was composed of two different ways in measuring extrinsic people. The first was related to receiving a personal reward or benefit such as comfort during stress. Secondly, is social and it focuses on the people that the individual dealing with when practicing religion. This would also indicate and reflect building up relations and making friends and thus would be termed extrinsic social. During 1980s and 1990s it was found that the versions of intrinsic/extrinsic designed by Allport is not sufficient and it needs modifications (Spilka *et al.,*2003). The extrinsic dimension was seen as being very complicated and rated low in reliability. In addition, extrinsic dimension thoroughness and attention to details were also investigated.

Allport and Ross (1967) have modified the statements and items used for intrinsic versus extrinsic. Instead of dealing with them as ends of single dimension, they have dealt with them as two concrete and different dimensions each with its own separate set of definitions, elements, and items. Allport *et al.* (1982) tried to separate between intrinsic and extrinsic and make a clear differentiation between them. However, scholars noted that this differentiation and distinction is not sufficient (Spilka *et al.,* 2003). People who are categorized as intrinsic might be prejudiced and stereotyped if they felt that religion was something that is personal and exclusionary, however if they have regarded religion as an open quest then they would be less judgmental. Batson, Ventis and Larry (1993) have added the quest dimension, which would differentiate and distinguish between intrinsic and extrinsic. People, who are mainly very intrinsic and very committed to their faith, do not regard religion as an ongoing quest and till now this hypothesis is valid and true (Spilka *et al.,*2003). However, still the majority of religiosity scales does not include the quest section and concentrate more on intrinsic and extrinsic questions.

Intrinsic and extrinsic are different in their ethical evaluations based on the following reasons (Hunt & Vitell, 1986). First, they differ in perceptions of reality. Every individual perceives reality in a different way leading to a variation in ethical evaluations. Perception of reality could be analyzed into perception of available alternatives, perceived results of those alternatives and differing evaluations and assessments of the probability of occurrence. Secondly, different teleological evaluations, the perceived attractiveness of outcomes and results may differ among individuals. Some individuals may place high values on the good of the company, others on different stakeholder groups, or consumers in general. Hamby (1973) has found that intrinsic people are more concerned with

interpersonal relationships. They care for social customs and they like to control their impulses regarding others. Therefore, religious person might have stronger utilitarian norms and values than non-religious and might judge actions and behaviors from a less egoistic perspective. Thirdly, differing deontological evaluations, which from Hunt and Vitell (1986) perspective involve comparing the questioned behavior with a set of pre-determined personal values or rules. Rokeach (1969) illustrated that religious people have a value system that is totally different from the less or non-religious people. In some of the specific moral values, Rokeach mentioned that religious people rate higher in the values related to forgiveness and obedience when compared to less religious people.

Another source of variation, not mentioned by Hunt and Vitell (1986), is decision making style of the respondents (Mayo & Marks, 1990). Pargament *et al.* (1988) mentioned that problem solving styles depends on intrinsic religiosity. There is an increasing dependence on the deity to help in the decision making process. Problem solving techniques vary from the religious to non-religious person (Vitell *et al.,* 2005). Religious person uses God help in the decision making and is more passive in issues and situations that need ethical judgments, whereas the less-religious would be more active, self-dependent and self-reliant. Extrinsically religious consumers put more weight on brand names and well-established stores, as they are trendier than intrinsically religious consumers. The intrinsically religious consumers are conservative and traditional and seeking sales promotions and offers and they are less innovative and trendy (Essoo & Dibb, 2004).

Another way for measuring religiosity was done through measuring a 3-item measure developed by Wilkes *et al.*(1986) and was then further developed:

- I go to church regularly
- Spiritual values are more important than material things
- If Americans were more religious, this would be a better country.

There are numerous scales attempting to measure Islamic religiosity (c.f. Worthington *et al.,* 2003; Essoo & Dibb, 2004; Krauss *et al.,* 2005;Ji & Ibrahim, 2007; Rehman & Shabbir, 2010)[ii]. Essoo and Dibb (2004) used intrinsic and extrinsic religiosity measures. Ji and Ibrahim (2007) also used intrinsic and extrinsic religiosity measures, added Islamic doctrinal questions, and a quest section. Krauss *et al.* (2005) developed Muslim Religiosity Personality Measurement Inventory (MRPI), which assumes that Islamic religiosity can be understood through two main constructs. Those two constructs

are Islamic worldview and religious personality. Islamic worldview reflects the belief in Islamic creed (*Aqidah*), which is laid by the *Quran* and *Sunna.* Religious personality is manifested through one's religious worldview in worship *(Ibadah)* or how person expresses his/her traits and behaviors with respect to religion. Rehman and Shabbir (2010) used Glock and Stark's (1964) religiosity dimensions after modifying it with Islamic rules. Worthington *et al.* (2003) designed a scale named religious commitment inventory measuring the degree to which a person adheres to his/her religious values, beliefs, and practices and uses them in daily living.

All the mentioned scales were not implemented in Egypt. For that reason, it was crucial to test the applicability of one of those scales on Egypt. Further, most of the scales developed are composed of at least 45 variables, which constitute an obstacle for the researcher. Thus, another reason for modifying an already existing scale is to run factor analysis to reduce the variables to minimum level to be able to include it in later phases of empirical study (Hair *et al.,* 2006). Another reason for the modification is Islamic religiosity needs to be assessed from behavioral perspective to be linked with consumer attitudes. The following sections explaining the obstacles facing researchers in measuring religiosity and the methodology followed to reach an Islamic Behavioral Religiosity Scale.

Challenges in Measuring Religiosity

It is difficult to gather information from consumers regarding their religious beliefs and behaviors, as this kind of information is regarded as personal and confidential. The majority of religious behaviors are private and not shared in public. Researchers depend on self-report methods which sometimes might be misleading or not precise (Beit-Hallahmi & Argyle, 1997). Some respondents might manipulate the answers for social desirability reasons.

Researchers might overcome this problem by using the following two methods (Beit-Hallahmi & Argyle, 1997). First, using variety of sources to gather religious information, then compare between the results from those sources to make sure that all answers are consistent. Secondly, noting changes across time and across space as well in response to the same questions. The main aim of doing that is to make sure that the responses are far from any kind of mechanical or personal involvement or biases. Noting an action or reaction that would be considered as socially accepted and desired in a certain point in time is by itself an important social indicator. Another problem facing researchers in relation to measuring religion is construct validity (Beit-

Hallahmi & Argyle, 1997). Construct validity is reflected through changes in the answers of respondents, and by changes and variations in the religiosity, which would follow theoretical predictions. This could be solved through using other religiosity measures as well as other non-religious behaviors.

It is very difficult methodologically to figure out and describe people's religion. The sociological statistics data such as census, opinion surveys and generated figures from institutions as membership rolls might be misleading. Questionnaires can be used to describe religion of consumers by directly asking the respondents about their religious affiliation or preference. For example, asking the respondents whether they are protestant, Catholics, Jew, Muslim(Beit-Hallahmi & Argyle, 1997). Questionnaires are not the only means for psychologists to collect information regarding religion. They can depend on other means such as interviews, which should be carefully designed and administered, projective tests, defining and observing religious behavior. The prevailing methodology used by psychologists in measuring religion is the associational technique. Variables are associated to be able to define religious people, for example, parents who take their children to church, this would make their children more religious, but it will not hold true that attending church produces religious children. It could be the modeling of religion by the parents in the home that is important, or the social networks created through church attendance (Spilka *et al.,* 2003).

The above section is the literature review, the following paragraphs are concerned with the research methodology adopted to adapt and modify and construct an Islamic Behavioral Religiosity Scale (IBRS).

2. Research Methodology

Research methodology is based on the mixed method using both quantitative research through expert interviews and qualitative research through surveys (Deshpande, 1983).The presented scale in the current research was adapted from Ji and Ibrahim (2007) scale, and then it was presented to experts in Islamic *Shari'ah,* sociologists, as well as marketing professors. The quantitative survey was conducted to assess validity and reliability of the survey. The scale was validated and assessed twice. The first time was in May and June 2010 where the scale was presented to experts and 256 surveys were collected. The second time was during November and December 2010 where the scale was solved by 400 respondents.

Expert Interviews

In designing Islamic Behavioral Religiosity Scale, the researcher selected to adapt and modify the scale developed by Chang-Ho C. Ji and Yodi Ibrahim (2007). This is a recent scale at the time of conducting the study. It was based on Allport and Ross (1967) religiosity scale, which is the widely used. It is divided into four main variables: Islamic doctrinal, intrinsic religiosity, extrinsic religiosity, and quest. This division enables measuring religiosity from behavioral perspective as weights could be added to every variable. Extrinsic religiosity is related to socially accepted religious behaviors. Extrinsic religiosity from Islamic perspective is considered *Riya'* and depending on it fully is considered a major sin. It was included in the scale as it was shown through previous studies that consumers' degree in intrinsic and extrinsic religiosity has major implications on behavior. This scale was selected also based on the input from experts in religion as they agreed that religion, especially in Egypt could be divided into core religion, which is translated into intrinsic religiosity and people using religion, which is translated into extrinsic religiosity.

This scale was shown to experts through in-depth interviews. The interviews were conducted with a sociologist, two *Shari'ah* scholars, and a marketing professor. Pandeli (2010) prominent sociologist working at American university in Cairo commented when designing a religious scale, one has to differentiate between behaviors, beliefs and intentions, as there is a major difference between what a person believe in and his/her behavior. Ibrahim (2010) a prominent *Shari'ah* scholar mentioned that constructing an Islamic Behavioral Religiosity Scale is impossible as religiosity and spirituality are intangible matters. Religiosity and spirituality might be measured by adding to them some tangible features. Islam is divided into belief, worship, legislation as well as morality (El-Bassiouny *et al.,*2008). Another *Shari'ah* scholar, who preferred to remain anonymous, commented that the adapted scale is missing more questions related to doctrinal orthodoxy, Islamic dealings, and morality as the adapted scale was concentrating more on beliefs and worship. The sociologist along with the *Shari'ah* scholar agreed that the scale should include sections regarding social, cultural, and educational and marriage aspects from Islamic perspective. Further, experts recommended removing the quest section from the adapted scale, as it does not fit with Islamic religion. Based on experts' comments, the Islamic religiosity scale was modified. Scale was targeting Muslim Sunni and not the other Islamic groups as the research is implemented in Egypt and Sunnis are dominant in Egypt. Further, *Sunnis* are 85%

worldwide whereas *Shi'a* is 15% (Esposito & Mogahed, 2007).

After modifying the scale based on the above-mentioned comments, it was shown to Professor Pallub, professor of Marketing in Daniels College of Business, to reassure the design of the scale as well as content validity. Based on his comments, another question was added to the scale, which is measuring the weight of every variable under Islamic Behavioral Religiosity Scale. By this question, the behavioral aspect could be measured. The main objective of such a question is to find the weight (a, b, c) multiplied by every construct to find the overall degree of religiosity.

> Islamic Behavioral Religiosity Degree = a*Islamic doctrinal + b*intrinsic religiosity + c*extrinsic religiosity.

Quantitative Research

After modifying the Islamic Behavioral Religiosity Scale based on experts' comments, surveys are administered to run factor analysis. Piloting was administered first to collect consumers' feedback, to check language of the scale as well as the organization of the scale. There were not major comments and the scale was not modified based on consumers. Following piloting phase, survey was administered through the Internet[1]. The sampling technique used to validate Islamic Behavioral Religiosity Scale was non-probability snowballing technique. The scale was sent to respondents via email and they were asked to forward it to their network. Probability sampling was difficult to administer due to sensitivity of the topic, it is difficult to know respondents' religion without asking them, and this is not accepted in Egyptian culture. The first run of the research was administered in May and June 2010 whereas the second run was administered in November and December 2011.

Factor analysis measurement is performed to reduce the variables per religiosity factors, as Islamic Religiosity Scale was composed of 42 variables (Hair *et al.,* 2006). Further, reliability and validity tests were performed. The sample size needed for testing the scale was 210 as at least 5 respondents per variable are needed (Hair *et al.,* 2006; Malhotra, 2010). In the first run of the survey, the researcher got 348 questionnaires whereas 256 were valid. The response rate is 73.4%. The 348 respondents answered the questions related to Islamic doctrinal, 288 completed intrinsic religiosity section, 256 completed the entire questionnaire. Basic demographic information related to sample unit is being a Muslim. Other demographic information such as age, gender, and occupation were not basic selection criteria. The reason behind this selection is related to the main objective of running this factor analysis, which is testing Islamic Behavioral Religiosity Scale. As for the second run of the survey, 631 respondents filled out the survey, however only 417 were valid. Thus, the response rate for this re-run is 66%.

The scale used is non comparative, itemized rating scale and questions are using likert scale (Malhotra, 2010). A measurement scale of 5-point likert scale ranging from "strongly disagree" to "strongly agree" which requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements related to the stimulus objects.

Religiosity Scale Validation

Kaiser Meyer Olkin (KMO) measure of sampling adequacy had been calculated to determine the feasibility of running a factor analysis on the adapted scale. KMO approaching 1 generally indicates that factor analysis is useful with the data; approaching zero indicates the result of the factor analysis will not be very useful(Hair *et al.,* 2006). Bartlett's test significance indicates whether the correlation matrix is an identity matrix, which what indicates that the variables are unrelated. The first run for the scale KMO was 0.890 and the significance was 0.000. The researcher determined three factors while doing the confirmatory factor analysis; this was based on previous studies. Factor analysis and factor loading used is more than 0.6 (C. Ji & Ibrahim, 2007). First Factor Islamic doctrinal explains 22.035%; second factor intrinsic religiosity explains 13.806% and third factor extrinsic religiosity explains 9.378%. The cumulative rotation sum of squared loadings for the three factors would be 45.578%, which is an acceptable figure. More than 40% of the variables in the scale reflected in those three factors. As for the second run for the scale KMO is 0.886 and significance is 0.000.

The rotated component matrix is used for analysis, as it is better in data reduction. Based on past studies and the knowledge of the researcher, the factors could be labeled as: factor 1: intrinsic religiosity, factor 2: Islamic doctrinal, factor 3: the extrinsic religiosity. The first eight variables loaded with factor 2. The ninth, twenty-third, twenty-seventh, twenty-eight variables did not load with any factor, therefore they are deleted from the scale. The 10th to the 31st variables load with factor 1 (except for

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[1] www.surveymonkey.com

23rd, 27th, 28th). Variables 31st, 36th are added to intrinsic religiosity[2]. Variables from 32nd to 42nd except for 31st and 36th are added to extrinsic religiosity. As for 33rd variable, it could be removed as it is loading on both intrinsic and extrinsic religiosity. The composite sum was computed to calculate overall Islamic doctrinal, overall intrinsic religiosity, overall extrinsic religiosity as well as the overall religiosity for the sample. The composite sum was calculated based on the new distribution of variables over factors. Strongly disagree was translated into one whereas strongly agree is translated into five. Mean for composites of Islamic Doctrinal was 4.89 inclined toward strongly agree; composite of intrinsic religiosity is 3.7664 inclined toward agree, composite of extrinsic religiosity 2.7135 inclined toward neutral, composite of overall religiosity 3.7 inclined toward agree.

Validity and Reliability

The content validity was achieved by asking experts in the field. Content validity "consists of a subjective but systematic evaluation of the representativeness of the content of a scale for the measuring task at hand" (Malhotra, 2010). Face validity was achieved through piloting the survey with experts and some consumers. Construct validity which is a "a type of validity that addresses the question of what construct or characteristic the scale is measuring, (where) an attempt is made to answer theoretical questions of why a scale works and what deductions can be made concerning the theory underlying the scale" (Malhotra, 2010). Construct validity is divided into convergent, discriminant, and nomological validity. According to Bagozzi and Foxall (1996), both convergent and discriminant validity can be assessed by using factor analysis. Confirmatory factor analysis was implemented during another re-run for the validation and reliability of the new scale.

The last type of validity is construct, which "addresses the question of what construct or characteristic the scale is, in fact, measuring" (Malhotra, 2010). Construct validity includes convergent, discriminant and nomological validity. Convergent validity is "the extent to which the scale correlates positively with other measures of the same construct" (Malhotra, 2010). Discriminant validity "is the extent to which a measure does not correlate with other constructs from which is supposed to differ" (Malhotra, 2010, p. 321). Nomological validity is "the extent to which the scale correlates in theoretically predicted ways with measures of

[2] Please refer to Appendix 1 for adapted religiosity scale and Appendix 2 for the new proposed scale.

different but related constructs" (Malhotra, 2010). According to Bagozzi and Foxall (1966) and Hair *et al.*(2006), both convergent and discriminant validity are assessed by using factor analysis as well as confirmatory factor analysis. Confirmatory factor analysis is calculated for the Islamic Behavioral Religiosity variable, which is presented in the following section.The above-mentioned methodology is following the model presented by Churchill (1979).

Confirmatory Factor Analysis

To measure construct validity of Islamic Behavioral Religiosity Scale, confirmatory factor analysis was implemented using AMOS software. CFA reflects how well the measured variables represent the constructs (Hair *et al.,*2006). Islamic Behavioral Religiosity scale was composed of Islamic doctrinal, intrinsic religiosity, extrinsic religiosity. Following is figure of confirmatory factor analyses before modification.
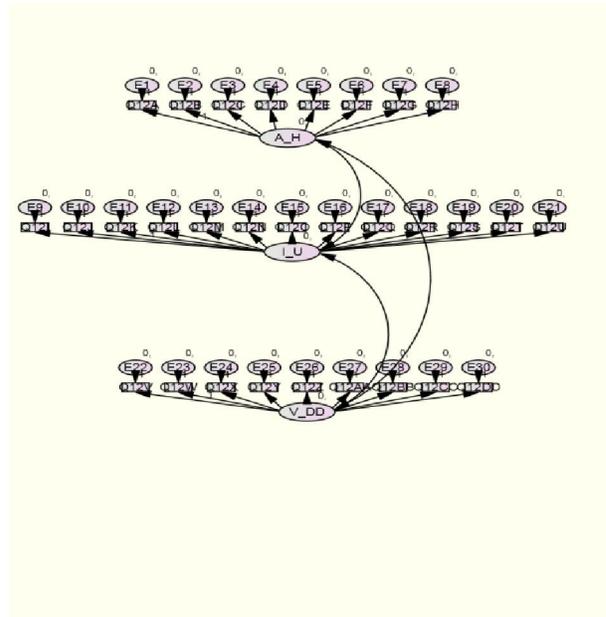

Figure 1: Path Diagram before Modification

As for regression weights per variable, analyzing the P value, it was found that the variables are highly significant as it is less than 0.001. This reflects that every statement per variable reflects the variable itself. Further, estimates are positive sign, which also reflects that every statement is representative of the variable. As for standardized regressionweights should be more than 0.5, thus the variables less than 0.5 were excluded from the survey. Islamic doctrinal and intrinsic religiosity

variables are the same whereas some items are removed from extrinsic religiosity variable. Based on the CFA, some questions from extrinsic religiosity were removed whereas for the other factors, which are Islamic doctrinal and intrinsic religiosity, nothing was removed from the items. After removing the items with less than 0.5 in standardized regression weight, another confirmatory factor analysis is implemented. Following are the results of the modified confirmatory factor analysis.
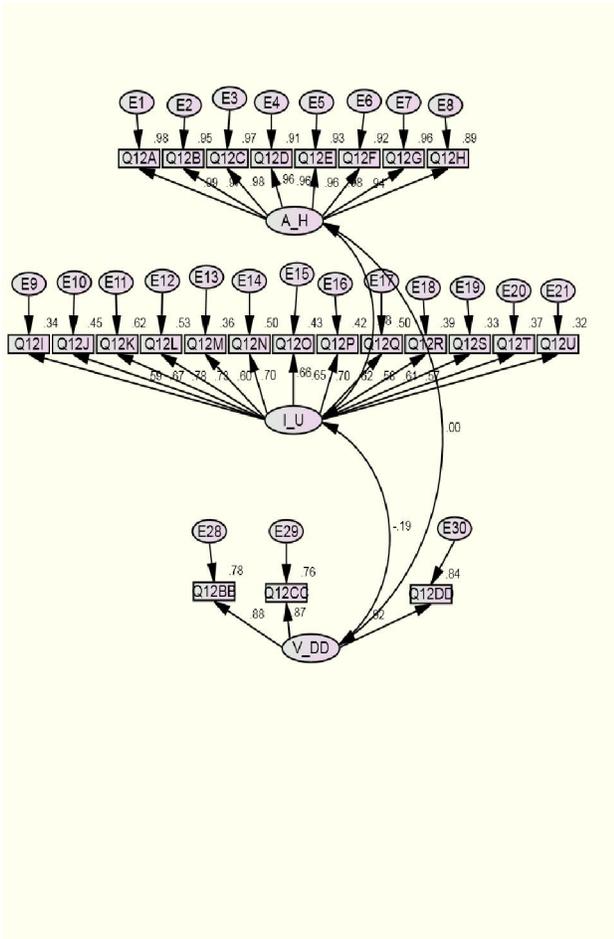

Figure 2: Path Diagram after Modification

Another measure was calculated to ensure convergent validity that is variance extracted and it is calculated for the model after modification. "Variance extracted among a set of construct items is a summary indicator of convergence" (Hair *et al.,*

2006). Variance extracted for questions related to Islamic doctrinal is 0.9375, for intrinsic religiosity is approximately 0.45, for extrinsic religiosity is 0.8. The accepted variance extracted should be 0.5 or more as this reflects adequate convergence (Hair *et al.,* 2006). Thus, the variance extracted per variable is accepted, whereas the intrinsic religiosity is 0.45, which is near the acceptance threshold.

As for model after modification fit measures are as follows:

Table 1: Model After Modification Fit Measures

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	RMSEA
Default model	.801	.760	.818	.779	.817	0.14
Saturated model	1.000		1.000		1.000	
Independence model	.000	.000	.000	.000	.000	0.298

Normed fit index (NFI) is "one of the original incremental fit indices. It rangesbetween 0 and 1 and a model with perfect fit would produce an NFI of 1" (Hair *et al.,* 2006). NFI for the model is 0.801. Comparative fit index (CFI) "is an incremental fit index that is an improved version of the normed fit index (NFI). CFI is Normed so that values range between 0 and 1, with higher values indicating better fit" (Hair *et al.,* 2006). CFI for the model is 0.817. Tucker Lewis Index (TLI) "predates the CFI and is conceptually similar in that it also involves a mathematical comparison of a specified theoretical measurement model and a baseline null model" (Hair *et al.,* 2006). Models with values approaching 1 are good fit (Hair *et al.,* 2006). Root mean square error of approximation (RMSEA) is a measure attempting in correcting the tendency of X^2goodness of fit test statistics in rejecting models with large samples or a large number of observed variables (Hair *et al.,* 2006). Lower RMSEA values indicate better fit. In the current model, it is 0.14.

An added question to the modified scale was inserted in the survey to measure the weights of every factor reflecting Islamic Behavioral Religiosity Degree. This question enabled the researcher in constructing the following equation by which religiosity degree could be calculated from the behavioral perspective. Following is the equation used to measure Islamic Behavioral Religiosity Degree:

Islamic Behavioral Religiosity Degree=55.86*Islamic Doctrinal + 26.25*Intrinsic Religiosity + 17.89 * Extrinsic Religiosity

Reliability refers to "the extent to which a scale produces consistent results if repeated measurements are made"(Malhotra, 2010). "The relationship between reliability and validity can be understood in terms of the true score model. If a measure is perfectly valid, it is also perfectly reliable" (Malhotra, 2010). Assessing reliability is done through test-retest, alternative forms, and internal consistency models. Internal consistency is "used to assess the reliability of a summated scale where several items are summed to form a total score" (Malhotra, 2010). Internal consistency could be either assessed by split-half reliability or through the coefficient alpha or Cronbach's alpha (Malhotra, 2010). "Cronbach alpha is the average of all possible split half coefficients resulting from different ways of splitting the scale items. The coefficient varies from 0 to 1, a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability" (Malhotra, 2010)

First run reliability coefficient Cronbach alpha, for Islamic doctrinal was calculated to be 0.94, for intrinsic religiosity was 0.916 and as for extrinsic religiosity was 0.819. Re-run overall reliability for overall religiosity was 0.847. Cronbach alpha for Islamic doctrinal is 0.991, for intrinsic religiosity is 0.902 and for extrinsic religiosity is 0.842.

3. Results and Discussion

Significant Differences between Nominal Variables and Religiosity

Cross tabulations have been run between demographic and composites using T-test and ANOVA analyses. The univariate techniques for analyzing group differences are the t-test within two groups and analysis of variance (ANOVA) for two or more groups (Hair *et al.,* 2006). T-test "is a test to assess the statistical significance between two groups on a single dependent variable" (Hair *et al.,* 2006). ANOVA is "statistical technique used to determine whether samples from two or more groups come from populations with equal means." (Hair *et al.,* 2006). In the first run of the scale, it was shown that there is no significant difference between demographic variables and religiosity variables as well overall religiosity construct.

In the second run of the scale, it was shown that there is significant difference between gender and intrinsic religiosity. The mean of the answers for those questions was inclined more to male more than female. There was no significant difference between gender and extrinsic religiosity, Islamic doctrinal and overall religiosity. There is a significant difference between gender and intrinsic religiosity, intrinsic religiosity weight, and extrinsic religiosity weight. The mean for the responses of male is more than that

for the female in all those variables except for extrinsic religiosity weight and extrinsic religiosity. This information is crucial for marketers in as they need to segment their targets based on religiosity and gender as well as there is significant difference between males and females for some religiosity variables.

There is significant difference between age groups and intrinsic religiosity where the highest mean was age group above 50 and the least was age group 30-40. There is significant difference for extrinsic religiosity where the highest mean was age group 21-30 and the least was age group 40-50. There is significant difference for Islamic behavioral religiosity degree equation where the least mean is for age group 30-40 and the highest mean is for age group 40-50. There is significant difference between income and intrinsic religiosity where the highest mean is for average income and the lowest is for above average group. There is significant difference between income and extrinsic religiosity where the highest mean is for wealthy and the lowest mean is for average income.

Cluster Analysis Based on Islamic Behavioral Religiosity Scale

Cluster analysis is a type of multivariate techniques whose primary purpose are to group objects based on the characteristics they posses. Cluster analysis "classifies objects so that each object is similar to others in the cluster based on a set of selected characteristics. The resulting cluster of objects should exhibit high internal (within-cluster) homogeneity and high external (between-cluster) heterogeneity" (Hair *et al.,* 2006).

Using the Islamic Behavioral Religiosity formula, two clusters were found amongst the respondents in the re-run phase. Following are the clusters after iteration:

Table 2: Religiosity Cluster after Iteration

	Cluster	
	1	2
Overall Islamic Behavioral Religiosity Degree	3.70	4.48

This reflects that there are two clusters. The first cluster is agreeing with the statements of Islamic Behavioral Religiosity Scale (3.7), the second one is strongly agreeing (4.48) with the same statements. The respondents could be divided into moderate and high. Moderate are the ones who agree with all the statements of religiosity scale and high are the ones who strongly agree with all the statements. Moderates believe in the five pillars *Arkan* of Islam, they agree on behaviors directly related to the core of religion and they agree on religious behaviors done to leave

positive impression among society members. As for the high, they strongly agree with Islamic doctrinal, intrinsic religiosity as well extrinsic religiosity. This is an added contribution to the literature, as the pervious scales did not group samples based on religiosity degree or implement cluster analyses. Therefore, religiosity clusters work as an important segmentation criteria for marketers as there is significant difference between behavior of moderate and high religiosity clusters. Every cluster is expected to behave in a different ways per variable.

Implications for Future research

The main objective of performing factor analysis to the religiosity scale is data reduction. The new Islamic Behavioral Religiosity scale would be used as part of future studies performed by the researcher. This new scale would be correlated with the consumer behavior and attitude towards Islamic products/services e.g. Islamic banks. The aim of that correlation is to find whether consumer behavior changes if religiosity degree changes or not.

The scale could be tested on different samples of Muslims in different regions of the world. In the meantime, the proposed scale could be linked with the behavior. It could be part of future studies implemented by marketers and academics, where the research would assess the link between consumer behavior and attitude towards products/ services. Future studies could test whether the degree of religiosity has an impact on the behavior and there is significant difference between the highly intrinsic person and the highly extrinsic person in terms of the behavior.

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Appendix 1

Please indicate your level of agreement with the following statements:

Rotated Component Matrixª

		Component 1	Component 2	Component 3
1.	I believe that prayer (*Salat*) as ordained by God and his prophet is crucial to the life of a Muslim		.750	
2.	I believe and declare that no other God but Allah and Mohammed is God's final prophet		.895	
3.	I believe that fasting during the holy period of Ramadan is one of the responsibilities of Muslims that is important to do		.813	
4.	I believe that hajj pilgrimage for those with the privilege to do so is important in the life of a Muslim		.765	
5.	I believe that there will be the end of time when people will be judged according to how they live their life in this world		.787	
6.	I believe in the reasons of having human beings life and the ability to select a way of life either based on God's principles leading to eternal heaven or the principles God warned us against leading to eternal hell		.665	
7.	I believe that Koran is the word of Allah, thus its authority is justified		.873	
8.	I believe that almsgiving (Zakat) is very important in the life of a good Muslim to be paid every year		.810	
9.	I am aware of the *Masarefelzakat*(or the Zakat channels; where I should pay my Zakat)			
10.	Religion is especially important to me because it answers many questions about the meaning of life.	.697		
11.	I read the literature and books about my Islamic faith.	.646		
12.	I watch Islamic programs on TV or listen to religious programs on radio.	.744		
13.	I believe that more Islamic programs, channels should be offered	.687		
14.	I try to carry my religion over into all my other dealings in life.	.671		
15.	I believe that teaching Islam in schools should be obligatory	.534		
16.	I will send my children to Islamic schools and not to secular schools.	.681		
17.	I will bring a sheikh to teach my children the Islamic principles.	.545		
18.	I am aware of God's obligations and guidelines when I deal with my family members (parents, brothers, sisters, uncles, aunts, cousins, siblings.. Etc)	.445		
19.	I believe that veil is obligatory	.625		
20.	I am veiled (for female respondents)/ I would enforce the veil on my wife (for male respondents)	.555		
21.	I read the Islamic literature and the Islamic books about the equal rights to man and woman in "affection and mercy"	.580		
22.	My religious beliefs are what really lie behind my whole approach to life	.621		
23.	If not prevented by unavoidable circumstances, I donate money as sadaka to the needy people			
24.	If not prevented by unavoidable circumstances, I pray at the mosque	.609		
25.	I believe that praying at the mosque is an added benefit rather praying at home or at work	.620		
26.	It is important for me to spend periods of time in private religious thought and meditation	.598		
27.	I seek and work to obtain Allah's grant of material return (rizk) without cheating, hoarding and squandering			
28.	I abstain myself from giving or taking Riba as defined in the exchange of material monetary units			
29.	I believe that praying Sunna, Nawafil, Qiyam Elleil are extremely beneficial for Muslims	.693		
30.	I always pray Sunna, Nawafil, Qiyam Elleil	.591		
31.	One reason for my being a member of a Mosque (or attending religious sessions) is that such membership helps to establish a person in the community	.600		
32.	Although I am a religious person, I refuse to let religious considerations influence my everyday affair			.659
33.	I think that the political constitution should be secular and not based on the *Shari'a*h	-.528		.415
34.	A primary reason for my interest in religion is that my mosque or my affiliation with a religious group has pleasant social activities			.659
35.	Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic interest			.601
36.	The mosque or attending religious meetings is most important as a place to formulate good social relationships	.491		
37.	Although I believe in my religion, I feel there are many more important things in life			.576
38.	It does not matter so much what I believe as long as I lead a moral life			.634
39.	I pray mainly because I have been taught to pray			.624
40.	The primary purpose of prayer is to gain relief and protection			.650
41.	What religion offers me most is comfort when sorrows and misfortune strike			.610
42.	The purpose of prayer is to secure a happy and peaceful life			.644

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Appendix 2
Modified Religiosity Scale

Divide 100% on the weight of importance of the following Islamic Items:

1.	I believe that prayer (salat) as ordained by God and his prophet is crucial to the life of a Muslim
2.	I believe and declare that no other God but Allah and Mohammed is God's final prophet
3.	I believe that fasting during the holy period of Ramadan is one of the responsibilities of Muslims that is important to do
4.	I believe that hajj pilgrimage for those with the privilege to do so is important in the life of a Muslim
5.	I believe that there will be the end of time when people will be judged according to how they live their life in this world
6.	I believe in the reasons of having human beings life and the ability to select a way of life either based on God's principles leading to eternal heaven or the principles God warned us against leading to eternal hell
7.	I believe that Koran is the word of Allah, thus its authority is justified
8.	I believe that almsgiving (Zakat) is very important in the life of a good Muslim to be paid every year
9.	Religion is especially important to me because it answers many questions about the meaning of life.
10.	I read the literature and books about my Islamic faith.
11.	I watch Islamic programs on TV or listen to religious programs on radio.
12.	I believe that more Islamic programs, channels should be offered
13.	I try to carry my religion over into all my other dealings in life (human dealings with my network (family members, friends and colleagues…Etc) and financial dealings).
14.	I will send my kids to Islamic schools and not to secular schools.
15.	I believe that veil is obligatory
16.	I am veiled (for female respondents)/ I would convince my wife to get veiled (for male respondents)
17.	My religious beliefs are what really lie behind my whole approach to life
18.	If not prevented by unavoidable circumstances, I pray at the mosque
19.	I believe that praying at the mosque is an added benefit rather praying at home or at work
20.	I believe that praying Sunna, nawafil, qiyamelleil are extremely beneficial for Muslims
21.	I always pray Sunna, nawafil, qiyamelleil
22.	One reason for my being a member of a Mosque (or attending religious sessions) is that such membership helps to establish a person in the community
23.	Although I am a religious person, I refuse to let religious considerations influence my everyday affair
24.	A primary reason for my interest in religion is that my mosque or my affiliation with a religious group has pleasant social activities
25.	Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic interest
26.	It does not matter so much what I believe as long as I lead a moral life
27.	I pray mainly because I have been taught to pray
28.	The primary purpose of prayer is to gain relief and protection
29.	What religion offers me most is comfort when sorrows and misfortune strike
30.	The purpose of prayer is to secure a happy and peaceful life

Divide 100% on the weight of importance of the following Islamic Items:

Knowledge regarding the *Aqidah* and the 5 pillars of Islam	
Behaviors directly related to the core of religion (like *FiqhElmoamalat* and praying at the mosque)	
Religious behaviors done for the social desirability purposes	
Total	100

[i] There is no accurate statistics reflecting the current number of Muslims. This is based on T.C. Melewar speech in ICIMB. In population reference bureau and CIA factbook it was mentioned that Muslim's population is 1.6 (http://www.prb.org/Articles/2011/muslim-population-growth.aspx; https://www.cia.gov/library/publications/the-world-factbook/)

[ii] This information was assimilated from the http://icimb.um.edu.my/ (first international Islamic marketing conference held in Malaysia in 2010). The main theme of the conference was Islamic marketing and Islamic Religiosity, however the scales mentioned in the conference are not yet published.

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