CONVENTIONAL AND ISLAMIC ANOMALIES IN KARACHI STOCK EXCHANGE

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ABSTRACT: *Calendar anomalies can be defined as the indiscretion or unswerving pattern that cannot be entrenched by the presented theories of Finance. This paper tries to investigate the conventional and Islamic calendar anomalies in Karachi stock exchange. We have used the daily and weekly data for the period of 20 years from 1992 to 2011.The applications of Ordinary Least square (OLS) method has been used. Through this study we found the Day of the week effect, Month of the year, End of the month, Half month and Islamic month effect. Our results reveled that there is negative Monday and positive Friday effect, significant Half month effect, and significant turn of the month and the month of the year effect. We have also found the significant Ramdan effect in Karachi stock exchange. So in the light of our findings we can conclude that Karachi stock exchange is an efficient and well-organized market that is having anomalous behavior on the way to the return.*

Key Words: *Anomaly, Stock Price, Abnormal Return, Karachi Stock Exchange, Pakistan*

INTRODUCTION:

An event considered as anomalous when the event is hard to explain rationally with existing theories or logical assumptions. The concept of efficient market presented by Fama [1] suggests that all new market information are reflected in stock prices immediately, as a result investor cannot predict future prices on the bases of past prices. However, sometimes stock prices can be predicted because daily, weekly and monthly returns on stocks exhibit discernible patterns. Investors use technical analysis to predict the direction of price changes of individual stocks in short-term and they search the basis of seasonal trends from the technical analysis. No stock market can be declared as efficient in the presence of these seasonal effects because these seasonal effects violate the basis of efficient market hypothesis. In short term, these seasonal patterns provide maximum profit in the market [2]. Calendar anomalies are one of the features of financial market, which is against the efficient market hypothesis. The study of these effects in Pakistani Stock market provide as motivation to sort out the regularity of stock returns in detail. The biggest stock market in Pakistan is Karachi Stock Exchange (KSE). The purpose of this study is to explore the efficiency of KSE in light of different seasonal patterns like Day of the week effect, January effect, Turn of the Month (TOM) effect and Ramadan effect.

The Day-of-the week effect refers to significant return differences (higher or lower) between the days of the week. The January effect is concerned with the abnormally higher returns during this month and the Turn-of-the-month effect refers to the patterns on the last days and the first days of any month.

Different countries and societies follow their own calendar based on their religion and culture. Hebrew calendar is followed by Jewish society, Christens follow Gregorian calendar and Muslims follow Islamic calendar which is based on lunar calendar and known as Hijri Calendar. There are 12 months in Hijri Calendar. There are approximately 29.53 days in a lunar month. Ramadan is one of the months of Hijri Calendar. Muslims keep fasts in this month. In the month of Ramadan the working patterns of Muslims are changed. Hotels are closed earlier and Muslims remain busy in their prayers. Muslims avoid the sins and wrong doing like speculation and gambling which is the mettle of the stock exchange. So, it is interesting to study the trading activity under these situations.

After the end of Ramadan Muslims celebrate Eid-ul-Fitar. The purchase activities in Muslim society increase before the Eid-ul-Fitar. People purchase new clothes, gifts and food commodities. It is observed that prices of food, clothes and other commodities increase during this month. The behavior of the people during this month ultimately impact on financial market trading activity. It decreases the volatility of stock market in volume and stock returns.

The purpose of this study is to investigate, “is there any different in trading activity in Ramadan as compared to the other months.”

Research Problem and Objectives:

Most of the work in calendar anomalies has been concentrated on the developed markets with only a few studies covering the emerging markets of Asia. Our research investigates the evidence of these effects in the Pakistani market, a market not studied before. The Pakistani market is unique as it has its own trading regulations. The existence of these seasonal anomalies in this market will help verify/contradict some of the hypothesis discussed above as possible explanations. This research examines the major index (KSE-100) of the market and it helps to verify the existence of seasonality across a large band of stocks. In view of the burgeoning interest in the emerging markets, this research is a step towards understanding these markets better and finding anomalies that could seriously influence trading strategies within the same.

LITERATURE REVIEW:

General market calendar anomalies include the weekend or Monday effect [3,4,5] the January effect [6], the Turn of the month (TOM) effect [7,8], the holiday effect [7], and half month effect [7]. Jaffe and Westerfield [9] examine the presence of the weekend effect in Australia, Canada, Japan, and UK financial markets. Aggarwal and Rivoli [10] examine the financial markets in Hong Kong, Malaysia, Philippines, and Singapore and their findings support the existence of the January effect in all countries, except the Philippines. Lauterbach and Ungar [11] investigate the existence of calendar anomalies in the Israeli stock market. They find weak evidence of a weekend effect with the highest return of the week occurring on Sundays. They also observe a TOM effect and a Turn of the year effect. The latter finding fails to support the tax-loss-selling explanation of the turn-of-the-year phenomenon because, unlike the USA market, the Israeli capital gains tax on traded stocks is zero. Ayadi et al. [12] investigate calendar anomalies in Ghana, Nigeria, and Zimbabwe. Their study finds no evidence of a Turn the year or January effect in the Nigerian and Zimbabwean stock markets. The presence of a January effect in Ghana is explained by its ties with Great Britain. Coutts and Sheikh [13] examine the daily index returns from the Johannesburg Stock Exchange in South Africa and find no evidence of a weekend or January effect. The authors argue that calendar anomalies are most likely explained by idiosyncrasies of individual markets and do not constitute a global phenomenon. Demirer and Karan [14] examine the weekend effect in Turkey. Although they do not find a significant weekend effect, they identify a highly significant lag variable where today's returns influence tomorrow's returns. Furthermore, they discover the day of the week effect where the returns for Monday indicate the performance of the market for the entire week. Tonchev and Kim [15] examine calendar effects in the Czech Republic, Slovakia, and Slovenia. They find a weak evidence of the January effect, the Day of the week effect, and the TOM effect. Moreover, the effects have different characteristics based on the differences in the stock markets. Raj and Kumari [16] analyze the Indian financial market using weekly and daily returns from the Bombay Stock Exchange and National Stock Exchange. The study fails to find a negative Monday effect and positive January effect. Monday returns are significantly higher than the other days of the week, whereas Tuesday returns are significantly negative. The authors also find an April effect in the Indian stock market, which can be explained by end of the year tax-loss selling.

Day of the Weak Effect:

Gibbon and Hess [5] worked on day-of-the week effect for the first time in US and they used the indices of S&P and CRSP from 1962 to 1978. They found the lowest return on Monday. The Monday effect is another anomaly which results in negative returns from Friday to Monday closing stock prices [3,4,5]. They found largest stock return deviation on Monday and lowest stock return deviation on Friday.

Jaffe and Westerfield [9] find that calendar anomalies also exist outside the USA. In UK and Canada, they found the lower return on Monday, While in Japan and Australia lower returns are found on Tuesday. They documented new evidence for the negative Tuesday effect. French [4] conducted an extensive research on Day-of-the-week effects. He used the data of S&P 500 Index and showed negative return on Monday.

Gibbons and Hess [5] founded that T-bills returns are higher on Wednesdays and Fridays and they noticed that pattern of movement between T-bills and stock returns were same.

Many theories have been postulated to explain the day-of-the-week effects with the popular ones are as follows.

Calendar Time/Trading Time Hypothesis:

Calendar time trading implies that Monday returns should be three times higher than the other days because Monday comes after the two holidays. The observed negative Monday returns are against this Hypothesis which means that returns are based on trading time as opposed to calendar time.

Information flow Hypothesis:

Dyl and Maberly [17] stated that information flow over the weekend is the cause of Monday effect. Negative information on weekend and the two non-trading days promotes investors to absorb the information before reacting with trading activity. And it is the cause of negative Monday return.

Settlement period hypothesis:

Gibbons and Hess [5] found negative Monday effect from 1962 to 1978 by using mean returns and returns of S&P 500. They tried to find the reasons of possible negative returns. Settlement period explains the Monday effect. Before 1968 there was higher negative Monday effect because before the 1968 settlement period was four days.

Retail investor trading hypothesis:

Brooks and Kim [18] suggested that individual investor trading activity can be the cause of negative Monday effect. They found that on Monday trading activity is lower for large size trades when they used the odd lot trades as proxy for individual investors.

By analyzing the literature we developed the fallowing hypothesis.

$H_{1:}$ Day of the week effect has significant impact on KES-100 Index returns.

January Effect:

The January, or turn-of-the-year, effect is one of the better known calendar anomalies. It impacts on January returns which are higher as compared to other months.

It was studied by Rozeff and Kinney [19] and their work found that the NYSE average returns for the period 1904 to 1974 were 3.5% in January compared to 0.5% for other months. Most studies find that the returns are large in January and low in December [20,21]. Many theories have been developed to explain this phenomenon.

Tax-loss selling hypothesis (Branch, 1977):

It states that on the end of year tax-loss selling of shares is responsible for the lower returns in January. It implies that investors sell stocks at end of the year to escape from tax, which results in lower stock prices and thereby higher stock market returns in January. Reinganum [22] used daily return data of NYSE and ASE from 1962 to 1980. He analyzed ten portfolios based on market capitalization, (price per share times the number of shares outstanding). Furthermore, he divided the price of security at the year-end by maximum price of the security to calculate the tax-loss selling measure.

Gultekin and Gultekin [23] worked on seventeen countries' indices to check the seasonality in stock returns by looking at monthly returns from 1959 – 1979. They used statistical techniques and by running the Kruskal and Wallis test, they found that null hypotheses can be rejected at the ten percent significance level for twelve of the seventeen countries in their sample. For the U.S. they rejected the hypothesis for the equally-weighted index, although not for the value-weighted index. Agrawal and Tandon [24] examined eighteen stock markets rejected the hypothesis of equal monthly returns at the ten percent level or less for ten countries. Furthermore, they found that the January returns are positive for most countries.

The size effect:

Banz [25] identified that small firms have higher risk-adjusted returns and to discover this he used the data of NYSE from 1936 to 1975. He stated that size effect is not linear function when he divided the ten years' data in sub-periods. So it means that there is no positive relationship between return and firm size. Keim [20] analyzed the negative relation between firm size measured in total market value of equity and abnormal risk-adjusted returns. He showed that smaller firm size leads to increase in returns. For this purpose he used the data of NYSE and AMEX from 1963-1979. Furthermore, his results showed that size effect is stronger for January than for the remaining months. In addition, Keim [20] found that January returns are resulted in approximately half of the size effect and a quarter is due to the first five trading days of January. The findings of Banz [25] and Keim [20] suggest that the January effect found by Rozeff and Kinney [19] should be more marked on small capitalization indices.

Difference in beta:

Rogalski and Tinic [26] analyzed the data of NYSE and AMEX from 1963-1982 and concluded higher beta for stocks that are traded in January explains the reason for higher stock return in January as compared with remaining months of the year.

Movements in bid-ask spread:

According to Keim [20], at the end of the year there exists a systematic movements in bid-ask spread and January effect is attributed to these movements. Because the investors sell their securities at the end of year so the selling pressure is high at the end of December, and this selling pressure results in daily closing price close to bid quotes. While the buying pressure is high in the start of January, this results in daily closing price close to ask quotes. For the small stocks bid-ask spreads can be large, bid-ask bounce leads to higher January returns.

Some theories state this phenomenon that it is due to increased January risk premiums [19], although others consider year-end window dressing by professional portfolio managers as the primary cause [6]. Lakonishok and Smidt [8], states that individual investors sell their stocks at the end of the December and this selling is tax motivated selling. So this is the cause of January effect. After the turn of the decrease in liquidity may be the cause of this effect [27]. Ligon [28] suggested that the January effect is related to excessive investor liquidity in the month of January. He found that higher January trading volume and lower real interest rates leads to higher January returns.

Bensman [29] also attributes this effect as a subject of behavioral finance. January effect is also studied by Tonchev and Kim [15] and moreover, Keim [20] explained that approximately half the excess returns for small firms occurred in January. Several studies such as Keim [20], Ariel [7] and Jaffe et al. [9] have pinpointed the existence of a monthly effect on the US and other developed markets.

$H_{2:}$ January effect has significant impact on KES-100 Index returns.

Turn of Month Effect:

In Turn of month effect abnormal returns are observed around the TOM. Ariel [7] found that mean daily returns for the last and first nine days of following month are higher than the rest of month. He discovered this by analyzing stock portfolio returns from 1963 to 1981.

Lakonishok and Smidt [8] argue that the Ariël [7] has not defined correctly TOM, because according to their school of thought it is a result of examination of the data. According to them the days which are defined by the Ariël [7] exhibits high returns therefore they explain the first half of the month as first and they emphasis that the second half has least priority than the first half. They did not reject the null hypotheses of equal returns at the significance level of 5% when they analyzed daily closing prices of the Dow Jones Industrial Average from 1897 to 1986.

Their conclusion about the effect investigated by the Ariel [7] and his findings about this effect is that he added the last trading day into the first half of following month, and his findings are influenced by the characteristics of the particular period. Lakonishok and Smidt [8] analyzed the difference of returns between the two halves of a month and also the returns of trading days around the TOM, at 1% significant level the return for this period was statistically higher. We formulated the hypothesis for the turn of the month effect as under.

$H_{3:}$ Turn of the month effect has significant impact on KES-100 Index returns.

The Half Month Effect:

In all of the effects previously discussed, we have mentioned that returns at month end are usually low. This is the basis for half month effect that returns in later half of the month are relatively lower than the first half of the month. This effect is also known as semi month effect. However, there are different views about segregation of a month into two halves. Ariel [7] tested half month effect by creating an event window of (-1, +8). He took last trading day of previous month and first eight day of upcoming month as a first half of the month and last nine trading days (before last trading day) as second half of the month. Last trading day of previous month is included as average rate of return on last trading day is higher. His analysis of data for 1963 to 1981 found that average rate of return was positive in first half of month and negative in second half of month.

Lakonishok and Smidt [8] also worked on this effect and found positive rates of return for both halves of the month. He also found that average difference between rates of return for entire period is 0.237%, which is much lesser than the 1% as reported by Ariel [7]. They divided whole month into two parts by taking first fifteen trading days as first half of month and all remaining as second half of month. By examining data on month to month performance basis, they found only a mild support for half month effect. They also commented on Ariel [7] findings that it was due to idiosyncratic characteristics of the period under study and also due to the inclusion of last day of month in first half of month. He argued that high rate of return at last trading day of month requires further examination of data.

Pham [30] replicated the Ariel [7] study using same event window for an extended data of CRSP value and equal weighted indices for a period of 1963 to 2003. He also tested data from S&P/TSX composite for 1977 to 2002. The half month effect has been tested for many countries. Existence of this effect has been proved in Australia and inverted half month effect in Japan [9], Denmark, Germany, Norway and an inverted half month effect in Singapore/ Malaysia [31] and in Greece [32]. No evidence of half month effect has been found in Canada and UK [9], Singapore, Malaysia, Hong Kong and Taiwan [33] and Turkey [34]. Bahaduret al. [35] tested half month effect from Nepalese Stock Exchange during the period 1995 to 2004. By following same pattern of dividing a month into two as did by the Lakonishok and Smidt [8], they failed to find any significant evidence of half month effect in Nepal. Our Hypothesis for Half month effect is as under.

$H_{4:}$ Half month effect has significant impact on KES-100 Index returns.

Ramadan Effect:

Unlike the fixed calendar events (January effect and the day of the week effect), which have been extensively examined, the effect of moving calendar events (such as Ramadan) on risk and return have not received much attention. Major moving calendar events such as Ramadan can potentially have significant effects on economic and financial variables. Alper and Arouba [36], using macroeconomic time series data for Turkey show that conventional methods to deseasonalize moving events data do not remove all deterministic seasonal components. They demonstrate that further deseasonalizing using specific categorical moving event variables is required to remove the residual seasonality. The financial markets in the Islamic countries around the globe experience noticeable changes in their trading activities (with reduced banking and working hours) and greater religious orientation of the market participants during the fasting month of Ramadan. Most Islamic countries use both the Gregorian and the Islamic lunar calendars. The Islamic calendar predominantly marks the religious activities and holidays, whereas the Gregorian calendar is used by businesses and governments. The holy month of Ramadan, the ninth month of the Islamic calendar, is a month of fasting, spiritual training and discipline. As part of a lunar calendar, Ramadan moves slightly each year beginning about 10 days earlier. The month of Ramadan presents a unique opportunity to examine and determine any predictable patterns in the behavior of stock returns and volatility relative to other months of the year. The findings should be of interest to both regulators and participants in the financial markets of Islamic countries in the Middle East, the Far East and elsewhere. Why would one anticipate the stock market return or its volatility to change during the month of Ramadan? Throughout the Muslim world, the holy month of Ramadan is observed with great zeal and enthusiasm. Changes in the social and economic life of individuals are quite significant and visible. Ramadan fast is one of the five pillars of Islam, and is mandatory for all adult Muslims who are not in firm or subject to other permissible exemptions. Muslims fast each day from dawn until sundown with total abstinence from food or drink and are encouraged to devote themselves to acts of piety, prayers and charity. A Ramadan fast is a spiritual act to turn hearts towards Allah and away from worldly concerns, as stated in the Quran, so that believers will acquire self restraint (Al-Quran 2:183). In practice, a Ramadan fast is punctuated with ritual prayers, recitation from the holy Quran and other acts of piety leading to a marked spiritual orientation among average Muslims. Refraining from participating in religiously prohibited “haram” activities is stressed. The economic activities in general tend to slow down with reduced working hours in virtually all sectors. Despite the fast, however, grocery sales go up during the month thanks to the evening “iftar” feasts. Similarly, electricity consumption is reported to rise as a result of increase in late night socio-religious activities and shopping. Trading in securities is likely to decline as many Muslims consider speculative trading a form of gambling, which is prohibited by Islam. Similarly, use of leverage (margin trading) or trading in interest-based securities may decline during the month of Ramadan in view of strict prohibition against the use of interest or “Riba”. Husain [37] examines the effects of Ramadan on mean return and returns volatility in the Pakistani equity market. The results indicate no significant change in mean return during Ramadan, however, return volatility declines significantly. The Ramadan month pricing of risk anomaly found in the Pakistani equity market provided the initial impetus for the present investigation. We formulate the Hypothesis for the Ramzan effect as under.

$H_{5:}$ Ramzan has significant impact on KES-100 Index returns.

METHODOLOGY AND RESULTS:

Data and Methodology:

In this study, we obtained daily and weekly stock returns from Karachi Stock Exchange 100 Index (KSE-100 Index). During the period of study, the stock market was open for five trading days from Monday to Friday. The data from 1992 to 2011 is used for monthly effect, half month effect, end of the month effect and Ramadan effect. While, for day-of-the-week effect we used the data from 2001 to 2011.We excluded those days in which stock return was zero. Thus, after screening the data, the final sample size is 2676 for day of the week effect, 1043 for the end of month effect, 4808 for half month effect and Ramadan effect, moreover 1043 for monthly effect.

Return is calculated as follows:

$R_t = (P_t - P_{t-1}) / P_{t-1}$

Where:

R_t = Daily return, P_t = Index value on day t, P_{t-1} = Index value on previous day.

Day of the week effect:

We used the Ordinary Least Square (OLS) method for the period 2001 to 2011. The model that is used for this purpose is given below:

$R_t = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \mu_t$

Where:

R_t = Daily return, β_0 = Intercept, β_1 to β_4 = The mean return for each day of the week, D_1 to D_4 = Dummies of the days of week that are either 1 or 0, μ_t = Random error term.

If the null hypothesis is rejected then it means that there is seasonality in returns across different days of the week.

January effect:

We used the OLS method for the data of KSE-100 Index from 1992-2011.

The model that we used is given below:

$R_t = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \ldots\ldots + \beta_{11} D_{11} + \mu_t$

R_t = Daily return, β_0 = Intercept, β_1 to β_{11} = The mean return for each month, D_1 to D_{11} = Dummies for each month that are either 1 or 0, μ_t = Random error term.

If the null hypothesis is rejected, then the coefficients of the model we used are significantly different from zero.

Ramadan effect:

We used the OLS method for the Daily data of KSE-100 Index from 1992-2011 but we followed the Hijri Calendar during this duration.

The model that we used is given below:

$R_t = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \ldots\ldots + \beta_{11} D_{11} + \mu_t$

Where:

R_t = Daily return, β_0 = Intercept, β_1 to β_{11} = The mean return for each Islamic month.

D_1 to D_{11} = Dummies for each Islamic month that are either 1 or 0, μ_t = Random error term.

If the null hypothesis is rejected, then the coefficients of the model we used are significantly different from zero.

Half month effect:

We have tested half month effect as of whole and on the monthly bases, for this purpose we have used two models which are as under.

Half month effect monthly

$R_t = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \ldots\ldots + \beta_{11} D_{11} + \mu_t$

$R_t = \beta_0 + \beta_1 D_{HOM} + \mu_t$

Where:

R_t = Daily return, β_0 = Intercept, β_1 to β_{11} = The mean return for each half month.

D_1 to D_{11} = Dummies for each half month that are either 1 or 0, D_{HOM} = Dummy for each half month that are either 1 or 0. μ_t = Random error term.

We put 1 on the first 15 days of month each and 0 in the last fifteen days of the each month in every year

End of the month effect:

We used the OLS method for the data of KSE-100 Index from 1992-2011.for this purpose the weekly data has been taken from KSE-100 index.

$R_t = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \ldots\ldots + \beta_{11} D_{11} + \mu_t$

Where:

R_t = Daily return, β_0 = Intercept, β_1 to β_{11} = The mean return for each month, D_1 to D_{11} = Dummies for each month that are either 1 or 0, μ_t = Random error term.

If the null hypothesis is rejected then it means that there is seasonality in returns at the end of each month of the year.

RESULTS:

Day of the week effect:

Table 1 represents the regression results for the daily returns on KSE-100 Index for the period 2001-2011. Results for the entire period indicate that the mean return on Monday is negative and significantly different from zero.

Table 1:
Day of the Week Effect

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *10 Years (2001-2011)*
No. of Observations: *2675*

	Coefficient	*Std. Error*	*t-value*
Intercept	0.0015***	0.0006	2.422
D1 (Monday)	-0.0025***	0.0008	-2.790
D2 (Tuesday)	-0.0005	0.0009	-0.613
D3 (Wednesday)	0.0001	0.0008	0.128
D4 (Thursday)	-0.0003	0.0008	-0.383

***, indicates the significance level of 1%

The results indicate that the variation in the return depending on week days from 2001 to 2011 is not significant in some cases and on the other hand there are some exceptions that this anomaly exists. First, by applying the model it results that Monday register significance threshold. These results complement with Dyl and Maberly (1988) who analyzed negative Monday return with support of the information flow hypothesis. They suggested that negative information on weekend and the two non-trading days promotes investors to absorb the information before reacting with trading activity, and it is the cause of negative Monday return. And these results are also showing that Friday return is also significant and positive at 1% significance level. These results are consistent with studies that show that the Monday effect is unstable and negative (Kamara, 1997; Wang et al., 1997; Brusa et al., 2000; Mehdian and Perry, 2001; Tori, 2003).

January effect:

Table 2 represents the regression results for the daily returns on KSE-100 Index for the period 1992-2011. The January return proves to be different from those for the other months of the year at the significance level of the 1% and 10%.

Table 2:
Monthly Effect

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *20 Years (1992-2011)*
No. of Observations: *1042*

	Coefficient	*Std. Error*	*t-value*
Intercept	0.006	0.003	1.517
D1 (January)	-0.001	0.005	-0.257
D2 (February)	0.004	0.005	0.712
D3 (March)	-0.002	0.005	-0.398
D4 (April)	-0.002	0.005	-0.476
D5 (May)	-0.016***	0.005	-2.989
D6 (June)	-0.002	0.005	-0.506
D7 (July)	-0.0008	0.005	-0.157
D8 (August)	-0.010*	0.005	-1.803
D9 (September)	-0.0005	0.005	-0.097
D10 (October)	-0.001	0.005	-0.315
D11 (November)	-0.005	0.005	-0.903

***, indicates the significance level of 1%, *, indicates the significance level of 10%

The January return is negative (though not significant) and it is contradicting with the studies which find that the returns are large in January and low in December (Keim, 1983; Chatterjee and Maniam, 1997) because from the average returns for each month it is observed that December is definitely not among the lower return months as observed in many other studies (Johnston and Cox, 1996). May effect is significant at 1% level. And it is confirming the results of (Lee, 1992). He stated that many Pacific-basin countries have different financial years. So, in Pakistan May is near to the ending of the financial year. And in the month of June fiscal policy is announced. So, year-end tax-loss selling of shares is responsible for the disproportionate returns in May.

End of the Month Effect:

Table 3 represents the regression results for the weekly returns on KSE-100 Index for the period 1992-2011. The table shows that the turn of the month or end of the month is significant for the different months of the year.

Table 3:
End of the Month Effect

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *20 Years (1992-2011)*
No. of Observations: *1042*

	Coefficient	*Std. Error*	*t-value*
Intercept	0.0039***	0.001	2.991
D1 (January)	-0.0076	0.008	-0.896
D2 (February)	-0.0191*	0.008	-2.250
D3 (March)	-0.0004	0.008	-0.053
D4 (April)	-0.0061	0.008	-0.716
D5 (May)	-0.0238**	0.008	-2.797
D6 (June)	-0.0013	0.008	-0.157
D7 (July)	-0.0018	0.008	-0.219
D8 (August)	-0.0181*	0.008	-2.131
D9 (September)	0.0081	0.008	0.933
D10 (October)	0.0091	0.008	1.070
D11 (November)	-0.0069	0.008	-0.814

***, indicates the significance level of 1%, **, indicates the significance level of 5%
*, indicates the significance level of 10%

To test the turn of the month or end of the month effect we have taken the weekly data from KSE-100. By using the Ordinary least square method we have taken the results which are presented in the table above. The total numbers of the observations were 1042, and by regression we found that the end of January return is negative and insignificant while the February returns are negative and significant at 10% level. The end of May return is also negative and significant at 5% level that shows the pre budget effect on KSE-100 index. Moreover the negative and significant end of the month of August effect is also observed in KSE-100 index. The end of August is significant at 10% level that shows that end of August have different return as compared to other months. There a positive and significant end of December effect observed in KSE-100 index that shows the evidence of the turn of the year or the end of the year effect. The December effect or The Turn of the year effect is positively significant at 1% level. It is also observed the there is negative turn of the month return for the all months except September, October and December. End of September and October have positive and insignificant return while end of December shows the positive and significant return.

Half month effect:

OLS regression calculates the mean daily returns for the first half and second half of each month and tests whether each trading halves of months mean return is significantly different from zero. These results are reported in Table 4.

Table 4:
Half Month Effect

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *20 Years (1992-2011)*
No. of Observations: *4807*

	Coefficient	*Std. Error*	*t-value*
Intercept	-6.05E-05	0.0003	-0.187
D (Half-Month Dummy)	0.0012***	0.0004	2.602

***, indicates the significance level of 1%

These results show the positive return for the 1st half of the month thereby confirming the study of Pham (2005) that he replicated the Ariel (1987) study using same event window for an extended data of CRSP value and equal weighted indices for a period of 1963 to 2003. He also tested data from S&P/TSX composite for 1977 to 2002. For S&P composite, he found mean return of 774.92% in first half and -41.05% in second half. Thus, his results for S&P were in accordance with Ariel (1987). Mean returns for CRSP equally weighted index in both halves of month were positive. However in first half it was higher than that of second half that is, 80467.39 and 124.41%. For CRSP value, weighted index results were exactly same as Ariel's (1987) that is 3486.79% in first half and -13.30% in second half of month. These results are also showing that half month effect is significant at 1% level.

We also tested the Half month effect monthly on the monthly effect bases. The results are presented in the table 5. We have taken the 20 years daily data from KSE-100 index from 1992 to 2011. The total numbers of observations are 4807and by using the OLS method we found the positive January and February effect at 1% level of significance. This indicates that there is positive return in the first half of the January and the first half of February for the given period.

Table 5:
Half Month Effect (Monthly)

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *20 Years (1992-2011)*
No. of Observations: *4807*

	Coefficient	*Std. Error*	*t-value*
Intercept	8.17E-05	0.00031	0.262
D1 (January)	0.0030***	0.00118	2.583
D2 (February)	0.0039***	0.00121	3.233
D3 (March)	0.0015	0.00117	1.347
D4 (April)	0.0018	0.00117	1.594
D5 (May)	-0.0016	0.00120	-1.367
D6 (June)	0.0005	0.00115	0.458
D7 (July)	0.0002	0.00115	0.205
D8 (August)	-0.0004	0.00118	-0.416
D9 (September)	0.0004	0.00117	0.374
D10 (October)	0.0012	0.00118	1.094
D11 (November)	0.00016	0.00122	0.137

***, indicates the significance level of 1%

Ramadan effect:

Table 3 represents the regression results for the daily returns on KSE-100 Index for the period 1992-2011 and during this period Hijri Calendar is followed. The results indicate significant reduction in volatility of monthly return during the month of Ramadan for the overall stock market. The reduction in volatility of return for the overall market is significant at the 10% level during the month of Ramadan. The drop in return volatility during the month of Ramadan may be due to reduced trading activity or change in investor behavior stemming from a variety of factors. Some of the factors contributing to the change in investor behavior during the month of Ramadan are: reduced banking hours, Islam's prohibition against speculation and use of interest which would affect margin trading, greater religious orientation of the market participants leading to lower interest in trading, among others. These results are also indicating that Ramadan effect is significant at 10% level.

Table 6:
Islamic Months Effect

Dependent Variable: *KSE-100 Index Return*
Method: *Ordinary Least Squares (OLS)*
Time Series: *20 Years (1992-2011)*
No. of Observations: *4807*

	Coefficient	*Std. Error*	*t-value*
Intercept	0.0003	0.0008	0.461
D1 (Mohram)	-0.0003	0.0011	-0.286
D2 (Safar)	0.0009	0.0011	-0.835
D3 (Rab-ul-Awal)	0.0008	0.0011	0.752
D4 (Rab-ul-Sani)	6.85E-05	0.0011	0.058
D5 (Jamadi-ul-Awal)	3.38E-05	0.0011	0.029
D6 (Jamadi-ul-Sani)	-0.0002	0.0011	-0.206
D7 (Rajab)	-0.0004	0.0011	-0.404
D8 (Shaban)	-0.0006	0.0011	-0.582
D9 (Ramzan)	0.0022*	0.0011	1.962
D10 (Shawal)	0.0003	0.0011	0.258
D11 (ZilQudaa)	0.0008	0.0011	0.709

*, indicates the significance level of 10%

CONCLUSION AND FUTURE RESEARCH IMPLICATIONS:

This study indicates that through the Pakistani Stock market (KSE-100 Index) does exhibit seasonality in returns, the seasonality is sometime common and sometime different from that observed commonly in other studies. Monday effect has been observed as the prior researchers observed in their studies. Positive January effect has not been observed. But we observed the negative May effect and we can support this phenomenon by tax loss hypotheses as in Pakistan budget is announced in the month of June. We also observed the positive December effect and prior researches do not support this observation. Ramadan effect is also significant and showing positive return and reduced volatility in return. The reason for the positive return can be the changed behavior of Muslims' investors i.e. avoidance from gambling. Half-month effect is also positive and significant. In the first half of the each month the returns are positive and the rest of the half month is negative. This seasonality is also supported by prior researches.

Future Implications:

In spite of these anomalies and their results there are following areas which also needs attention.

Fundamental anomalies:

Value versus growth anomaly:

The value strategies outperform the market. In value strategies the stocks that have low price relative to earning, dividend, historical prices are buy out. The value stocks perform well with respect to growth stocks because of actual growth rate or sales of growth stocks are much lower than value stocks. But market over estimate the future growth of growth stocks [38] .Individual investors overestimate because of two reasons. Firstly they make judgment errors and secondly they mainly focus upon past performance or growth although that growth rate is unlikely to persistent in future. But institutional investors are free from judgmental error but they prefer growth stocks because sponsor prefer these companies who outperformed in past [38].Another factor that why money managers prefer growth stock over value stocks because of time horizon individuals prefer stocks that earn abnormal return within few months rather than to wait for a month [38].

Some researchers are of the point of view that superior performance of value stocks are due to its riskiness. But according to Lakonishok [38] value stocks are not more risky than growth stock based on indicators like beta and return volatility. According to them growth stocks are more affected in down market than value stocks.

Price to earnings ratio anomaly:

It refer to that stocks with low P/E ratio earn large risk adjusted return than high P/E ratio because the companies with low price to earnings are mostly undervalued because investors become pessimistic about their returns after a bad series of earning or bad news. A company with high price to earning tends to overvalued.

Dividend yield anomaly: Numerous studies have supported this idea that high dividend yield stock outperforms the market than the low dividend yield stocks. Stocks with high dividend yield and low payout ratio outperform than the stocks with low dividend yield.

Overreaction anomaly:

Loser stocks overreact to market than winner stock because overreaction effect is much large for loser than winner stocks.**Ex-dividend date anomaly:**

Ex-dividend anomaly is characterized by abnormal return on that date. They found evidence that there is negative and non-significant return on ex-dividend date and there is positive and significant return on day before the dividend day payment

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