

## **Macro Economic Determinants of Family Takaful Demand: Evidence from Pakistan**

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### **Abstract**

The family takaful business in Pakistan has experienced encouraging growth despite its infancy of been started in 2006. Annual growth rate is achieving new heights but even then less than 5% of Pakistanis are covered by family takaful since 2006 signifying that the market is still under tapped. The present research aims to identify the driving force of family takaful consumption in Pakistan using time series data for the period 2006-2013. It was found in the study that per capita income is a robust predictor of family takaful demand in Pakistan, while other macro economic factors such as interest rate, and KSE 100 index is having significant and positive relationship with takaful demand. The saving rate and inflation are having negative as well as significant relationship with takaful consumption.

**Key Words:** Family takaful consumption, Takaful demand, Economic determinants and Islamic Insurance.

## 1. Introduction

It is undeniable fact that all human beings are invariably exposed to the possibility of meeting catastrophes and disasters giving rise to misfortunes and sufferings such as death, loss of limbs, accident, destruction of business or wealth, etc. Islam provides that one must find ways and means to avoid such catastrophes and disasters wherever possible, and to minimize his or his family's financial losses in case of occurrence of such events. One possible way out is to buy an insurance cover in an Islamic way, but the structure and operations of Islamic insurance came into this form after many screenings in the conventional insurance setup (Takaful Guide, 2007).

When we look back into the history of insurance it is noted that some forms of insurance were developed in London in the early decades of the 17th century (Hayman, 1628). The conventional Insurance system normally has three main problems these are (a) Riba (Interest/Usury) (b) Gharrar (uncertainty) and (c) Maysir (gambling). Conventional insurance contains both direct and indirect forms of Riba. The direct Riba is in the of Premium and indirect Riba in the shape of interest earned on interest based Investments e.g. by giving loans to financial institutes and banks on interest or by investing in interest based activity at stock exchange etc. thus promoting interest. Second factor is Gharar, where the person being insured does not know when he would bear the loss and to what amount, or the insurer can ascertain the amount and time with respect to profitability. Third element is Maysir, which involves a chance of total loss to one party in the contract, where profit to one person is directly related to another person's loss (Mahmood, 2008).

As a concept, insurance does not contradict the Islamic principles since it is essentially a system of mutual help. However, the operation of conventional insurance involves the elements of uncertainty and gambling in the contract of insurance, and usury in its investment activities, which do not conform to the requirements of Shariah. Gharar, may exist with regard to the scope of coverage, terms of the contract and source of the claim payments.

Maysir, may arise from any speculative element present in a contract, such as an unequal exchange of the amount of money. Riba, or excessive profit, may arise from financial interest received from the investment of funds collected from the participants. Avoidance of these elements is essential in an insurance system acceptable by the Shariah. Takaful does not support the elements of gharar, maysir, and riba in its operations and embraces the elements of mutual cooperation, shared responsibility, mutual protection, and joint indemnity (Malaysian Central Bank, Takaful Industry Review, 2005).

The objective of this research study is to identify the driving force of family takaful consumption in Pakistan. In order to meet the objective of the study data was collected from Takaful and State bank of Pakistan annual reports for the period of 2006-2013. The paper proceeds from the overview of takaful business to some relevant literature review in section II to III. After specifying a theoretical and empirical model in research methodology at section IV, the paper tests that model empirically through time series data in section V and offers findings, conclusions and recommendations in section VI.

## **1.2. Overview of Takaful**

Takaful is a system of Islamic insurance based on the principle of mutual cooperation (ta'awun) and donation (tabarru'), where the risk is shared collectively and voluntarily by the group of participants. It is derived from an Arabic word meaning 'joint guarantee' or

‘guaranteeing each other’ (Mahmood, 2008). It is an arrangement by a group of people with common interests to guarantee or protect each other from certain defined misfortunes such as premature death, disability and property damages. Under takaful schemes, participants mutually agree to guarantee and to protect each other against a defined loss or damage, by jointly providing financial assistance to any members suffering from a loss. Such financial assistance is made possible through the creation of a common pool contributed out of the participants’ resources as donations (Obaidulllah, 2005).

Takaful is built on the principle of mutual cooperation where each participant participates in each other’s loss, while takaful operator facilitates this cooperation using its expertise. The participants assume all the risk involved in the operation of takaful business. If the operation results in surplus, they would be entitled to the whole sum, or to a certain pre-agreed percentage (depending on the takaful model adopted). If the fund is insufficient, participants would not be asked to pay additional premium (Nordin, 2007). Instead, takaful operator will provide interest-free loan (Qard-e-Hassana), from the shareholders’ fund, to meet the deficit (Jching, 2008).

Two important models widely used by takaful operators are Mudharabah and Wakalah. In carrying out business under either model, takaful operators are required to comply with the religious tenets and prudential requirements. Mudharabah refers to a commercial profit-sharing contract between the provider of capital and the entrepreneur. The takaful insurer acts as the mudharib (entrepreneur) and the participants as rabbul mal (capital providers). Participants are the capital provider, who pays contributions. The contributions paid by the participants form the takaful fund. Takaful operators provide the expertise to manage the takaful fund in providing takaful protection and in investing the fund. This contract is a partnership in nature. The participants contribute capital, while the operator contributes

services. If the operation results in profit, all partners in the contract share in the profit according to pre-agreed ratio.

As capital provider, losses are borne by the participants. In the event the business results in financial loss, the operator only loses its labor of providing services. However, the participants' liability is limited to the amount of capital invested in the partnership and not a single penny above than that is allowed in Islamic way. A provision for an interest-free loan, Qard-e-Hassana, is available should there is deficiency in the takaful risk funds. In exchange for the service rendered in managing the takaful operations, the operator is entitled to share in the profit on investment (defined as the income earned on assets invested) and in the surplus resulting from the underwriting of the business (Kassim, 2005).

According to the current applicable laws in Pakistan, Takaful Companies (Takaful Operators) are the financial institutions incorporated as Limited Companies registered with the Securities and Exchange Commission of Pakistan and licensed from Insurance Division of Securities And Exchange Commission of Pakistan. They are granted permission to conduct General and Family Takaful (Islamic insurance) business in Pakistan for Non-life and Life insurance respectively. The first Takaful Company to operate in Pakistan was Pak Kuwait Takaful Company Limited, who began its Takaful operations in the year 2005. There are five Takaful operators comprising of three General Takaful and two Families Takaful Companies. However it was Pak Qatar family Takaful who for the first time started business in family takaful in 2006 in Pakistan.

## **2. Literature Review**

### **2.1 Takaful and Financial Development**

Most empirical work on the demand for life insurance takes Yaari (1965) as the starting point. Yaari (1965) pointed out that a demand function for life insurance derived from the maximization of utility function of the consumer would depend on wealth, income stream, a vector of interest rates, a vector of prices (including insurance premium) and the consumers' utility functions for consumption and wealth, which can be affected by the level of the market financial development. Autryville (1996) showed that a positive correlation between financial development and life insurance penetration. An efficient and effective bank services increases consumers' confidence in the financial institutions. Insurance companies, being among the financial institutions, can benefit from this increase in confidence.

Yusof (1996) find out of reasons influencing the design and offerings of takaful business. First, Muslims felt the need to practice Islam and apply its rules and regulations in total. Second, Muslims desire a financial system that is able to create a truly Islamic economy for the sake of the ummah. Third, with the establishment of the Islamic banking system an inherent need arose for takaful or Islamic insurance to complement its services and offerings. Beck and Webb (2003) highlights that banking development positively and significantly affect life insurance consumption. This might be due to the fact that well functioning banks may increase the confidence of consumers in other financial institutions. He finds that there is a significant positive relationship between financial development and life insurance penetration.

Redzuan et al (2007) identified driving force of family takaful consumption in Malaysia using economic factors and found that income per capita is robust predictor of family takaful demand, while long-term interest rate and composite stock index have significant relationship with family takaful consumption. Other factors such as inflation and savings rates do not appear to have significantly influence on family takaful purchase. Aysha Alsalihi and Napier

(2012) examined consumer preferences regarding takaful and conventional insurance. The study also finds out differences between UK and Saudi Muslims who hold insurance policies in a research. It was investigated that customers' choice is influenced by the Takaful and conventional insurance models and between the various products offered within each model. A structured questionnaire based on customer-oriented questions was used in study which focused on the three issues of awareness, perceptions and usage.

Ayinde and Echchabi (2012) examined that the Malaysian customers' willingness to adopt Islamic insurance services as well as the factors that may influence their behavior a thorough research was undertaken. The findings indicated that the Malaysian customers are willing to adopt Islamic insurance services, and their decision is depending on two factors i.e. compatibility and awareness.

## **2.2. Takaful and Conventional Insurance**

Research study examined the public preferences and understanding between Takaful and conventional insurance in Brunei. Reasons and factors that make the conventional insurance contradicted with the Shariah principles were identified. It was found that a big majority of the respondents were not aware about takaful but even then, a big majority prefer takaful over conventional insurance (Mastawali et al., 2012). Another study proposes three constructs of relationship marketing and investigates the customers' perception regarding the Takaful agents' relationship marketing practices. It includes their Islamic ethical behavior, product knowledge, and information communication (Alleh et al., 2013).

The research showed that the public particularly Muslim in rural area not totally agreed with the relationship marketing practices of their Takaful agent. This research contributes to strengthen the Takaful industry in reaching the same level with the conventional insurance

particularly their effective marketing channel. Research study attempted to determine the factors that influence the acceptance towards takaful among people in Malaysia (Azak, 2013).

The researcher intended to determine the factors based on independent variables; perception, product features, promotion, benefits and service quality. It is stated that Takaful has the same function as the conventional insurance. However, both are different in terms of operation due to the endless catastrophes encountered by the world economic, financial, commodity, real estate, wealth and other business, commercial and service sectors by having no remedial alternative paradigm to rescue the world communities from unstable economic mechanisms. It is thus, now realized by the world communities generally that, such an unexpected global catastrophe can be fought by the asset base and risk sharing economy to reform and rescues the world community with a just econo-business paradigm to enrich the spirit of entrepreneur and enterprising based community with mutual cooperation, care and concern.

### **2.3 Theoretical Framework**

Various studies indicate that the factors which influence consumers' decision to purchase life insurance policies differ across country. Based on these theoretical underpinning, this study hypothesize that the demand for family takaful plans can be explained by the per capita income, interest rate, inflation rate, savings rate and stock market index (Truett & Truett, 1990; Outreville, 1996, Hussels, Ward & Zurbruegg, 2002; Hwang & Gao, 2003, Hwang & Greeford, 2005). The theoretical framework for this study can be described in a general form of a functional relationship between takaful demand and the theorized determinants as

$$\text{Demand} = f(\text{per capita Income, Rate of Interest, Inflation, savings, stock}) + \epsilon.$$

The variables to be examined in the theoretical framework of this study and their measurements are discussed as below.



## **2.4 Dependent Variable**

The demand for family takaful is the number of total membership obtained with takaful companies in a given year in our model.

## **2.5 Independent Variables**

### **2.5.1 Per capita Income**

The level of a country's per capita income has been found to be the most important factor in explaining the level of insurance consumption. Many empirical studies have shown that the demand for life insurance is positively related to income. Income has generally been measured as a variant of Current GDP, or GDP per capita, which can be assumed to provide a proxy for permanent income. In line with this, this study will use the ratio of GDP to the population to represent income per capita.

### **2.5.2 Interest Rate**

The relationship between long-term interest rate and life insurance demand have been studied by Beenstock, Dickinson and Khajuria (1986), Browne and Kim (1993), Outreville (1996) Beck and Webb (2003). Black and Skipper argued about the possible effects of short-term interest rate on the demand for life insurance. Similar to the study by Beenstock, Dickinson and Khajuria (1986), this study uses the lending rate to proxy the long-term interest rate of the county.

### **2.5.3 Inflation**

The impact of inflation rate on life insurance demand have been studied by Fortune (1973), Babbal (1981), Browne and Kim (1993), Beck and Webb (2003) and Hwang and Greenford (2005). The demand for life insurance usually decrease during volatile economic times (Black and Skipper, 2000). Choate and Archer (1995) hypothesize that consumers'

expectation of inflation rates are established by the inflation rates in prior years. In line with this, the consumer price index will be used in this study to approximate for inflation.

#### 2.5.4 Savings

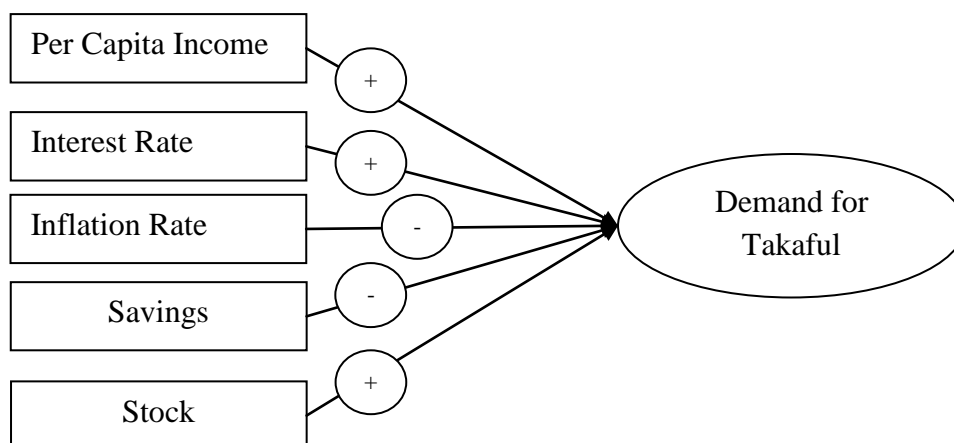
The relationship between the demand for life insurance and other financial assets such as savings has also been empirically studied (Headen & Lee; 1974, Rose & Mehr; 1980, Mayer & Smith; 1983, Black & Skipper; 2000, Beck & Webb, 2003). It has been suggested that if the effective return within a policy compares favorably with the return of other savings instruments, life insurance would look more attractive to prospective savers, given its other features such as the protection it provides. Similar to other studies, this variable is measured by the rate of return to savings accounts in commercial/private banks.

#### 2.5.5 Stock

Attempts have been made to relate life insurance sales to the financial market behavior (Fortune, 1986; Headen & Lee, 1974). These studies find that some competitive relationship exists between the flow of funds into stocks and life insurance sales. It is expected that higher turnover of stocks would stimulate the flow of fund towards them, and this can cause the life insurance sales to decline. In this study, the variable stock is measured by the annual return on KSE 100 index.

#### 2.5.6 Conceptual Framework

Following is the model of the research study namely, PDI.



### 2.5.7 Hypotheses of Study

Following are the hypotheses of the study.

**H1:** Per capita income has positive impact on demand for takaful.

**H2:** Higher interest rate has positive impact on demand for takaful.

**H3:** Inflation rate has negative impact on demand for takaful.

**H4:** Savings has negative impact on takaful demand.

**H5:** Stock has positive impact on takaful demand.

## 3. Research Methodology

This section highlights the important components of research methodology that are used to carry out the study. More specifically, the following sections discuss the theoretical and empirical framework of the study.

### 3.1 Empirical Model

A general multiple regression model is designed to test the relationships between the demand for family takaful as the dependent variable and the level of per capita income, interest rate, inflation rate, savings rate and KSE 100 index as the explanatory variables. The regression model is expressed as a log linear equation as follows:

$$Y = \alpha + \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon t$$

$$\begin{aligned} \text{Ln [Demand]} &= \beta_0 + \beta_1 \text{Ln [PCI]} + \beta_2 \text{Ln[INT]} + \beta_3 \text{Ln[SAV]} + \beta_4 \text{Ln[CPI]} + \beta_5 \\ &\text{Ln[STOCK]} + \epsilon t \end{aligned}$$

Demand: The No. of Policies sold by all family Takaful companies during the Period,

PCI: Per capita income of the population during the period under study,

INT: Prevailing market interest rate in period,

SAV: Rate of return for savings in period,

INFLA: Inflation rate/ CPI during the period under study.

STOCK: KSE 100 index (annual return)

$\epsilon_t$  is a stochastic error term,

$\beta_0$  is an intercept and the partial regression coefficients  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ , are unknown parameters.

### 3.2 Data

Family Takaful industry started its operation in 2006 in Pakistan. Due to the infancy of the industry, this study has to use a limited available data to analyze the macroeconomic determinants of takaful consumption as it was not possible to take observation over a longer period (Hwang & Gao, 2003). Takaful data for number of policies sold is taken from the Takaful Reports compiled by the takaful companies namely Dawood Family Takaful and Pak Qatar Family Takaful. The economic data regarding other explanatory variables were obtained from economic survey of Pakistan and state bank of Pakistan annual reports.

## 4. Result of the Study and Empirical Findings

Summary statistics of all the variables used in this study are reported in Table 1. During the span of the 7 years period under study, GDP per capita increases more than 2-folds from about Rs. 59500 to Rs. 131500 while Family Takaful plans purchased by consumers increased at 120 times from nearly 200 plan sale per annum to 24500 plans per annum.

**Table 1 Descriptive Statistics**

	Minimum	Maximum	Mean	Std. dev	Median
<b>Policies purchased</b>	6.68	10.11	8.89	1.34	9.45
<b>Per capita Income</b>	10.99	11.79	11.41	0.299	11.41
<b>Interest</b>	1.67	3.03	2.37	0.514	2.37
<b>Inflation</b>	4.76	5.16	4.98	0.139	4.99
<b>Saving</b>	2.38	2.61	2.487	0.756	2.50
<b>Stock</b>	3.33	4.15	3.68	0.31	3.64

Table 2 demonstrates that the estimated parameters of the log linear regression equation using family takaful demand expressed by number of policies sold per annum by family takaful companies in Pakistan as the dependent variable with explanatory variables being annual per capita income, interest rate per annum, inflation measured by Consumer Price Index, saving rate expressed by annual return on saving accounts of commercial banks and stock variable with Karachi stock exchange annual rate of return.

**Table 2****Regression Estimation Model**

<b>Variable</b>	<b>Coefficient</b>	<b>Std Error</b>	<b>T-Statistic</b>	<b>Prob.</b>
Log Per capita Income	9.231	.580	15.913	.000
Log Interest	1.200	.190	6.330	.000
Log Inflation	-5.300	.879	-6.031	.005
Log Saving	-7.685	1.783	-4.310	.001
Log Stock	2.904	.574	5.057	.002
Constant	-63.803	8.277	-7.708	.000
<b>R-Squared=0.999</b>	<b>Adj. R-Square=0.991</b>	<b>F value=139.46</b>	<b>(P Value=0.064)</b>	
<b>Durban Watson=1.697</b>				

Dependent Variable Takaful Demand expressed as No. of policies purchased by consumers

The estimated coefficients show the expected positive relationship between the variable income and family takaful demand so income is highly significant and robustly predictive of the demand for family takaful. The empirical estimation exhibit the expected negative sign for inflation but positive sign for stock. The reason of positive stock sign may be because of the unpredictable behavior of stock market or because of the indicator variable for stock.

Some studies used price of stock exchange while we used annual return on stock as the prices and value of index changes with every day and it's difficult to represent by a single number for the year (Redzuan et al., 2007). Both the inflation and stock variables are significant on both criteria of T values being -6.03 and 05.057 respectively and P-values of as being 0.105 and 0.124 accordingly. The variable interest rate showed positive signs as

expected it was only variable savings that exhibited unexpected signs although it is still significant. The coefficient of determination is 0.999 showing that the model is nearly perfectly fitted to the data. The higher R square is most of the times an indicator of severe multi co linearity so we test for variance inflation factor indicating that all values are less than the standard bench mark of 10. The result is summarized in above captioned table with P-values also being significant.

**Table 3**

**Variance Inflation Factor for testing Multi-collinearity**

<b>Explanatory Variables</b>	<b>VIF</b>	<b>Tolerance</b>
Per Capita Income	6.834	.146
Interest Rate	2.164	.462
Inflation	3.333	.300
Saving	1.376	.727
Stock	7.175	.139

The above table shows the multicollinearity statistics. The tolerance value less than 0.10 indicate a multicollinearity problem (O'Brien & Robert, 2007). In the above table the tolerance values of all (I.V" s) are .146, .462, .300, .727 and .139 which shows that the tolerance level is sufficient. The reciprocal of the tolerance is known as the Variance Inflation Factor (VIF). The VIF 10 and above indicates the multicollinearity problem (O'Brien & Robert, 2007). In the above table VIF values of (I.V's) are 6.834, 2.164, 3.333, 1.376 and 7.175 which shows that the VIF level is also good and there is no any problem of multicollinearity.

## **5. Discussion and Findings and Conclusion**

The results of the regression analysis states that income variable is statistically significant predictor of family takaful consumption. Income is positively and significantly related to takaful demand expressed in number of policies purchased by consumers. As income arises,

insurance becomes more affordable and the demand for family takaful increases. Furthermore, the need for life insurance increases with income as it protects the dependents against the financial consequences arising from premature death of the primary income-earner. This finding is consistent with many prior studies of life insurance demand (Black & Skipper, 2000; Ward & Zurbruegg, 2002; Beck & Webb, 2003, Hwang & Gao, 2003; Hwang & Greenport, 2005).

The findings of this study further indicates that when the per capita income in Pakistan is increased by one percent as a result the takaful plans are purchased on the average by more than one percent and statistically speaking by nearly 9 percent. Thus any takaful company can predict expected number of policies to be demanded by consumers in the next year if they are given next year per capita income.

Theories suggest that the higher the interest rate, the more return can be earned by the insurers which in turn can increase the value of a life policy. Our empirical result is consistent with the theory where our coefficient sign is positive and its magnitude being 1.20 showing that for every one percentage point increase in interest rate, the takaful demand is increased by only slightly above than that. The implication for the company may be that whenever there is expected increase in interest rate in the economy, the takaful company can plan for increased number of plans as per magnitude accordingly.

#### **Table 4**

#### **Result Summary**

Following table depicts the study hypotheses result.

<b>Hypotheses</b>	<b>Accepted/ Rejected</b>
<b>H1:</b> Per capita income has positive impact on demand for takaful.	Accepted
<b>H2:</b> Higher interest rate has positive impact on demand for takaful.	Accepted
<b>H3:</b> Inflation rate has negative impact on demand for takaful.	Accepted
<b>H4:</b> Savings has negative impact on takaful demand.	Rejected
<b>H5:</b> Stock has positive impact on takaful demand.	Accepted

## **5.2 Theoretical contributions and Practical Implication**

This study makes vital contributions towards Takaful and macroeconomic literature in Asian countries especially in Pakistan. Furthermore, the results of this study may also have direct implications towards the development of takaful demand and its benefits for local culture and community. After result of this research study families and households members of Pakistan would become more aware of the importance of macroeconomic variables interventions towards takaful. This should give high level of encouragement to people to gain benefits from takaful. Furthermore, this study suggested that managers and policy makers can enhance the demand of takaful in Pakistan by directly interventions of macroeconomic variables.

## **5.3 Recommendations, Limitation and Future Research Area**

Government should have to focus on the proper implementation of such strategies that develop the demand of takaful in Pakistan through appropriate intervention of macroeconomic variables. It is momentous to construct such an ambiance where families, household members and entrepreneurs are motivated towards getting the benefits of takaful. The study was partially generalized because the data was taken only from takaful reports compiled by the takaful companies namely Dawood Family Takaful and Pak Qatar Family Takaful on cross sectional basis. So, this acknowledges the fact that there is the possibility of common errors in some of our results. Thus, it is recommended that future research study should be carried out on a longitudinal basis and should be performed on a larger sample size in order to cover for a larger population. However, it should be noted that future research



study will also encounter some important mediators' variables which influence directly or indirectly intervene towards demand for takaful.

## 5.4 Conclusion

Higher Inflation rates measured by consumer price index have been hypothesized to have a significant negative impact on life insurance demand. Inflation erodes the value of life insurance, making it less desirable goods. Theories also suggest a negative relationship between inflation insurance consumption. When CPI increases by one percent, the takaful demand is reduced by 5.3 percent as the people's savings are decreased and they are having little incentive to purchase takaful plans. Thus increase in CPI must be considered as a negative indicator for the takaful operations. The takaful operators may inline their policies in case of increasing inflation more vigorously through other means of advertisements and effective agent services so that their product demand is not reduced many folds with increased CPI.

If the effective return within an insurance policy is lower than those offered by other saving instruments in commercial banks, consumers are likely to consider the alternatives. Thus the literature guides that when the saving rate or return on savings increases, the consumer decreases takaful demand as the alternative return on saving becomes an attractive alternative way but our model showed unexpected sign of the saving variable as being positive meaning that returns offered by commercial banks and takaful plans move in same direction.

The possible reason may be that now most of Pakistanis are shifting towards Islamic finance even from conventional interest based system due to religious considerations but not exclusively profit considerations. Secondly reason may be that company uses agent services for selling of plans to consumers. Agents visits consumers personally and explains the protection offered by company at lower affordable amounts and convince the consumers of

the importance of takaful plans in alleviating financial burden of the dependents. When many takaful agents develop a strong relation with the clients and their family other than sales business as a result many clients put their trust in their agents. Agents persuade their clients of the need for coverage and thus they opt for takaful plans over looking other profitable options of returns on saving. It is probably due to reasons that estimated model showed unexpected sign.

Attempts have been made to relate life insurance sales to the financial market behavior (Fortune; 1973; Headen & Lee, 1974). Although studies find that some competitive relationship exists between the flow of funds into stocks and life insurance sales. It was thought that higher prices of stocks would stimulate its flow of fund, and this may lead to a decline in life insurance sales. But as we know that investment linked plans are recently also introduced which have created a positive relationship between life insurance and the return on stocks as positive because both are indicative of each other. As most of investment-linked funds are invested in stock markets backed plans so favorable stocks market environment intensifies the number of policies purchased by consumers. The result of model shown that for every one percent increase in KSE 100 index turn over, the demand for more policies would also increase by nearly 3 percent on the average. Thus in this way our model empirical results showing positive relationship between takaful demand and return in KSE 100 index seems justifiable. The takaful companies can seek guidance from the unpredictable behavior of stock exchange using this model in case of variations in its turn over so that to plan effectively for its expected number of policies to be sold and to earn profit accordingly.

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