

MONETARY SHOCKS AND MARKET FAITH: A STUDY OF ISLAMIC VS. CONVENTIONAL STOCK RESPONSES

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Abstract

This research aims to examine the impact of unforeseen interest rate announcements on conventional and Islamic stocks in Pakistan from 2013 to 2022. An event window of eleven days and an estimating window of fifty days were designated for each occurrence. The projected returns are calculated utilizing the CAPM model for the estimation period ($t-50$). The calculation of anomalous returns entailed aggregating the values of actual and projected returns. Cumulative abnormal returns (CAR) were later calculated to demonstrate the impact of monetary policy announcements on stock performance. In addition, we employed the Hodrick-Prescott filter to distinguish between expected and unexpected interest rates, examining the impact of interest rate news surprises on the returns of conventional and Islamic stocks. To examine the long-term relationship between interest rate surprises and stock returns, the Engle-Granger co-integration test was employed. The study shown that news shocks significantly impact both conventional and Islamic equities in Pakistan. Moreover, notwithstanding the comparatively limited liquidity and debt reserves of the firms inside Islamic stock indexes, interest rate fluctuations exert a similar or even more pronounced effect on the returns of Islamic equities in comparison to conventional stocks, as indicated by the study.

An indicator of how much money lenders will take out of borrowers' principal in relation to the total amount borrowed is the interest rate. It has given policymakers a tool to influence the economy and is thus an essential part of monetary policy. Central banks and other financial authorities control the money supply, inflation, economic activity, and output via adjusting interest rates. The key idea is that interest rates have a big role in shaping the whole financial climate and provide policymakers with a powerful instrument to navigate economic situations. "Fu" (2022). The expectations of participants in both traditional and non-traditional financial markets are impacted by shifts in monetary policy, as shown by compelling circumstantial evidence. This suggests that actors in these financial systems can have their expectations and actions influenced by shifts in monetary policy implementation. According to Lukonga (2023), changes in Islamic or non-Islamic policy measures might influence market participants' opinions and behavior, illuminating the connection between monetary policy and the expectations of market players. It would suggest that the links between monetary policy shock and stock returns were still there, if weaker, throughout the high-uncertainties era.

As a result, investors need to give more thought to hedging their bets against possible stock market volatility and the impact of unexpected changes in the Federal Funds Rate on their returns during times of increased monetary policy uncertainty. On the flip side, when uncertainty is minimal, the correlation between monetary policy deviations and stock returns is weak, and there is less of a need for comprehensive risk mitigation strategies. In order to analyze and manage the risks associated with stock market investments, it is crucial to consider the general economic favorability and, more especially, the level of uncertainty surrounding monetary policy (Sekandary & Bask, 2023). It is clear that monetary policy has a crucial role in influencing exchange rates, and that central banks view the exchange rate as an integral aspect of their policy. Central banks are increasingly turning to the exchange rate channel as a replacement for monetary policy, which is understandable given the constraints that monetary policy has in reviving the economy, especially after years of historically low interest rates. This shift in approach reflects an awareness of the interplay between monetary policy and currency rates, as well as a reaction to the evolving dynamics of the international economic landscape. The complex relationship between exchange rates, monetary policy, and the difficulties central banks have in their mission to promote economic development has made understanding these topics and how to apply them crucial to sound policy making. Both the conventional and Islamic financial markets experience this similar problem.

There is strong evidence that monetary policy influences asset prices. In addition, a good empirical finding suggests that changes in monetary policy might have an indirect influence on the behavior of asset prices. Having both types of evidence is beneficial because it shows that monetary policy and financial markets have a complicated relationship and that changing monetary policy serves two purposes: first, it can directly affect asset values in a predictable way, and second, it can indirectly affect asset prices more generally (Andritzky et al., 2007). An essential tool of fiscal policy, the rate of return is the price that the lender charges the participant for the use of the assets. The fee is imposed as an interest rate by the lender and is calculated as a percentage of the outstanding principle amount. Asset prices are heavily impacted by monetary policy, and many studies show that different fiscal policies impact the expectations of both conventional and Islamic financial market players (Akhtar et al., 2017). It is reasonable to assume that asset prices will react to fresh information by making corresponding adjustments. The expected interest rate and the unexpected interest rate are the two parts of the interest rate that are broken out when looking at how the interest rate affects stock returns or prices. The forward-looking nature of financial markets means that asset pricing should reflect all relevant information. Since the asset price already reflects the anticipated decisions, the financial markets will only adjust themselves when the monetary policy decision is unexpected. Fransson and Tysklind (2016) state that... One definition of a surprise variable is an unexpected change in the variable's value; another is a feature of newly released macroeconomic data that the expert forecasting panel did not foresee. Unexpected fluctuation in the variable is another way to describe their surprises (Gupta & Reid, 2013).

A measure of interest rate surprise is the disparity between actual and anticipated interest rate announcements, as compared to real interest rate declarations. As the Islamic financial industry continues to expand globally, projections indicate that it will reach 3.4 trillion USD by 2018. From 2008 to 2012,

its average yearly growth rate was 17%, which is 50% higher than the whole banking business (Ernst, 2013). Monetary policy measures, such as reductions in interest rates or purchases of assets, can significantly affect the stock market and other financial markets. Decisions of this kind have far-reaching effects that affect many facets of the financial sector. Notably, market mood, risk appetite, and stock valuation are all impacted by even a little shift in policy direction at major central banks like the European Central Bank (ECB) in the Eurozone. Changes to these crucial monetary factors set in motion a complicated feedback loop that shapes the financial market's performance and, ultimately, impacts how market participants perceive and react to the market's characteristics (Bekaert et al., 2023). Financial Islam Unlike traditional stock indices, those based on Shariah adhere to certain screening criteria formulated by Islamic scholars and linked to the principles of Islamic law (Barom, 2019). Riba is the most evil part of Islamic commerce (Usman & Khan, 2012).

When it comes to the acquisition and organization of Islamic stocks, the precise prescriptions given by Islamic law are followed meticulously at every point. Investing in firms that meet certain criteria is classified as an Islamic stock, which is achieved by strict adherence to the norms of Islamic finance. Businesses with a lot of cash on hand or that exploit leverage to their advantage to earn a ton of interest are not allowed to operate under Islamic finance principles (Alam & Uddin, 2009). Islamic equities have a distinct benchmark due to the prohibition of interest-based transactions; as a result, several companies who aren't well-known in conventional financial markets have joined them. Therefore, Islamic stocks are a subset of businesses that run counter to the religious and ethical requirements laid down by Islamic law. Since Islamic law has its own unique features, Islamic stocks are designed or established to meet those needs. Since Islamic financing forbids the payment of interest, commonly known as Riba, Islamic equities often include smaller enterprises. Companies that deal in Islamic stock markets do not engage in activities that involve the use of leverage or large sums of cash to pay or earn interest. The Islamic equities market does not permit these types of firms. Companies whose persistent debt and accounts receivable surpass one third of the company's total assets are also not included in the Islamic stocks (Albaity, 2011a). The truth is that stock prices are quite sensitive to monetary policy announcements. Previous research has led many to speculate that interest rates have a detrimental effect on stock prices and returns. The discounted cash flow, as used in the stock valuation model, loses value when interest rates rise. In consequence, this reduces investment enthusiasm, which in turn reduces stock returns. Albaity (2011b). The stock markets are like a heavy thumb, dictating the state of any nation's economy and, by extension, the financial sector's and the country's overall performance. The stock market is extremely dynamic in response to shifts in monetary policy because of the multiplicative effects of interest rate, money supply, and other monetary instrument changes on asset prices, investor sentiment, and economic indicator changes.

There are a lot of different schools of thought when it comes to interest rate shocks on markets, such as whether an announcement would cause more volatility or less volatility. The volatility is more likely to be affected by positive and negative shocks than by the expected value of the target federal fund rate (Bomfim, 2003), although both types of surprises are probable. Volatility may rise in the time leading up to a news announcement and fall afterward if the disclosure prompted hesitation and disagreement among bond and stock market participants. There are only a small number of research that examine the connection or link between macroeconomic indicators and the valuations of Islamic assets; however, these studies do not specifically address interest rate shocks. This research on Pakistan would fill a gap in the literature as few studies have focused on developing economies like Pakistan's, which are attempting to convert their fiscal and banking institutions to Islam. The reason for basing the study on Pakistan is because it is a rising economy. While conventional stocks trade on the Karachi Stock Exchange (KSE-30), Islamist stocks utilize the Karachi Meezan index (KMI-30).

The Karachi Meezan index, KMI30:

The baseline phase of the KMI index was June 30, 2008, and it was first produced in 2009. Karachi Meezan index is the name of the stock market index that is traded on the Pakistan Stock Exchange. It consists of 30 companies that adhere to the rules laid down by Islamic shariah. Karachi Stock Exchange (now Pakistan Stock Exchange) and Al-Meezan Investing Bank (now Meezan Bank Limited) came to an agreement to construct the Pakistan Meezan index, which goes by the symbol KMI-30.

KSE 30 Index:

The main motivation for creating the KSE-30 Index was to provide a standard by which stock price trends over a certain time period could be measured. Like GDP and the consumer price index, the KSE-30 Index tracks the overall economic health of the country as well as individual industries. Its purpose is to provide investors with information on the performance of key corporate scrips on the Pakistani stock market. These days, everyone agrees that the provided approach is the gold standard in the field. According to the KSE-30 Index, which uses the Free-Float Market Capitalization technique, the decision to change all of MSCI's indexes to the Free-float Methodology was made in 2002. This approach ensures that the thirty firms' free-float market value relative to the base period is appropriately reflected by the index level at any given moment. When constructing an index, this technique looks exclusively at the free float share price of the firm. Because any share can be added to the whole list of listed equities, this method is more versatile. The Free-float Methodology enhances the index's market and sector coverage by providing more thorough coverage of both.

Literature Review:

According to Andritzky et al. (2007) and Brenner et al. (2009), rate of return shocks has a significant influence on financial markets because they highlight a basic idea in economics: the process by which asset prices react to new information. There have been a lot of research looking at how financial markets react to unexpected monetary policy. For instance, in contrast to traditional bonds, Islamic bonds would be less affected by changes in interest rates (Akhtar et al., 2017). But when it comes to volatility and returns, Islamic stocks are more likely to react the same way, or even more so, than conventional stocks.

In the United States, Lobo (2002) showed that interest rate fluctuations had unequal impacts on stock prices; a positive shock (bad news) made prices more volatile, whereas an unfavorable shock (good news) led to better stock returns. Similarly, Bredin et al. (2007) discovered that fiscal policy changes had negative, long-lasting impacts on sector returns. Alam and Uddin (2009) and Hyde (2007) conducted cross-country research on the link between real interest rates and share prices. Their findings show that there is a negative association in countries like Germany and France.

Using the GARCH-DCC model, Brenner et al. (2009) proved that bond and stock returns universally react asymmetrically to unexpected monetary news, calculated conditional volatility and cross-market volatility, and found the conditional moments of cross-market returns that react to unexpected information. Madura and Schnusenberg also found that the federal savings rate and bank returns in the United States had an inverse connection (2000).

During times of financial crisis, however, such price reductions are seen as signs of more serious underlying economic problems, which causes the U.S. markets to react positively to large shifts in unexpected interest rates when there is no crisis, according to Kontonikas et al. (2013). While expected rates had a short-term impact on stock returns, Rahman and Mohsin (2011a) discovered that stock returns in Pakistan were long-term related to unexpected interest rate changes using the event study and Engle-Granger co-integration test. Previous research by Poterba and Summers (1988) also found a strong correlation between macroeconomic news and market performance. The following theory is postulated in light of the aforementioned literature:

H1: When central banks announce new policies, Islamic and traditional stock markets respond in different ways.

Interest rate and Islamic finance

Research on the performance of Islamic and conventional stock indexes in Pakistan and elsewhere presents inconclusive results. Rana and Akhter (2015) examined KMI-30 (Islamic) and KSE-100 (conventional) from 2008 to 2013 and discovered that interest rate volatility considerably influences conventional equities, but it exerts no substantial effect on Islamic indexes. Both exhibit a positive and strong risk-return connection, consistent with the risk-reward concept, while Islamic indexes lag their conventional counterparts.

Global evidence is contradictory. Atta (2000) discovered that the Dow Jones Islamic Index (DJIM) surpassed both its conventional equivalent and the risk-free rate. Hassan and Girard (2011) similarly

showed enhanced efficiency of six DJIM indexes. Albaity (2011b) examined Malaysia's KLSI and the U.S. DJIM, demonstrating that inflation exerts a positive influence on KLSI, while interest rates negatively affect it; conversely, DJIM remained impervious due to divergent screening criteria.

Ibrahim (2000) discovered no enduring correlation between Islamic stock values and currency rates in Malaysia. Shamsuddin (2014) contended that while Islamic indices exclude interest-based enterprises, they may nevertheless have indirect exposure to interest rate risk, particularly at the sectoral level, albeit to a lesser extent than conventional indexes. Finally, Al-Khazali et al. (2014) employed a stochastic dominance methodology and discovered that Islamic indices frequently surpass their conventional counterparts, especially during financial crises, indicating greater resilience in adverse conditions.

H2: When interest rates unexpectedly fluctuate, Islamic stocks are more affected than conventional stocks.

Data

We used the daily data set of the KMI 30 and KSE 30 indices from the Pakistan Stock Exchange from January 1, 2013, to December 31, 2022.

Methodology

According to Rahman and Mohsin (2011b), we used an event study approach in our investigation. Event studies are used to investigate how a specific event, like as the announcement of monetary policy, influences a firm's value and how the stock market responds to such occurrences. In our analysis, we assessed the event's economic impact over a relatively short period of time. Because monetary policy is released every two months, we chose an 11-day event window that included five event days and five post-event days, as well as a 50-day estimation window for any announcements made prior to the event window. Returns are computed using the following formula: current year price minus prior year price divided by previous year price and the formula is

$$\text{Returns} = \frac{\text{current day price}(p1) - \text{previous day price}(p0)}{\text{previous day price}(p0)}$$

The steps involve in event study are

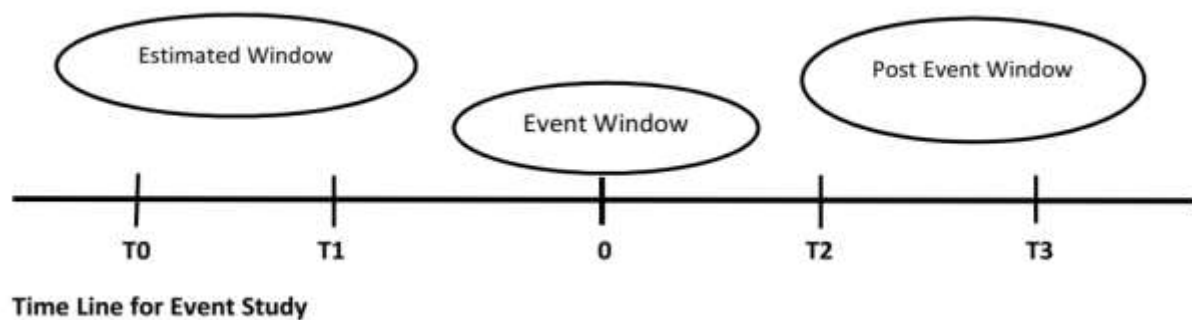
Calculating the Abnormal Return

From 2013 to 2022, abnormal returns will be calculated by deducting normal returns from actual returns. Normal returns may be calculated with a 50-day estimation window. After calculating the ARCH influence on stock returns at each maturity, normal or expected rates were calculated using CAPM (p , d , q) on the estimate window. This return's maturity was tested using the Breusch Pagen ARCH method. The returns that have shown the ARCH impact were analysed using the GARCH model. For non-stationary data, such as those which did not exhibit the ARCH effect, the unit root test was utilised. Then, normal rate extrapolation was accomplished using ARIMA (p , d , q). In order to determine the out-of-the-ordinary return, we will first estimate the typical return for each event from 2013 to 2022 and then subtract it from the actual return. Within the whole event timeframe, we will calculate the anomalous return.

$$AR_{in} = R_{in} - E(R_{in})$$

Here i stands for the number of markets and n stands for the number of events. AR stand for abnormal return while 'R' denotes the actual returns.

The timeline for our event study is illustrated below



Calculating the CAR

For the purpose of aggregating abnormal returns inside the event window as day-wise, we will take into account an 11-day ($t-5$, $t+4$) window after computing each return individually. This aggregation is called a cumulative abnormal return (CAR). $t-3$, $t-2$, $t-1$, 0 , $t+1$, $t+2$, $t+3$, $t+4$, $t+5$) inside every built-in event window. Cumulative abnormal rates on i th market and n th event constitute the aggregated abnormal return (AAR).

$$AAR_{in} = \sum_{t=-5}^{t+5} AAR_{in}$$

Its Average is as:

$$\overline{AAR}_{in} = \frac{1}{N} \sum_{t=-5}^{t+5} AAR_{in}$$

Then the cumulative abnormal return and its average:

$$CAR_{in} = \sum_{i=1}^n AR_{in}$$

$$\overline{CAR} = \frac{1}{N} \sum_{i=1}^n CAR$$

After finding the average of cumulative abnormal return, the next step is to find the T statistic to check the significance:

$$t_{CAR} = \frac{CAR}{\sigma/\sqrt{n}}$$

Hodrick-Prescott filter

We continued our study by separating the interest rate into expected and unexpected components using the Hodrick-Prescott filter. Lacking access to short-term interest rate future contracts, the Pakistan Stock Exchange was at a disadvantage compared to wealthier nations. Finding the interest rate surprises and using them as a model regressor allows us to do the following:

surprises = expected interest rate – unexpected interest rate

To examine the long-term connection between interest rate surprises and conventional and Islamic equities, the Engle Granger cointegration test is used.

Results and Discussions

Table 1

CAR with CAPM model of KSE-30

Date	Average Actual Return		Average expected return		Average abnormal Return		CAR
	Pre	Post	Pre	Post	pre	Post	
03/07/2013	-0.00228	-0.004239	-0.001077	-0.0030844	0.0012037	0.0011542	-0.001154
04/12/2013	0.001892	-0.001664	-0.000339	-0.0026665	0.0022306	0.0010027	-0.000151
21/06/2013	-0.007855	-0.007532	0.006674	0.0058986	0.0145287	0.0134307	-0.013582
16/09/2013	0.002092	0.001901	-0.000221	-0.0045953	0.0023133	0.0064963	-0.007086
18/11/2013	-0.000527	0.001982	0.00427	0.0035566	0.0047978	0.0015747	-0.008661

01/10/2014	0.001639	0.002482	0.003266	0.0032249	0.0016266	0.0007434	-0.009404
15/03/2014	0.000362	-0.009313	-0.002314	0.0001488	0.0026756	0.0094614	-0.018865
17/05/2014	0.000115	-0.000933	-0.000236	-0.0003734	0.0003507	0.0005599	-0.019425
07/11/2014	-0.001884	0.007454	0.000499	0.0005599	0.0023836	0.0068946	-0.012531
20/09/2014	-0.0015	-0.006104	0.001453	0.0008605	0.0029534	0.0069642	-0.019495
17/11/2014	0.00199	-0.002508	-0.001766	-0.0010298	0.0037561	0.0014782	-0.020973
26/01/2015	0.002802	0.000878	0.001414	0.0021207	0.0013879	0.0012427	-0.022216
24/03/2015	-0.009268	-0.006595	-0.002275	-0.0029905	0.0069929	0.0036045	-0.02582
25/05/2015	-0.002628	0.004761	0.001835	0.0010897	-0.004463	0.0036718	-0.022149
16/07/2015	0.001688	-0.004398	0.001474	0.0004769	0.0002137	0.0048747	-0.027023
09/12/2015	-0.001194	-0.005578	-0.001522	-0.0028566	0.0003278	0.0027212	-0.029745
21/11/2015	-0.002044	-0.009548	0.000291	0.0002984	0.0023345	0.0098467	-0.039591
30/01/2016	0.002648	0.004123	-0.002158	-0.0018485	0.0048059	0.0059711	-0.03362
04/09/2016	0.002862	0.001271	0.002296	0.0038153	0.000566	0.0025439	-0.036164
21/05/2016	0.002816	-0.004223	0.001933	0.0028251	0.0008823	0.0070477	-0.043212
30/07/2016	0.001005	-0.001824	0.003088	0.0032513	0.0020831	0.0050758	-0.048288
24/09/2016	-0.003961	0.003076	-0.001085	0.0000453	-0.002876	0.0030303	-0.045257
26/11/2016	0.003225	0.003047	0.000324	0.0002978	0.0029007	0.0027494	-0.042508
28/01/2017	0.003609	0.003178	0.001967	0.0019933	0.0016415	0.001185	-0.041323
25/03/2017	0.001268	-0.002576	-0.001761	-0.001446	0.0030286	0.0011303	-0.042453
20/05/2017	-0.005388	0.003007	0.001761	0.0043739	0.0071484	0.0013669	-0.04382
22/07/2017	0.004689	0.000716	-0.005041	-0.0046734	0.0097294	0.0053892	-0.038431
29/09/2017	-0.002562	-0.005177	-0.001607	-0.0010819	0.0009542	-0.004095	-0.042526
24/11/2017	-0.003764	-0.001852	0.001151	0.0009819	0.0049154	0.0028335	-0.045359
31/01/2018	-0.004751	-0.001697	0.007268	0.0064818	0.0120193	0.0081784	-0.053538
30/03/2018	0.003719	0.005726	0.002374	0.0017699	0.0013447	0.003956	-0.049582
25/05/2018	0.005037	0.003589	-0.003572	-0.0038446	0.0086098	0.0074338	-0.042148
14/07/2018	0.001024	0.004669	-0.002519	-0.002656	0.0035426	0.0073251	-0.034823
29/09/2018	-0.002112	-0.01529	-0.005826	-0.0043321	0.003714	-0.010958	-0.045781
30/11/2018	-0.001041	-0.009774	0.002784	0.0028299	0.0038248	0.0126043	-0.058385

31/01/2019	0.002867	0.000254	0.003615	0.0040134	0.0007474	0.0037598	-0.062145
29/03/2019	0.001108	-0.005802	-0.003119	-0.0024554	0.0042266	-0.003347	-0.065492
20/05/2019	-0.007984	0.016022	-0.003408	-0.0031579	0.0045761	0.0191802	-0.046312
16/07/2019	-0.004168	-0.000302	-0.002416	-0.003124	-0.001752	0.0028215	-0.04349
16/09/2019	0.00802	-0.001877	-0.002738	-0.0033049	0.0107586	0.0014278	-0.042063
22/11/2019	-0.002268	0.00546	0.003028	0.0036636	0.0052957	0.0017968	-0.040266
28/01/2020	-0.000612	-0.008191	0.00031	0.0016881	-0.000922	0.0098793	-0.050145
17/03/2020	-0.022235	-0.036599	-0.013619	0.0045023	-0.008616	0.0411011	-0.091246
15/05/2020	0.002518	-0.003428	0.005436	0.0052845	0.0029178	0.0087121	-0.099958
25/06/2020	0.001215	0.008147	-0.000482	-0.0004146	0.0016978	0.0085611	-0.091397
21/09/2020	-0.000269	-0.007213	0.000774	0.0005014	0.0010422	0.0077142	-0.099111
23/09/2020	-0.000291	0.002701	0.001824	0.0003952	0.0021154	0.0023053	-0.096806
22/01/2021	0.007175	-0.002224	-0.003419	-0.0035149	0.0105939	0.0012913	-0.095515
19/03/2021	0.005993	0.003677	0.002547	0.0040972	0.0034462	0.0004198	-0.095934
28/05/2021	0.000647	-0.000183	-0.000715	-0.000624	0.001362	0.0004411	-0.095493
27/07/2021	-0.003243	-0.008606	-0.000972	0.0002682	0.0022711	0.0088746	-0.104368
20/09/2021	-0.000896	-0.011345	0.00049	-0.0008623	-0.001386	0.0104831	-0.114851
19/11/2021	-0.001131	0.004081	-0.004342	-0.0037344	0.0032106	0.0078155	-0.107035
14/12/2021	-0.003738	0.000515	0.002607	0.0034087	-0.006345	0.0028937	-0.109929
21/01/2022	-0.005585	0.003074	-0.000652	-0.0010054	0.0049332	0.0040795	-0.10585
08/03/2022	-0.000862	0.013981	-0.00075	-0.0000626	0.0001121	0.0140434	-0.091806
07/04/2022	-0.00208	0.003621	-0.001728	-0.004406	0.0003518	0.0080269	-0.083779
23/05/2022	-0.000447	-0.005029	0.000374	0.0021652	0.0008203	0.0071941	-0.090973
07/07/2022	0.002276	-0.001708	0.000796	0.0004281	0.0014808	0.0021359	-0.093109
22/08/2022	0.006717	-0.005907	-0.003045	-0.0017065	0.0097621	0.0042006	-0.09731
10/10/2022	0.000534	-0.002881	0.001069	0.0017771	0.0005351	0.0046582	-0.101968

Table 1 displays the average performance of the KSE 30 index. Presented on the Pakistan Stock Exchange's official website are the KSE-30 indexes, which cover the years 2013 through 2022. For each event and within each event frame, two approaches were employed to assess out-of-the-ordinary returns. For the purpose of analysing the expected returns, a 50-day event window is first established, followed by

an 11-day window with 5-day pre-event and 5-day post-event Windows. After that, we calculate the average returns for the timeframe before and after the occurrence. The second one looked at the interval (t-5, t+5) for anomalous returns, which were found by subtracting actual returns from anticipated returns. The computed Cumulative Abnormal Returns (CAR) came out at 0.472515, as shown in Table 4.1. The discrepancy between the actual and predicted results was 4.47 percent.

Table 2

CAR with CAPM model of KMI-30

DATE	AVERAGE ACTUAL RETURN		AVERAGE EXPECTED RETURN		AVERAGE ABNORMAL RETURN		CAR
	Pre	Post	Pre	Post	pre	Post	
03/07/2013	-	-	0.006149	0.006828	-0.006681705	-0.010500007	-0.0105
	0.000533	0.003672					
04/12/2013	0.001091	-	0.004105	0.004588	-0.003014738	-0.007191101	-0.01769
		0.002603					
21/6/2013	-	-	0.006419	0.004908	-0.011561097	-0.00746171	-0.02515
	0.005142	0.002554					
16/9/2013	0.004643	-	-	-	0.007637842	0.001983439	-0.02317
		0.001366	0.002995	0.003350			
18/11/2013	-	0.004493	0.000566	0.001112	-0.003272113	0.003381033	-0.01979
	0.002707						
01/10/2014	0.002180	0.002174	0.003959	0.003500	-0.001778795	-0.001325339	-0.02111
15/03/2014	0.003061	-	0.002899	0.001682	0.000162294	-0.008653561	-0.02977
		0.006971					
17/05/2014	0.001911	-	-	-	0.003456206	7.78865E-05	-0.02969
		0.000894	0.001545	0.000972			
07/11/2014	-	0.007682	-	0.001768	-0.00241697	0.0059138	-0.02378
	0.002436		0.000019				
20/09/2014	-	-	0.001902	0.001663	-0.003846316	-0.005458184	-0.02923
	0.001944	0.003795					
17/11/2014	0.002453	-	0.000635	0.000796	0.001818178	-0.002580115	-0.03181
		0.001784					
26/01/2015	0.001787	0.002714	0.002005	0.001756	-0.000218648	0.000957785	-0.03086
24/03/2015	-	-	-	-	-0.001228868	-0.003659849	-0.03452
	0.002371	0.006673	0.001143	0.003013			
25/05/2015	-	0.003355	0.001946	0.000922	-0.004460636	0.002432894	-0.03208
	0.002514						
16/07/2015	0.002265	-	0.001746	0.002393	0.000518635	-0.007585681	-0.03967
		0.005193					
09/12/2015	-	-	0.000022	-	-0.002725554	-0.001255755	-0.04092
	0.002703	0.002625		0.001369			
21/11/2015	-	-	0.000600	0.000656	-0.002943984	-0.009685326	-0.05061
	0.002344	0.009029					
30/01/2016	0.004691	0.002095	-	-	0.005789723	0.003025668	-0.04758
			0.001099	0.000931			
04/09/2016	0.003742	0.001449	0.004180	0.005586	-0.000438019	-0.004136106	-0.05172
21/05/2016	0.002933	-	0.000951	0.001831	0.001982414	-0.004691315	-0.05641
		0.002860					
30/07/2016	0.000484	-	0.002693	0.003498	-0.002208835	-0.006348763	-0.06276
		0.002850					

24/09/2016	-	0.002647	-	-	-0.001709957	0.002874592	-0.05989
	0.002507		0.000797	0.000228			
26/11/2016	0.004799	0.004224	0.000360	0.000390	0.004438194	0.003833756	-0.05605
28/01/2017	0.002640	0.004098	0.002099	0.003610	0.000540821	0.000487993	-0.05556
25/03/2017	0.002712	-	-	-	0.004831312	-3.35551E-05	-0.0556
		0.001880	0.002119	0.001847			
20/05/2017	-	0.005476	0.001217	0.003754	-0.004536284	0.001721864	-0.05388
	0.003319						
22/07/2017	0.005391	0.004209	-	-	0.010991723	0.00928086	-0.04459
			0.005601	0.005072			
29/09/2017	-	-	-	-	-0.000691349	-0.005276299	-0.04987
	0.002108	0.006222	0.001416	0.000946			
24/11/2017	-	-	0.002573	0.002345	-0.005399346	-0.00493732	-0.05481
	0.002826	0.002593					
31/01/2018	-	-	0.006232	0.005448	-0.009784667	-0.007025852	-0.06183
	0.003553	0.001578					
30/03/2018	0.004286	0.005773	0.002629	0.001966	0.001656456	0.003807119	-0.05803
25/05/2018	0.002733	0.004197	-	-	0.010026203	0.005942716	-0.05208
			0.007293	0.001746			
14/07/2018	-	0.004501	0.002312	-	-0.004529226	0.008415134	-0.04367
	0.002218			0.003915			
29/09/2018	-	-	-	-	-0.000466944	-0.012690152	-0.05636
	0.003068	0.014765	0.002601	0.002075			
30/11/2018	-	-	0.004528	0.005341	-0.00760803	-0.016003279	-0.07236
	0.003080	0.010662					
31/01/2019	0.002031	0.000517	0.003358	0.002972	-0.00132721	-0.00245455	-0.07482
29/03/2019	0.001838	-	0.003488	0.003488	0.005325534	-0.001853727	-0.07667
		0.005342					
20/05/2019	-	0.020665	-	-	-0.003008421	0.025363255	-0.05131
	0.008875		0.005867	0.004698			
16/07/2019	-	-	-	-	-0.002733155	0.00270209	-0.04861
	0.005755	0.000434	0.003022	0.003136			
16/09/2019	0.008291	-	-	-	0.012272386	0.006227761	-0.04238
		0.001934	0.003981	0.008161			
22/11/2019	-	0.003907	0.004478	0.004374	-0.006835011	-0.000467048	-0.04284
	0.002357						
28/01/2020	-	-	0.004372	0.004515	-0.006413648	-0.012053403	-0.0549
	0.002042	0.007538					
17/03/2020	-	-	-	-	-0.017060275	-0.038287096	-0.09319
	0.021950	0.039274	0.004889	0.000987			
15/05/2020	0.002600	-	0.009602	0.008355	-0.007001883	-0.010422274	-0.10361
		0.002067					
25/06/2020	0.002699	0.008846	0.000510	-	0.002189027	0.009042272	-0.09457
				0.000196			
21/09/2020	0.001022	-	0.002269	0.002292	-0.001246424	-0.010358881	-0.10492
		0.008067					
23/09/2020	-	0.010227	-	-	-0.000691596	0.01064807	-0.09428
	0.002277		0.001585	0.000421			
22/01/2021	-	0.003752	0.003079	0.003288	-0.005074351	0.000463901	-0.09381
	0.001995						

19/03/2021	0.008412	-	-	-	0.011119795	-0.000329166	-0.09414
		0.003248	0.002708	0.002919			
28/05/2021	0.005863	0.005351	0.001420	0.000976	0.004443614	0.004375379	-0.08977
27/07/2021	0.001029	0.001108	-	-	0.001639163	0.00187389	-0.08789
			0.000610	0.000766			
20/09/2021	-	-	0.000505	0.000011	-0.006218053	-0.007105287	-0.095
	0.005713	0.007094					
19/11/2021	-	-	0.007215	0.006631	-0.007786879	-0.018661032	-0.11366
	0.000572	0.012030					
14/12/2021	-	0.005231	-	-	-0.000458497	0.007860626	-0.1058
	0.001979		0.001520	0.002630			
21/01/2022	-	0.000426	0.002220	0.002256	-0.005423998	-0.001829453	-0.10763
	0.003204						
03/08/2022	-	0.004895	-	-	-0.005101279	0.005363779	-0.10226
	0.006287		0.001185	0.000469			
04/07/2022	-	0.014770	-	0.001444	0.004679366	0.013326399	-0.08894
	0.001535		0.006214				
23/05/2022	-	0.004786	-	-	-0.000504938	0.00554082	-0.0834
	0.002902		0.002397	0.000754			
07/07/2022	-	-	0.000890	0.000768	-0.002357866	-0.005303514	-0.0887
	0.001468	0.004535					
22/08/2022	0.003028	-	0.000692	0.000679	0.002335518	-0.001967971	-0.09067
		0.001289					
10/10/2022	0.007431	-	-	-	0.00959364	0.001010802	-0.08966
		0.000419	0.002162	0.001430			
25/11/2022	0.001096	-	0.000608	0.001109	0.000488839	-0.005334709	-0.09499
		0.004225					

In Table 2 you can see the average KMI 30 index results. The KMI-30 indices were sourced from the official website of the Pakistan Stock Exchange from January 2013 to December 2022. Within event windows and based on individual occurrences were the two approaches utilised to assess anomalous results. The anticipated returns may be examined by first establishing a 50-day event window. A total of eleven days are allotted on the day of the event, split evenly between five windows preceding and five windows after the event. Next, we calculate the average return for the time periods before and after the occurrence. The second one used the interval (t-5, t+5) to investigate abnormal returns; this period was defined as the difference between actual and anticipated returns. Cumulative Abnormal Returns (CAR) came out at -0.09499, as seen in Table 2. Consequently, the actual returns exceeded expectations by 9.499%. The value of KMI-30 is substantially greater than the value of KSE-30. Our theory's positive character is demonstrated here.

T-statistics:

The T-statistic is computed after the CAR analysis. According to Table 3, fiscal policy announcements have a substantial effect on Islamic stock returns. To find the t-statistics, we divided the mean abnormal return's standard deviation by the average unexpected return. At the 5% level of significance, 31 out of 35 events were shown to have had an effect on the Islamic stock index when their impacts were analyzed individually.

Table 3

Event wise analysis for KMI-30

Date	Average abnormal Return		T Stats
	Pre	post	
03/07/2013	-0.006681705	-0.010500007	5.886477*
04/12/2013	-0.003014738	-0.007191101	4.545142*
21/6/2013	-0.011561097	-0.00746171	6.70561*

16/9/2013	0.007637842	0.001983439	4.093982*
18/11/2013	-0.003272113	0.003381033	0.960148
01/10/2014	-0.001778795	-0.001325339	6.89031*
15/3/2014	0.000162294	-0.008653561	0.853273
17/05/2014	0.003456206	7.78865E-05	3.723129*
07/11/2014	-0.00241697	0.0059138	0.536767
20/09/2014	-0.003846316	-0.005458184	6.79822*
17/11/2014	0.001818178	-0.002580115	5.438135*
26/01/2015	-0.000218648	0.000957785	8.503398*
24/03/2015	-0.001228868	-0.003659849	9.552258*
25/05/2015	-0.004460636	0.002432894	0.542381
16/07/2015	0.000518635	-0.007585681	2.150763*
09/12/2015	-0.002725554	-0.001255755	8.716464*
21/11/2015	-0.002943984	-0.009685326	1.478935
30/01/2016	0.005789723	0.003025668	6.417854*
04/09/2016	-0.000438019	-0.004136106	1.322432
21/05/2016	0.001982414	-0.004691315	0.140175
30/07/2016	-0.002208835	-0.006348763	0.728034
24/09/2016	-0.001709957	0.002874592	3.799379*
26/11/2016	0.004438194	0.003833756	9.147878*
28/01/2017	0.000540821	0.000487993	9.93738*
25/03/2017	0.004831312	-3.35551E-05	3.2309*
20/05/2017	-0.004536284	0.001721864	2.125333*
22/07/2017	0.010991723	0.00928086	8.315406*
29/09/2017	-0.000691349	-0.005276299	6.817479*
24/11/2017	-0.005399346	-0.00493732	9.17829*
31/01/2018	-0.009784667	-0.007025852	6.238306*
30/03/2018	0.001656456	0.003807119	3.217978*
25/05/2018	0.010026203	0.005942716	6.56233*
14/07/2018	-0.004529226	0.008415134	3.67677*
29/09/2018	-0.000466944	-0.012690152	2.14468*
30/11/2018	-0.00760803	-0.016003279	3.887761*
31/01/2019	-0.00132721	-0.00245455	8.726825*
29/03/2019	0.005325534	-0.001853727	5.396498*
20/05/2019	-0.003008421	0.025363255	0.428539
16/07/2019	-0.002733155	0.00270209	6.068706*
16/09/2019	0.012272386	0.006227761	5.620387*
22/11/2019	-0.006835011	-0.000467048	6.316448*
28/01/2020	-0.006413648	-0.012053403	5.609589*
17/03/2020	-0.017060275	-0.038287096	5.219799*
15/05/2020	-0.007001883	-0.010422274	5.588622*
25/06/2020	0.002189027	0.009042272	2.771294*
21/09/2020	-0.001246424	-0.010358881	1.388261
23/09/2020	-0.000691596	0.01064807	1.075623
22/01/2021	-0.005074351	0.000463901	2.380202*
19/03/2021	0.011119795	-0.000329166	0.997441
28/05/2021	0.004443614	0.004375379	9.891201*
27/07/2021	0.001639163	0.00187389	9.631343*
20/09/2021	-0.006218053	-0.007105287	8.460954*
19/11/2021	-0.007786879	-0.018661032	3.563594*
14/12/2021	-0.000458497	0.007860626	3.204809*

21/01/2022	-0.005423998	-0.001829453	4.593218*
03/08/2022	-0.005101279	0.005363779	4.058541*
04/07/2022	0.004679366	0.013326399	3.34069*
23/05/2022	-0.000504938	0.00554082	0.354
07/07/2022	-0.002357866	-0.005303514	7.211459*
22/08/2022	0.002335518	-0.001967971	4.179795*
10/10/2022	0.00959364	0.001010802	1.004817
25/11/2022	0.000488839	-0.005334709	3.782629*

Table 4

Event wise analysis for KSE-30

Date	Average abnormal Return		T Stats
	pre	Post	
03/07/2013	-0.001203651	-0.001154233	9.738462233*
04/12/2013	0.002230555	0.001002749	1.833022932
21/6/2013	-0.014528718	-0.013430741	8.745952979*
16/9/2013	0.002313289	0.006496337	6.144038363*
18/11/2013	-0.004797789	-0.001574677	4.379757893*
01/10/2014	-0.001626627	-0.000743423	5.939769289*
15/3/2014	0.002675589	-0.009461433	0.076755858
17/05/2014	0.000350671	-0.000559902	8.015505282*
07/11/2014	-0.002383582	0.006894569	0.436074685
20/09/2014	-0.002953404	-0.006964242	1.608770465
17/11/2014	0.003756138	-0.001478247	4.696903925*
26/01/2015	0.001387922	-0.001242694	6.711879934*
24/03/2015	-0.006992854	-0.003604517	8.353581837*
25/05/2015	-0.004462988	0.003671798	0.664865829
16/07/2015	0.000213675	-0.004874698	2.768916996*
09/12/2015	0.000327775	-0.002721231	7.543587073*
21/11/2015	-0.002334496	-0.009846726	1.838200561
30/01/2016	0.00480594	0.005971074	8.064534847*
04/09/2016	0.000565986	-0.00254387	1.87190686
21/05/2016	0.000882255	-0.007047661	0.04471945
30/07/2016	-0.002083075	-0.005075819	3.474822658*
24/09/2016	-0.002876	0.003030294	2.946795733*
26/11/2016	0.002900665	0.002749381	9.755974745*
28/01/2017	0.00164153	0.001185014	9.329365396*
25/03/2017	0.003028615	-0.001130262	3.609369555*
20/05/2017	-0.007148413	-0.001366908	3.397709058*
22/07/2017	0.009729429	0.005389156	5.073453906*
29/09/2017	-0.000954241	-0.00409498	7.473721157*
24/11/2017	-0.004915392	-0.002833468	5.65429733*
31/01/2018	-0.012019342	-0.0081784	2.427265348*
30/03/2018	0.001344652	0.00395601	4.706399978*
25/05/2018	0.008609787	0.007433804	8.148892741*
14/07/2018	0.003542632	0.007325054	7.824873758*

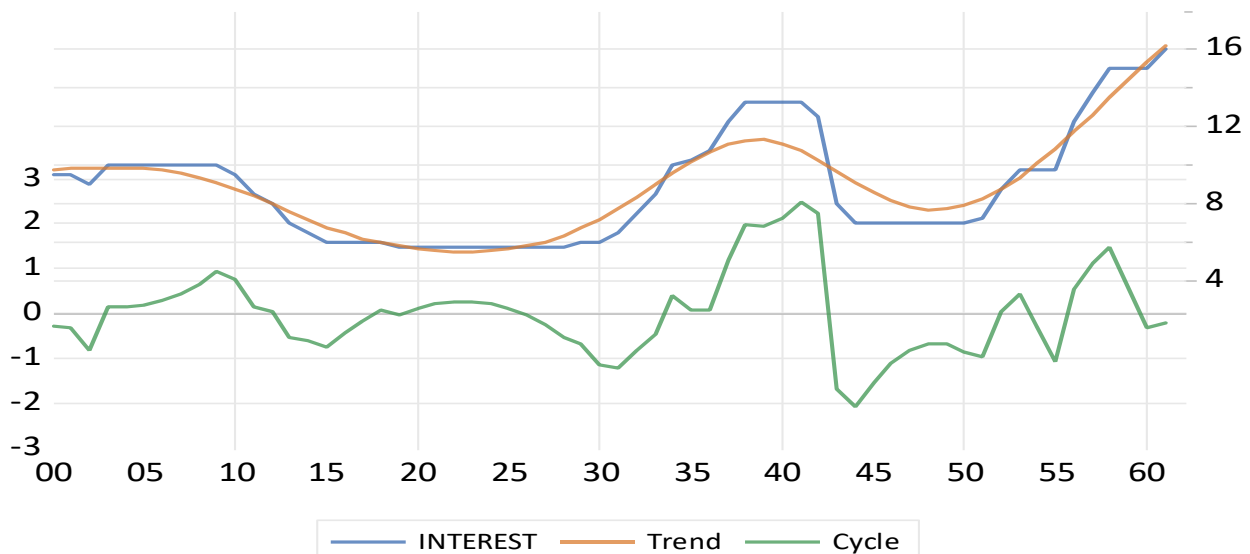
29/09/2018	0.003714033	-0.010958049	1.640530076
30/11/2018	-0.003824825	-0.012604328	3.853304482*
31/01/2019	-0.000747369	-0.003759793	4.14687468*
29/03/2019	0.004226634	-0.003347023	3.904877652*
20/05/2019	-0.004576088	0.019180247	0.097564545
16/07/2019	-0.001751993	0.002821503	6.258388029*
16/09/2019	0.010758575	0.001427828	1.936105456
22/11/2019	-0.005295708	0.001796778	6.004004637*
28/01/2020	-0.000921954	-0.00987928	4.878133716*
17/03/2020	-0.008615993	-0.041101072	4.070059571*
15/05/2020	-0.002917839	-0.008712079	2.949997884*
25/06/2020	0.001697772	0.008561123	1.24102079
21/09/2020	-0.001042214	-0.007714224	3.0496063*
23/09/2020	-0.002115431	0.002305326	3.02028274*
22/01/2021	0.010593949	0.001291339	1.092129287
19/03/2021	0.003446154	-0.000419757	3.214477778*
28/05/2021	0.001362001	0.000441143	8.407859771*
27/07/2021	-0.002271071	-0.008874582	0.70948509
20/09/2021	-0.001385984	-0.010483124	3.448651932*
19/11/2021	0.003210629	0.007815463	4.529506324*
14/12/2021	-0.006345026	-0.002893727	5.815599624*
21/01/2022	-0.004933236	0.004079528	4.343433213*
03/08/2022	-0.000112101	0.014043364	1.432756644
04/07/2022	-0.000351843	0.008026914	0.395170142
23/05/2022	-0.000820293	-0.0071941	4.18476396*
07/07/2022	0.001480833	-0.00213594	4.419826441*
22/08/2022	0.009762138	-0.004200609	0.347181453
10/10/2022	-0.000535146	-0.004658213	4.725151793*

Table 4 demonstrates that traditional stock returns are significantly impacted by fiscal policy comments. Division of the mean abnormal return by the standard deviation of the mean abnormal returns yielded the t statistics. Analysis of the results showed that conventional stock markets were significantly affected by 28 out of 35 events.

Hodrick Prescott Filter

Step two involved decomposing the interest rate and removing the surprise component using the Hodrick Prescott filter. Then, we compared the returns of traditional and Islamic stock markets using multiple regressions to see how interest rate surprises affected each. We regressed interest rate surprise on returns of conventional and Islamic equities using daily data from January 1, 2013, to December 31, 2022. One valuable tool for analyzing economic time series is Hodrick and Prescott's filter, which is sometimes referred to as the HP filter (Hodrick and Prescott, 1997). The basic idea is to divide a time series into parts with different frequencies. For this reason, it is commonly employed with series that are generated by merging two unobservable parcels that possess distinct spectral components. Following Figure 1 represents the graph for Hodrick Prescott filter:

Hodrick-Prescott Filter (lambda=100)



With the lambda parameter set to 100, the graph shows the result of the Hodrick-Prescott filter, which decomposes a time series into its trend and cyclical components. Values, both positive and negative, that emerge from the filter are shown on the vertical axis. Probably the original time series, which shows fluctuations throughout time, is represented by the "INTEREST" line. The cyclical component of the time series, which captures deviations from the main trend, is shown by the fluctuations around zero on the vertical axis. Periods of growth or expansion are indicated by positive numbers, whereas contractions may be shown by negative values.

Specifically, the "Trend" line indicates the fundamental trend that the Hodrick-Prescott filter picked up on. It shows the long-term movement of the original time series in a softened way. A rising trend is shown by positive numbers above the zero line on the vertical axis, and a falling trend is indicated by negative numbers below the zero mark. You can see the filter's cyclical part on the "Cycle" line. This factor assesses fluctuations or deviations from the trend in the near term. Indicative of above-average growth are peaks on the cycle line, whereas troughs suggest below-average growth. With divisions at regular intervals (e.g., 00, 05, 10,), the horizontal axis indicates time, probably in years or another unit. Because of this, trends and patterns throughout different time periods may be seen.

Descriptive Stats:

The descriptive statistics for the independent and dependent variables used in our investigation are shown in Table 5. In descriptive statistics, the main features of the data are described:

Table 5

Descriptive statistics

	INTEREST SURPRISE	KMI-30 index	KSE-30 Index
Mean	0.003624	-0.060604	-0.054122
Median	0.053461	-0.055564	-0.043820
Maximum	2.483724	-0.010500	-0.000151
Minimum	-2.079456	-0.113659	-0.114851
Std. Dev.	0.948910	0.027729	0.033125

Unit Root Test

Table 6 displays the results of the unit root test. Applying these unit root tests proves that the data is stationary. A precondition for conducting multiple regression studies on financial time series data is to guarantee its steady nature. False or misleading results can be obtained when regressing one variable on another while working with non-stationary financial data. Dickey and Fuller (1979), Phillips and Perron (1988), and Kiatkowski et al. (1992) all offered unit root tests to determine if the data is stationary. If a

unit root is present in an autoregressive model, it may be detected using the Augmented Dickey-Fuller test. For the sake of this test, we assume that the mistakes are normally distributed and statistically independent. Conversely, Phillips-Perron is popular and offers more leeway in application. Inaccurate and unequally distributed error terms are present in this test. When two non-stationary tests are linearly combined to form a stationary whole, we say that the series is co-integrated. For this study, the researchers found the unit root using the ADF, PP, and KPSS tests.

Table 6

Unit Root Test

Variables	Augmented Fuller test statistics		Dickey- Phillips-perron statistics		Kwiatkowski-phillips- schmidt-shin test statistics	
	level	1 st difference	level	1 st difference	Level	1 st difference
PSE	0.56	0.00	0.57	0.00	0.71	0.02
KMI	0.25	0.00	0.29	0.00	0.70	0.04
Interest rate surprise	0.72	0.00	0.61	0.00	0.30	0.05

For the purpose of finding stationary variables, the Kwiatkowski-Phillips-Schmidt-Shin unit root test, the Phillips Perron (PP) test, and the Augmented Dickey Fuller (ADF) test are utilized. After running the ln PSE through each of the three unit root tests, we found that it is stationary at the first difference (I(1) series) but non-stationary at the level (p value >0.5). In addition to being non-stationary at the level, the ln KMI is stationary at the first difference, or I (1) series, since the p value is greater than 0.05. Similarly, interest rate surprise is stable at the first difference in all three unit root tests; at the level, its p value is greater than 0.05, showing that it is an I(1) series.

Co-integration test

The findings of the Engle Granger cointegration test for the Islamic stock index are presented in Table 7. To verify the existence of a long-term correlation between two variables, this test is administered.

Table 7

Engle Granger cointegration test for Islamic stock index

Variables	tau- statistic	Probability	z-statistic	Probability
		Null hypothesis: series are not cointegrated.		Null hypothesis: series are not cointegrated.
KMI	-38.20479	0.0010	-1463.936	0.0000
Interest rate surprise	-5.706997	0.0000	-63.49836	0.0000

To find the long-term correlation between the Islamic stock index and interest rate surprises, the Engle Granjer co-integration test is employed. Due to the substantial p-value (less than 0.05), we may reject the null hypothesis (that the series is not cointegrated) and accept our alternative. Islamic stocks and interest rate surprises go hand in hand.

Table 8

Engle Granger cointegration test for conventional stock index

Variables	tau- statistic	Probability	z-statistic	Probability
		Null hypothesis: series are not cointegrated.		Null hypothesis: series are not cointegrated.
PSE	-1.484389	0.0214	-4.835076	0.0122
Interest rate surprise	-5.704486	0.0000	-63.44371	0.0000

We accept the alternative hypothesis that the series is co-integrated and reject the null hypothesis that there is no long-term association between the traditional stock index and interest rate surprise because the p-value for this variable is less than 0.05, which is considered statistically significant.

ARDL Model:

We utilize the ARDL method since cointegration does not exist. To examine the relationships between several time series variables over the short and long term, an econometric model known as the Autoregressive Distributed Lag Stationarity model is employed. In the ARDL model, the AR component represents the lagged values of the dependent variable. The ARDL model is often considered to be an excellent econometric tool, particularly for dealing with variables that are either fixed at I (0) or incorporated of order I (1). In line with the objectives of the study, this model outperforms others in capturing the short- and long-term impacts of shocks to monetary policy on stock returns.

ARDL analysis of KMI30 index:

The Table 9 represents the ARDL results of our first model which is for Islamic stocks

Estimation Equation:

$$\text{KMI30} = C(1) * \text{KMI30}(-1) + C(2) * \text{KMI30}(-2) + C(3) * \text{INTERESTSURPRICE} + C(4)$$

Table 9

Islamic stocks ARDL analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
KMI30(-1)	1.167554	0.137194	8.510258	0.0000
KMI30(-2)	-0.226568	0.131533	-1.722522	0.0905
INTERESTSURPRICE	-0.004399	0.002332	-1.886006	0.0586
C	-0.004603	0.002901	-1.586650	0.1182

Interest rate surprise serves as the independent variable in this model, with KMI serving as the dependent variable. The Islamic stock index's reaction to a surprise interest rate announcement provided the theoretical basis for the hypothesis. Interest rates are negatively correlated with Islamic stock indexes, according to the independent variable's coefficient ($p = 0.058$, 10% significant). Additionally, it was shown that there is a strong negative correlation between interest rate surprise and the Islamic stock index, suggesting that this index is affected by sudden shifts in interest rates. According to Albaity (2011a), this model replicates the findings of earlier investigations. The used variable is noteworthy, since its t value is 1.88. We reject the null hypothesis and accept the alternative one since our research shows no evidence for it. It may be inferred that the independent variable explains 90% of the dependent variable from the R-squared value of 0.90.

ARDL analysis of KSE30

In Table 10 the results of our second model are shown and the results are mostly aligning with the previous studies.

$$\text{KSE30} = C(1) * \text{KSE30}(-1) + C(2) * \text{INTERESTSURPRICE} + C(3) * \text{INTERESTSURPRICE}(-1) + C(4)$$

Table 10

Conventional stocks regression analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
KSE30(-1)	0.973267	0.032824	29.65098	0.0000
INTERESTSURPRICE	0.001323	0.001618	0.818088	0.4168
INTERESTSURPRICE(-1)	-0.003613	0.001596	-2.263759	0.0275
C	-0.003084	0.002036	-1.514718	0.1355

The second model uses interest rate surprise as the independent variable and the conventional stock index KSE as the dependent variable. Interest rate surprise is negatively related to traditional stock prices, as shown by the independent variable's coefficient of -0.0036 at I (1). There is a strong negative correlation between interest rate surprise and the conventional stock index ($p < 0.05$), so we may reject the null hypothesis and accept the alternative. This finding is in line with the prior research of (Kontonikas et al., 2013) which found that interest rates and stock prices are negatively associated. In

other words, when interest rates drop considerably, consumers boost their spending, which in turn leads stock prices to rise. A t-statistic greater than 2 indicates that the variable in question is statistically significant.

Conclusion

The article examines the impact of interest rate surprises to Islamic and conventional Pakistani stock returns through the application of the ARDL and event study approach. Augmented Dickey-Fuller test established the stationarity of the data. Findings indicate that both categories of stocks are impressively sensitive to interest rate shocks; nevertheless, Islamic stocks are very responsive, with a coefficient registered as 0.004 whereas conventional stocks represent one with a coefficient of 0.003 which implies that the Islamic stocks are more responsive to the variations in interest rates (Khan et al., 2022; Rizvi & Arshad, 2021).

Engle-Granger co-integration test affirmed the existence of long-term association between the return on stocks and interest rate surprises (Ali et al., 2020). Besides, event study, which was used to cover an 11-day window, found that artificial means tend to cause a sharper response among the Islamic stocks in the case of unforeseen monetary policy announcements. Although interest is forbidden in Islamic finance, this greater influence is explained by the way that Islamic indices are constructed with the main characteristic of avoiding companies that do not hedge against fluctuations in interest rates and, therefore, the volatility of the remaining companies is greater to the changes in macroeconomic conditions (Naz et al., 2023; Bouri et al., 2020).

The other reason can be found in the Islamic finance itself. In comparison to conventional finance that uses fixed interest rate, Islamic finance is founded on variable profit sharing agreements that in many cases can be linked to the current interest rates. This increases the sensitivity of Islamic assets to shocks in monetary policy (Hassan et al., 2019; Alam & Rizvi, 2021).

The results have practical implications on investors and policy makers who need to balance investments intrinsically in terms of ethical or religious beliefs and managing exposure to risk in interest rate movements in the process. It also has implication in terms of cross-border effect meaning that local shock to interest rates may cause a spillover effect in overseas financial and property markets due to close-knit flow of capital and macro Economy relationships (Iqbal et al., 2022; Sharif et al., 2020).

Ethical approval:

This article does not contain any studies with human participants or animals performed by any of the authors.

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