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Stock Market Anomalies across Various Stock Market Indices of Pakistan

Bilal Hafeez, Tahira R. Hassan, Abirah Habib &Naazish Sabir[1]

Abstract:

This investigation implies the impacts of stock market anomalies on the various stock market indices. The two stock market anomalies that have been focused on include the Day of the Week effect, which has been tested on KMI 30, KSE 100, BR 30, KSE All Share and KSE 30 indices for one and a half year duration; whereas, the Month of the Year anomaly, which has been tested on KSE 100, KSE 30 and BR 30 indices for six-year duration, both phases ending at February 2013. The two anomalies of focus have been investigated to analyze the returns of stock indices through the use of dummy variables, OLS, Correlation and Descriptive Statistics. The daily findings reveal that there exists Friday effect for KMI 30 index; Tuesday, Wednesday and Friday effects for both KSE 100 and KSE All Share indices. Similarly, our monthly findings reveal that there exists January, March and April anomalies for the three sample indices but they do not apply to the complete monthly sample period.

Keyword: *Efficient Market Hypothesis, Stock Exchanges, "Day-of-the-Week" Effect, "Month of the Year" Effect, Dummy Variables and OLS*

Introduction

This investigation has been undertaken to analyze whether the calendar anomalies affect a single or a multiple of stock market indices and is very important in Pakistani perspective as very few researches have endeavored to explore this issue. The basic focus of such an investigation has mainly been the fluctuations in prices of gold or single indices due to the calendar or seasonal anomalies. Furthermore, in Pakistan, the theorists have focused primarily

[1] Department of Management Sciences, Army Public College of Management & Sciences (APCOMS), Khadim Hussain Road, Rawalpindi Cantt, Pakistan.

on "KSE 100" Index. Other stock indices have been neglected by many theorists researching in Pakistani perspective which has resulted in lack of substantiation regarding calendar anomalies in them. Recently, the trends seem to have changed and evidence shows acceptance of EMH and disappearance of anomalies over last decennium. Due to this very reason, it is of prime importance that the two most debated concepts related to calendar effects are examined in stock market indices, i.e. "Month-of-the-Year" effects and "Day-of-the-Week" abnormalities.

The word anomaly has several meanings including abnormality, exception and inconsistency. It is commonly referred to as a deviation from the common rule or a thing that does not fit in. A market anomaly can be defined as a rate of return deviation in a financial market. It is also known as market inefficiency or calendar anomaly in relation to stock markets and thus leads to arbitrage profits. Calendar anomalies have always been an area of immense importance for investigators during the previous three decenniums. The existence of such anomalies has been attested even in the most advanced markets of the world. Fama (1965a) evolved a model which is known as "Random Walk Theory" which asserts that asset price changes cannot be projected and then he (1970) put forward his most noted work i.e. Efficient Markets Hypothesis (EMH) which states that no investor can out-perform the market and make profit by taking advantage of any information. Watchel (1942) gave the very first substantiation for the occurrence of the "January effect". He studied the "January effect" and documented a regular bullish propensity from January through December. Cross (1973) was among the first theorists who followed suit.

According to French (1980), weekday effect is an effect which may influence returns on weekend in a positive or negative manner. He implied positive Fridays and negative Mondays. Similar results are presented by Reinganum (1983) in his study of the US capital market. Additionally, Brown, Keim, Kleidon & Marsh (1983) argued that the small firm stocks are likely to benefit from tax-loss selling as these stocks characteristically have greater price fluctuations and as a consequence have a greater probability of facing the price declines. In excess to the studies presented earlier, Kato and Schallheim (1985) offered substantiation and argued for the subsistence of the January effect. Afterwards, additional works followed suit e.g. Condoyanni, O'Hanlon & Ward (1987) presented his work on calendar anomalies in emerging markets. Corhay, Hawaini & Michel (1987), by the cross-sectional analysis argued in their investigation for the subsistence of a significantly positive association between mean portfolio returns and systematic risk for the month of January for "USA" and "Belgium". Jones & Wilson (1989) argued that there is strong substantiation in favor of the occurrence of the January effect in the pre-1914 phase for the tax-loss selling hypothesis.

Lakonishok & Smidt (1991) put forward a new explanation of the "January effect" with the name of "Window dressing hypothesis". Dyl & Maberly (1992 examined sales just about the turn of the year while assuming that individual investors cause most "odd-lot transactions". Their findings are a foundation of great importance for the world of investigation. They found healthy substantiation in favor of the famous calendar anomaly with reference to months, i.e. "January effect", in stock returns. They argued that their results are not a mere by product of the "tax considerations" only. Tongs (1992) performed a generous work on the "Asian-Pacific Basin stock market" and enlightened the literature on issues surrounding the "January effect" and found no month of the year effect. Fishe, Gosnell & Lasser (1993) presented their work on the "Monday effect" in market returns with respect to good news and bad news. They argued that the type of market environment contributes a lot in making it to raise our fade out. Similarly, Arsad & Coutts (1997) reexamined stock market anomalies for the London Stock Exchange (LSE) and depicted significantly negative Mondays for both categories of sample periods. Hussain (1999) performed investigation on Pakistani equity market for a phase starting from January 1989 and ending in December 1993 and found anomalies to be nonexistent. Coutts & Sheikh (2000) analyzed "all gold index" with respect to the "Johannesburg stock exchange" and pointed out that there seemed to be no January effect present in that index.

Brooks & Persand (2001) investigated the weekday anomaly in the South East Asian stock markets. The markets they explored included "Taiwan", "South Korea", "Philippines", "Malaysia" and "Thailand". Their findings offered substantiation in favor of the subsistence of the day of the week effect. Mehdian and Perry (2001) enticed to explore the Monday effect in three and two large capitalization and small capitalization indices, respectively. Peter Klein (2003) also presented his findings in favor of the abnormally greater yet significant returns in January for the stocks that had suffered heavy losses in the previous year. Tori (2003) enlightened the concept of Monday effect in context of its reversal and brought forward the substantiations against this concept. Similarly, Pettengill, Wingender & Kohli (2003) analyzed the Monday effect in combination with arbitrage activity by institutional investor trading due to transaction costs and stated that Monday effect seems to disappear for that reason. Sullivan & Liano (2003) studied Monday effect and concluded that there are high returns on Monday for large stocks whereas negative returns on Mondays for small stocks. Gondhalekar & Mehdian (2003) examined the blue-Monday hypothesis for "Nasdaq" sub-indices. They used OLS to determine their findings and hence concluded that the returns on Mondays are greater than the remaining weekdays. Chu , Liu & Rathinasamy (2004) used "Markov-switching model" and used it on ten portfolios which were sorted by market value deciles and indicated a sturdy

"January effect" for low capitalization stocks. In accordance with the definition presented by Islam & Watanapalachaikul (2005), anomalies refer to the irregularities or abnormalities that emerge in the trading of stocks.

Campoleiti & Hyatt (2006) conducted a scrutiny of the data from the WCBO and found the Monday effect in the claims. Gerlach (2007) performed analysis of six stock markets or calendar anomalies and implied that the macroeconomic announcements generate the anomalies. Mylonakis & Tserkezos (2008) examined January effect in the stock index of Athens (ASE) and depicted greater returns in January whereas small returns in November over the sample phase. Selvarani & Jenefa (2009) examined the stock market abnormalities in the NSE indices by assessing the trends in annual as well as daily returns and found April and January effect in returns plus Tuesday and Friday effect. Sturm (2009) implied that when January's stock returns are positive, then those of remaining eleven months of the year have a propensity to be positive as well and vice versa. Brounen & Hamo (2009) performed analysis of the price characteristics of internationally traded property shares for the ten most important markets of the globe. Haggard & Witte (2009) tested six anomalies to check whether macroeconomic news is a good indicator of calendar anomalies or not. His findings are in contradiction to those of Gerlach (2007), and found five out of six investigated anomalies irrespective of any announcement.

Shiok, Chong & Dollery (2010) presented their findings in accordance with the traditional concept about Monday and also found Wednesday effect. Muhammad & Rahman (2010) analyzed the weekday anomaly in Germany as well as United States and found a solid Monday effect. In addition to other investigations; Prokop (2010) and Tangjitprom (2011) also researched the "Day-of-the-Week" or the Monday abnormalities. Wei-Ning, Ya-Hui, Yu-Ta and Chingliang (2010) studied and worked on the January impact in a few Asian stock markets. Zafar, Urooj & Amjed (2010) studied the monthly abnormalities in the KSE (Karachi Stock Exchange) by using OLS and dummy variables and found May effect instead of for the month of January. "Literature on foreign exchange market anomalies, either evident or existent, however has not been so extensive" (Chakrabarti & Sen, 2011). Karadzic & Vulic (2011) investigated the basic features of the Montenegrin capital market briefly.
"The presence of Monday Effect defeats basic premises of the Efficient Market Hypothesis" (Nageswari, Selvam and Gayathri, 2011). Nazari & Farzanegan (2011) studied the seasonal effects by daily data for stock returns series of Tehran Stock Exchange (TSE) for the phase from 1997 to 2010 and results support the subsistence of seasonal effects. Almudhaf (2012)

studied the Islamic calendar abnormalities in the stock returns of twelve countries having Muslim dominance. Debasish (2012) investigated the emergence of calendar abnormalities in Indian stock market, specifically the IT sector and confirmed weekday anomaly mostly for Mondays, Tuesdays or Wednesdays. Nagasastra & Utami (2012) presented their work to determine the extent to which the January Effect affect the Indonesian Capital Market.

Method

Participants

For testing the seasonality patterns five out of seven main stock market indices of Pakistan have been used. The "KSE 100" Index is the most common and one of the most widely referred index of Pakistan which includes 100 companies. It was brought to light in 1991 and includes the company stocks on the basis of the highest market capitalization. Similarly, "KSE All Share" Index was brought to light by KSE in 1995 to reconfirm "KSE 100" Index and contains all Pakistani companies.

The "KSE 30" Index is the main liquid index which was evolved by KSE itself in 2006 on the basis of the free float and comprises of thirty companies. On the contrary, "KMI 30" Index is the main Shariah complaint index of Pakistan which was brought to light by KSE again in 2008 and has reliably portrayed the situation of Shariah complaint stocks ever since. It is also based on the concept of free float market capitalization and has thirty companies. The last but not the least is the "BR 30" Index which includes the stocks of the companies on the basis of the largest average turnover recorded in the last six months. It comprises of the thirty most liquid companies.

Procedure

The sample comprises of various stock market indices. Firstly, one and a half years' data for testing Monday Effect has been taken from KSE 100, KSE All Share, KMI 30, KSE 30 and BR 30 indices i.e. from September 2011 to February 2013. And six year data for testing January effect has been employed for KSE 100, KSE 30 and BR 30 indices i.e. from March 2007 to February 2013. Data collection can be performed through two methods i.e. primary and secondary. This research used secondary data for conducting research that has been gathered from journals related to finance, official stock exchanges including Brecorder, Yahoo Finance,

KSE; and websites like www.khistocks.com, www.ksestocks.com and EBSCO. For the data set of each index, continuously compounded returns have been calculated as were used by Rossi (2007) who believed that continuously compounded returns lead to a better normal distribution. So, the following formula will be employed:

$$\boldsymbol{R_{it}} = ln\ [P_t/P_{t-1}] \qquad (1)$$

Here R_{it} is the stock index's return "i" at current time "t" and P_t and P_{t-1} are the closing values for the same index at time "t" and "t-1". However, in this thesis we have left the assumptions related to classical linear regression model presented by Brooks (2002) while implying OLS to be the best method for studying stock market anomalies. This work uses OLS-method which has been largely used in anomalies testing e.g. used by Gibbons and Hess (1981), Coutts & Sheikh (2000, 2002) and Rossi (2007).

The Day of the Week effect:

In accordance with the weekday anomaly, there are a few systematic differences in the stock returns depending on the days and these patterns repeat themselves every week. So in order to determine these patterns which cause systematic differences in the returns of the days, this research used the ordinary least squares-method (OLS) and evolved the following model:

$$\boldsymbol{R_{it}} = \alpha_{1i}D_{1t} + \alpha_{2i}D_{2t} + \alpha_{3i}D_{3t} + \alpha_{4i}D_{4t} + \alpha_{5i}D_{5t} + \nu_{it} \qquad (2)$$

Here R_{it} is the index's return on day "t", D_{1t} is a dummy variable for Monday taking the value of 1 for all Monday observations and zero otherwise and so on till Friday. The "α" is the coefficient that is estimated for each weekday from Monday to Friday. V_{it} is the error term. Therefore to examine the weekday abnormality, this work evolved the following null hypothesis while assuming that the returns for apiece day are not statistically different from apiece supplementary:

$$\mathbf{H_o:}\ \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = (0) \qquad (3)$$

If H_o is rejected, the stock returns have to demonstrate some weekday anomaly and the F-value will become statistically significant.

The Month of the Year effect:

According to the monthly distortion, there are a few systematic differences in the stock returns in the months of every year and these patterns repeat themselves every year. So in order to determine these patterns which cause systematic differences in the returns of the months, this work evolved an almost identical model to that of the "Day-of-the-Week" anomaly. This model has been used by many investigators e.g. by Coutts & Sheikh (2000, 2002), Mehdian & Perry (2001) and Rossi (2007):

$$R_{it} = \alpha_{1i}D_{1t} + \alpha_{2i}D_{2t} + \alpha_{3i}D_{3t} + \alpha_{4i}D_{4t} + \alpha_{5i}D_{5t} + \alpha_{6i}D_{6t} + \alpha_{7i}D_{7t} + \alpha_{8i}D_{8t} + \alpha_{9i}D_{9t} + \alpha_{10i}D_{10t} + \alpha_{11i}D_{11t} + \alpha_{12i}D_{12t} + \nu_{it} \quad (4)$$

Here R_{it} is the index return for month "t", D_{1t} is a dummy variable for January taking the value of 1 for all January observations or else zero and so on till December. The α_1 and α_2 are the coefficients that are estimated for every single "Month-of-the-Year" from January through December where as vit is the error term. Again, in order to test the monthly anomalies, we have evolved our null hypothesis as follows:

$$\mathbf{H_o:}\ \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = \alpha_6 = \alpha_7 = \alpha_8 = \alpha_9 = \alpha_{10} = \alpha_{11} = \alpha_{12} = (0) \quad (5)$$

If H_o is rejected then the stock returns have to demonstrate "Month-of-the-Year" anomaly and the F-value will become statistically significant.

Results

Appendix I demonstrates the descriptive statistics for the daily data covering a phase of one and a half year from September 2011 to February 2013. The results show that the indexes have positive daily mean returns but they are quite low. Standard deviation ranges from almost 0.09% to around 0.14%. Distribution of returns seems to be quite positively skewed except for "KSE All Share". This implies that all the indices have had more positive values except for "KSE All Share" who had more negative values. The kurtosis is quite low for every index which implies that greater part of the returns is far from the mean and less than 3 which implies that the distribution is platykurtic.

Appendix II demonstrates the descriptive statistics for the monthly data covering a phase of six years from March 2007 to February 2013. The results show that the indexes have positive daily mean returns but they are quite low. Standard deviation ranges from almost 7.7% to around 9.2%. Returns appear to be quite negatively skewed for all indices. This implies that all the indices have had more negative values than positive values in their respective distributions. The kurtosis is quite high for every index which implies that majority of the returns is close to the mean and greater than 3 implying the distribution to be leptokurtic. Appendix III demonstrates correlation analysis based on the daily data. The results showed that the daily returns of all the five indices are highly positively correlated with each other at 99% confidence interval for the sample phase. Similarly, appendix IV demonstrates the correlation analysis for monthly data and the results depict that the "BR 30" has high positive correlation with "KSE 30" and "KSE 100" at 99% and 95% confidence interval, respectively. However, "KSE 30" has highly positive correlation with both "BR 30" and "KSE 100" at 99% confidence interval. Appendix V reports the results of unit Root, which is the test of whether data is stationary, if the variables are not stationary the regression becomes spurious. The results show that all the variables are stationary and are of order zero I(0). The results are robust under the assumption of constant trend or no trend. Similarly, appendix VI reports the results of unit Root, which is the test of whether data is stationary, if the variables are not stationary the regression becomes spurious. The results show that all the variables are stationary and are of order zero I(0). The results are robust under the assumption of constant trend or no trend.

Appendix VII demonstrates the findings of the regression analysis based on the daily data. The outcome indicates that there has not been any statistically significant "Day-of-the-Week" pattern in stock returns in "BR 30" index. For example the coefficient for Thursday is negative but it is far away from being statistically momentous The F and p value also indicates that all coefficients are insignificant. Therefore the null hypothesis of the equal return distribution cannot be discarded. Instead for "KMI 30" index, the daily return for Friday has been statistically greater compared with the supplementary days of the week at 90% confidence level. The F-value and its p-value also signify that all coefficients are significant. Therefore we can reject the Ho at 90% confidence level and authenticate the positive Friday effect in "KMI 30" index.

For "KSE 30" index, we see that there has not been any statistically noteworthy "Day-of-the-Week" pattern in stock returns. For example the coefficient for Thursday is negative but it is

far away from being statistically significant. The F-value and its p-value also indicate that all coefficients are insignificant. Therefore the null hypothesis of the equal return distribution cannot be rejected. When it comes to "KSE 100" index, our results indicate positive coefficients for Tuesday and Wednesday at 90% confidence level. Similarly, we witness positive coefficient for Friday at 95% confidence level. When we take a look at the F-value and p-value, we can reject our Ho at 90% and 95% confidence level and document statistically significant Tuesday, Wednesday and Friday returns for "KSE 100" index. Similarly, for "KSE All Share" index, our results indicate positive coefficients for Tuesday at 90% confidence level. Similarly, we witness positive coefficient for Wednesday and Friday at 95% confidence level. When we take a look at the F-value and p-value, we can reject our null hypothesis at 90% and 95% confidence level and document statistically significant Tuesday, Wednesday and Friday returns for "KSE All Share" index.

Appendix VIII demonstrates the results of the regression analysis based on the monthly data. For BR 30 index, there exists a negative January and positive April effect at 95% confidence interval. But these results do not apply to the whole sample period as the F and the p values are insignificant. So, null hypothesis is accepted for BR 30. For KSE 30 index, there exists a negative January effect at 95% confidence interval. But the results do not apply to the whole sample period for KSE 30 as similar to BR 30 as the F and p values are insignificant. So, the model has been rejected and null hypothesis has been accepted for KSE 30. However for KSE 100, positive March effect is apparent at 95% confidence interval. But again these results do not apply to the whole sample period as the F and the p values are insignificant. So, the model for KSE 100 has been rejected whereas the null hypothesis has been accepted.

Discussion

The daily descriptives show that all the distributions for returns of the sample indices is platykurtic (i.e. flatter) and all indices except KSE All Share are positively skewed. The monthly descriptives on the other hand depict that the return distribution for the three sample indices are negatively skewed and leptokurtic (i.e. peaked). The high correlation between daily returns is due to the fact that the companies of all the indices have been taken from the "KSE 100" index and "KSE All Share" comprises of all the companies are registered at KSE. This strong correlation can also be explained by subsistence of strong bullish trends in KSE over the last year and can be a foundation of positive correlation between the indices. However, the highly positive correlation between "KSE 30" and "BR 30" is may be due to their same liquid

natures; whereas the low yet positive correlation between the returns of "KSE 100" and "BR 30" as well as "KSE 30" is for the reason that "KSE 30" and "BR 30" indices comprise of the most liquid companies whereas "KSE 100" comprises of the well capitalized hundred companies. The difference between the daily and monthly results is may be due the fact that the daily data is for one and a half year period whereas monthly data is for six years. The difference in time phases has created the difference in results for the two concepts. Also, the daily results indicated that there exists a significant yet positive weekday effect in "KMI 30", "KSE 100" and "KSE All Share" indices, i.e. Friday effect for "KMI 30" index; Tuesday, Wednesday and Friday effects for both "KSE 100" index and "KSE All Share" index. Ullah, Ullah & Usman (2010) found "Day-of-the-Week" anomaly in individual stocks. Also, Zafar et. al (2010) found a significant "Day-of-the-Week" effect for Karachi Stock Exchange. They indicated that Wednesday shows greater returns as compared to the remaining week days. However, there appears to be no "Day-of-the-Week" effect for "BR 30" and "KSE 30" indices.

Similarly, the monthly results indicated the "Month-of-the-Year" effect to be significant for all the three indices, i.e. negative January effect where as a positive April effect for "BR 30" index, negative January effect for "KSE 30" index and positive March effect for "KSE 100" index but not for the whole period. So it favors Ho. Zafar et. al (2010); Saeed , Sargag & Ayub (2011) and Rafique & Shah (2012) indicated significant "Month-of-the-Year" effect in the Karachi Stock Exchange. But these anomalies fade in and fade out during the entire sample period due to which we cannot say that there exists monthly anomaly in Pakistani indices. For further investigation, we can offer several recommendations. Firstly, it would be more informative and interesting to take longer sample phase for daily data. Secondly, it would offer further insight to include more Pakistani indices like Islamabad Stock Exchange (ISE) and Lahore Stock Exchange (LSE). Thirdly, it would be more appealing to study some commonly recognized anomalies like the "Holiday" effect or studying the Islamic calendar effects. Fourthly, it could add a lot to everyone's knowledge if the subsistence and fading of these patterns could be explained somehow. However, the limitation in implementing these suggestions might be the shortage of availability of appropriate data which we also faced during our work and were forced to adopt a comparatively shorter time phase.

Appendices

I. Daily Descriptives

INDEX	N	MIN	MAX	MEAN	STD.DEV	SKEWNESS	KURTOSIS
BR 30	367	-0.04454	0.03973	0.00120	0.011546	0.046	1.326
KMI 30	367	-0.02868	0.0313	0.00126	0.008766	0.187	1.463
KSE 30	367	-0.03105	0.03197	0.00098	0.009350	0.172	1.539
KSE 100	367	-0.03158	0.02856	0.00139	0.008258	0.06	1.722
KSE All	367	-0.03132	0.02705	0.00141	0.008012	-0.022	1.703

II. Monthly Descriptives

INDEX	N	MIN	MAX	MEAN	STD.DEV	SKEWNESS	KURTOSIS
BR 30	71	-0.46932	0.25355	0.0045598	0.09217918	-2.001	10.021
KSE 30	71	-0.46524	0.28031	0.0047404	0.09023477	-1.92	10.929
KSE 100	71	-0.3616	0.19778	0.0093289	0.07738274	-1.884	7.319

III. Daily Correlation

* Indicates significance at 0.1level, ** at 0.05 level and *** at 0.01 level

INDEX		KSE100	KSE30	KSE- All Share	BR30	KMI30
KSE100	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	368				
KSE30	Pearson Correlation	.962***	1			
	Sig. (2-tailed)	0				
	N	368	368			
KSE-ALLSHARE	Pearson Correlation	.994***	.953***	1		
	Sig. (2-tailed)	0	0			
	N	368	368	368		
BR30	Pearson Correlation	.902***	.914***	.899***	1	
	Sig. (2-tailed)	0	0	0		
	N	368	368	368	368	
KMI30	Pearson Correlation	.937***	.962***	.930***	.899***	1
	Sig. (2-tailed)	0	0	0	0	
	N	368	368	368	368	368

IV. Monthly Correlation

* Indicates significance at 0.1level, ** at 0.05 level and *** at 0.01 level

	INDEX	KSE100	KSE30	BR30
KSE100	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	71		
KSE30	Pearson Correlation	.307***	1	
	Sig. (2-tailed)	0.009		
	N	71	71	
BR30	Pearson Correlation	.278**	.963***	1
	Sig. (2-tailed)	0.019	0	
	N	71	71	71

V. Daily Unit Root

Variables	ADF- Level	PP- Level
KSE-100 Daily	-18.22378	-18.21001
KSE-30 Daily	-18.34376	-18.33776
KSE all Share Daily	-18.19176	-18.17894
KMI-30 Daily	-18.77428	-18.77259
BR-30 Daily	-15.67895	-18.75492
Critical values at 1%:	-3.448012	-3.448012
Critical values at 5%:	-2.869219	-2.869219
Critical values at 10%:	-2.570928	-2.570928

VI. Monthly Unit Root

Variables	ADF- Level	PP- Level
KSE-100 Monthly	-6.771254	-6.764843
KSE-30 Monthly	-6.956316	-6.860107
BR-30 Monthly	-7.237208	-7.180614
Critical values at 1%:	-3.527045	-3.527045
Critical values at 5%:	-2.903566	-2.903566
Critical values at 10%:	-2.589227	-2.589227

VII. Daily OLS

* Indicates significance at 0.1level, ** at 0.05 level and *** at 0.01 level

INDEX		Mon D1	Tues D2	Wed D3	Thurs D4	Fri D5	F value	p value
BR 30	coefficient	0.083	0.048	0.05	-0.014	0.067	1.203	0.307
	t-value	1.588	0.917	0.952	-0.274	1.293		
	p-value	0.113	0.36	0.342	0.784	0.197		
KMI 30	coefficient	0.083	0.073	0.079	-0.003	0.094	2.016	0.076*
	t-value	1.601	1.4	1.517	-0.055	1.803		
	p-value	0.11	0.162	0.13	0.956	0.072*		
KSE 30	coefficient	0.059	0.086	0.048	-0.025	0.069	1.364	0.237
	t-value	1.125	1.646	0.93	-0.474	1.326		
	p-value	0.261	0.101	0.353	0.636	0.186		
KSE 100	coefficient	0.06	0.097	0.096	0.001	0.12	2.75	0.019**
	t-value	1.157	1.872	1.871	0.019	2.325		
	p-value	0.248	0.062*	0.062*	0.985	0.021**		
KSE All Share	coefficient	0.061	0.095	0.107	0.007	0.122	2.945	0.013**
	t-value	1.187	1.836	2.077	0.137	2.369		
	p-value	0.236	0.067*	0.038**	0.891	0.018**		

VIII. Monthly OLS

* Indicates significance at 0.1level, ** at 0.05 level and *** at 0.01 level

INDEX		Jan D1	Feb D2	Mar D3	Apr D4	May D5	Jun D6	Jul D7	Aug D8	Sept D9	Oct D10	Nov D11	Dec D12	F value	p value
BR 30	coefficien	-0.243	0.102	0.11	0.238	0.051	-0.148	0.036	-0.044	-0.08	0.074	0.026	0.06	1.094	0.382
	t-value	-2.068	0.869	0.93	2.017	0.435	-1.256	0.302	-0.374	-0.68	0.625	0.219	0.513		
	p-value	0.043**	0.388	0.356	0.048**	0.665	0.214	0.764	0.71	0.499	0.534	0.828	0.61		
KSE 30	coefficien	-0.239	0.078	0.185	0.192	0.051	-0.131	0.034	-0.027	-0.084	0.091	0.001	0.047	1.034	0.431
	t-value	-2.018	0.66	1.567	1.624	0.432	-1.11	0.285	-0.225	-0.713	0.771	0.004	0.395		
	p-value	0.048**	0.512	0.123	0.11	0.667	0.271	0.777	0.822	0.479	0.444	0.997	0.694		
KSE 100	coefficien	0.02	0.084	0.26	0.131	-0.159	0.084	0.032	-0.138	0.159	0.094	0.035	-0.164	1.284	0.252
	t-value	0.169	0.725	2.243	1.129	-1.374	0.725	0.273	-1.19	1.373	0.81	0.305	-1.416		
	p-value	0.867	0.471	0.029**	0.263	0.175	0.472	0.786	0.239	0.175	0.421	0.761	0.162		

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