KNN MINING BASED MATHEMATICAL MODELING OF NSE SHARIAH INDEX: A MONTHLY PREDICTION MODEL

Sudarvel J¹, Velmurugan R², Jegadeeswari S³, Easwaran P⁴
Karpagam Academy of Higher Education (Deemed to be University), Coimbatore, Tamil Nadu, India.
¹Email: j.sudarvel@gmail.com

ABSTRACT
This study examines the Persistence of a Monthly Effect in NSE Shariah using KNN mining and data are classified using this. The current study usages the daily return data of the NSE Shariah Index for the period extending between January 2009 and March 2019. The outcomes confirm the presence of seasonality Anomalies in NSE Shariah index stock yields in India. The results are also reliable with the Anomalies does exist in the stock market in India, Shariah index is inefficient. Hence, investors can time their share investments to expand earnings.

Keywords: KNN mining, Prediction Model, Pattern Classification, Anomaly, Monthly Effect, Efficient Market Hypothesis, NSE Shariah and Riba rule.

I. INTRODUCTION
The Monthly Effect is also identified as the Month of the year effect. The Monthly effect is one of the most important calendar anomalies. The month-of-the-year effect would be existing when returns in some months are higher than other months. It is triggered normally by a significant low return in March. Islamic fund is a reasonably new phenomenon in the financial system of India. Sharia is the Islamic laws which standardize a lot of aspects of a Muslims life as well as the type of investments permitted to invest their money. For example, interests are measured according to the Riba rule hence bonds are prohibited to investors ensuing the Sharia law. A Shariah fund is an investment vehicle, and real estate fund organized by following Islamic rules. To capitalize in common stocks in firms involved in the halal companies. Firms are also screened to make sure of Shariah acquiescent accounting ethics (refer Fig 1).

![Capital Market Structure in India](https://rmoneyindia.com)

Financial exchange assumes a significant part for the monetary improvement of a provincial, by appropriately diverting the assets for beneficial reason. The recommendation that an all around controlled stock trade broadens critical monetary administrations is currently generally acknowledged and perceived by different academicians.
Securities exchange helps economy likewise as individual financial backers by activating the scant assets and allotment in those areas, which utilize them ideally. Financial exchange helps singular financial backers by giving ceaseless commercial center to protections. According to financial perspective, a very much created securities exchange has been viewed as imperative for monetary development just as upgrades in nation's efficiency. The advancement of a nation can be decided by determining the financial exchange markers like liquidity, resource valuing and turnover. Moreover, by guaranteeing a free and reasonable exchanging of stocks and execution of estimating system, by guaranteeing a proper profit from speculation will guarantee feasible venture openings, in the securities exchanges goes about as a main thrust for directing reserve funds into productive speculation and thus, guarantees an ideal designation of capital. Lately, there has been more noteworthy trouble amidst investors, portfolio supervisors and scientists worried about the conduct of financial exchange costs. The financial backers are anxious to acquire a higher pace of profit from their ventures. Subsequently, to fulfill financial backer's assumptions, the portfolio supervisors need to take a gander at the securities exchange conditions distinctively and in like manner exhort financial backers and to build a sound portfolio. Our nation is accepted to be as one of the quickest exceptional business sectors on the planet with a grounded financial exchange with a long history of coordinated exchanging protections. In the course of the most recent couple of years, cutting edge innovation and online based exchanges have modernized the stock trades while, regarding the quantity of organizations recorded and absolute market capitalization, the New Delhi market is considered enormous comparative with the nation's phase of financial turn of events.

The subject of inconsistency in the financial exchange has pulled in the consideration of specialists for quite a while because of its capability of creating unusual returns during specific times of the year. Irregularity alludes to the standard and redundant variance in a period arrangement which happen occasionally over a range of not exactly a year. The presence of an articulated occasional conduct inside the market may propose a type of market shortcoming. The presence of irregularity in stock returns, nonetheless, abuses a significant theory in account, for example Effective Market Hypothesis (EMH) on the grounds that value costs are no longer irregular and might be anticipated upheld past design. The suggestion, "Stock returns are not unsurprising" was until as of late viewed as quite possibly the most solidly settled exact analysts on the conduct of stock returns. Nonetheless, the non-consistency recommendation has been addressed as of late and subsequently certain abnormalities in the conduct of profits, for example, Week-of-the Month Effect, Day-of-the Week Effect, Intra-day Effect, Size Effect, Tax-year Effect, Turn-of-the Year Effect, January Effect, Monthly Effect, Turn-of-the Month Effect and Price-Earning Ratio Effect and some others have been noticed. These peculiarities negate the presence of Efficient Market Hypothesis. In this way, in the current examination a sincere endeavor has been made to discover whether Anomalies exists in BSE Sensex, NSE Index, BSE and NSE Sectoral files and if exists, nature of oddity exists in Indian Stock Market. In the event that the market is proficient, there exists some market effectivenesses inconsistencies, the financial backers can acquire some strange returns by utilizing deliberately systems inside the market. A major blast has been seen in Stock Markets lately. An enormous number of most recent players have entered the market and attempting to acknowledge piece of the pie during this quick improving business sector. Investigation of oddities help the financial backers in exploiting the inconsistency of data on the lookout. Financial backers may have opportunities to utilize the schedule irregularities to procure unusual return. The developments of stocks during specific seasons, specifically financial exchanges can be noticed and ventures should be possible in like manner. The oddities could be distinguished by contemplating the value developments of the stock and the financial backers can contribute astutely during these occasions to procure unusual returns.

The previous 15 years of the Indian securities exchange can be considered as the main piece of the set of experiences where the market away through the post advancement period of Indian economy and saw the formation of Securities and Exchange Board of India. Which conveyed considerable straightforwardness in share market practices and consequently prevailing to get confidence of public financial backers as well as the worldwide ones. Securities exchange assumes a crucial part for the monetary advancement of a country, by appropriately directing the assets for profitable reason. The recommendation that an all around controlled financial exchange broadens huge monetary administrations is currently generally acknowledged and perceived by different academicians. Securities exchange helps economy just as individual financial backers by assembling the scant assets and distribution in those areas, which utilize them ideally. Financial exchange helps singular financial backers by giving nonstop market to protections. Financial exchange productivity is among the most investigated zones in account. Financial exchanges are viewed as productive instructive. The feeble type of market productivity expresses that it is absurd to expect to foresee stock cost and return developments utilizing past value information. Following Fama (1965; 1970), an immense number of studies were directed to test the
proficient market speculation (EMH). These investigations for the most part have shown that stock costs act arbitrarily. All the more as of late, notwithstanding, scientists have gathered proof contradicting to the EMH.

They have distinguished precise varieties in the stock returns. The significant abnormalities incorporate the Semi-Monthly impact and the occasional impact. The presence of the occasional impact denies the powerless type of the EMH and infers market failure. In a wasteful market financial backer would have the option to procure strange benefits, that is, returns that are not suitable with hazard. The idea of Shariah-agreeable records originally came up inside the 1960s; nonetheless, they need as of late got well known. All things considered, Shariah-agreeable resources represent under 1% of overall monetary resources, reliable with proficient administrations firm PwC. Shariah-agreeable files had the opportunity to submit to Shariah standards, which means they are for the most part limited from putting resources into organizations associated with selling liquor, pork items, erotic entertainment or weapons, additionally as those with betting interests. Any pay emerging from these sources should be given to good cause. By barring these regularly unpredictable areas – large numbers of which are impacted by political choices – these ETFs will in general be less unstable than others, and have outflanked in the course of recent years. Muslims address a couple of quarter of the total populace, which proposes the extension capability of such a contributing is enormous.

The principal Shariah-consistent records emerged in Malaysia inside the last part of the 1960s, trailed by the middle East inside the mid-1970s. The enormous players have all presented Shariah-consistent files, which are managed and endorsed by their separate Islamic administrative sheets. In 2009, the essential Shariah-consistent file was dispatched in South Africa, acquainting greater speculation prospects with the country's huge Muslim people group. Shariah-consistent lists aren't just intriguing venture choices for Muslims, yet additionally for non-Muslim financial backers since they will be less unpredictable than different systems. The Bombay securities exchange (BSE) inside the Indian city of Mumbai has dispatched a substitution list which comprises of organizations that meet the Islamic code. The Tasis Shariah 50 was framed utilizing rules from an Indian Shariah arranging board. Studies have tracked down that the dominant part Muslims in India are barred from the country's formal monetary area. That is on the grounds that shariah doesn't permit interest in organizations that sell merchandise like liquor, tobacco or weapons. Neither does it permit interest in organizations that infer critical exploit interest. The list is intended to be the thought for other Shariah-agreeable monetary items.

BSE chief and Chief Executive Madhu Kannan said that the new file would pull in Islamic and other "socially mindful"; financial backers both in India and abroad. This list will make expanded attention to money related speculations among the majority and help improve monetary incorporation, he said during an assertion. Organizations included inside the list are screened by Tasis, which is predicated in Mumbai and whose board individuals incorporate Islamic researchers and lawful specialists. Before anybody can draw in financial backers might want to put in situ institutional foundation, and having a file to follow Shariah-consistent stock is crucial, MH Khatkhatay, senior counselor to Tasis, told the Reuters press organization. On the off chance that you have an ETF (trade exchanged asset), for example, you might want a file, or if abroad financial backers need to take a situation in Shariah list in India, this is frequently a call for support for individuals to return and contribute. Tasis said the list would open the potential for Shariah interests in India.

The BSE has the primary number of recorded Sharia-pleasing stocks inside the world said Shariq Nisar, supervisor of investigation and exercises at Tasis. All Muslim countries of the center East and Pakistan set up don't have as many recorded Sharia-pleasing stocks as are open on the BSE. Stocks will be explored month to month to guarantee they really satisfy the rules – any which don't will be taken out. A Shariah List during a report of organizations that are discovered to be agreeable with the Islamic sanctioned law or the Shariah. Most Shariah records which are made so inaccessible are upheld a current or an essential document. The Overview of Islamic Banking and Finance in Asia are appeared in fig 2 and 3.
Whose constituents are evaluated for consistence by a board that is knowledgeable inside the guidelines of the Quran. How is that the screening done? The screening is finished at two levels, depending on the section that the corporate works in likewise as a couple of the working extents that the corporate works with, as clear in their yearly report. For event, all organizations during a particular record whose business ranges are pork, alcohol, wagering, financials, tobacco, erotica, trading of gold and silver as money on a yielded premise additionally as publicizing and media (notwithstanding every day papers and a couple of different cases which are analyzed on an individual reason), would be gotten out of the file. Likewise, the amount of commitment, money and thusly the degree of pay that is accumulated from resistant exercises is also thought about. A model, an enterprise may be consistent if the proportion of obligation to the market cost of value is a more modest sum than 33%.

The BSEand Mumbai-based Taqwaa Admonitory and Shariah Speculation Arrangements (Tasis) has moved India's to begin with esteem rundown of organizations that suits Sharia, the shariah. The BSE Tasis Shariah 50 two or three the driving organizations, checking TCS, Reliance Industries, ONGC and Bharti Airtel. Islamic laws don't permit hypothesis in organizations that advantage from interest pay or arrangement of alcohol, tobacco and weapons. Islamic back has continued to create regardless of a hardship of sureness in overall financial structures. Sharia-consistent assets rose by 8.85% from $822 billion of every 2009 to $895 billion out of 2010, agreeing to an outline of Islamic asset teach by The Investor. It's created at an accumulated yearly improvement pace of 23.46% from 2006 to 2010. The introduction of the BSE Tasis Shariah 50 File will offer help pull in pools of capital from the Gulf, Europe and South-East Asia. It'll likewise assemble a base for authorizing and development of Shariah agreeable monetary items, including common assets, says Madhu Kannan, MD, CEO, BSE.
II. REVIEW OF LITERATURE
Muhammad Shahid Iqbal, Rehana Kouser, and Muhammad Azeem (2013) in their study discover that significant Ramadan effect, and TOM effect in Karachi Stock Exchange. Calendar anomaly does exist in the Pakistan stock market. Silva, P. M (2010) in his study found that the calendar anomaly does exist in the Portuguese stock market. Anwar Halari a, Nongnuch Tantisantiwong, etc (2018) in their study found that calendar anomalies exit all Islamic months in Pakistan. Halari, Anwar, etc in their study found that calendar anomalies exist in Pakistan particularly Ramadan Month. Nida Shah, and etc (2017) in their study found that to buy the shares in Zil-Haj month and selling the later Month to earn a higher return in Pakistan. Denis O. Boudreaux (1995) in his study observed that monthly effect was exist in the Danish, Norwegian and German markets. Mihir Dash, and etc (2011) in their study evidence that the monthly effect does exists in Indian stock markets. Nageswari. P, and etc (2013) in their study evidences that the monthly effect and tax loss hypothesis does occur in the Indian stock market[52][53]. Pandey. IM (2002) in his study confirms that January effect of stock return does exist in India. Sarbapriya (2012) in her study proves that the monthly effect is observed in Indian stock market.

III. OBJECTIVE OF THE STUDY
To identify the Monthly effect in Shariah index.

IV. RESEARCH METHODOLOGY
The research is analytical in nature’ Shariah index was computed since 2009 in NSE Nifty. Historical data collected for the period ranging between January 2009 and March 2019 [1-33].

V. TOOLS FOR ANALYSIS
The data have been examined by making use of Returns, Descriptive statistics

VI. ANALYSIS AND INTERPRETATION

<table>
<thead>
<tr>
<th>TABLE I</th>
<th>MONTHLY EFFECT – SHARIAH INDEX</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>April</td>
<td>2.2245</td>
</tr>
<tr>
<td>May</td>
<td>3.6207</td>
</tr>
<tr>
<td>June</td>
<td>3.7039</td>
</tr>
<tr>
<td>July</td>
<td>1.1633</td>
</tr>
<tr>
<td>August</td>
<td>-0.013</td>
</tr>
<tr>
<td>September</td>
<td>4.9225</td>
</tr>
<tr>
<td>October</td>
<td>1.2664</td>
</tr>
<tr>
<td>November</td>
<td>0.1884</td>
</tr>
<tr>
<td>December</td>
<td>1.4318</td>
</tr>
<tr>
<td>January</td>
<td>-0.065</td>
</tr>
<tr>
<td>February</td>
<td>0.506</td>
</tr>
<tr>
<td>March</td>
<td>1.200</td>
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<tr>
<td>ShapiroWilk test :0.000</td>
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</table>
Source –Collected and computed through NSE web portal

High mean yields were noted in the Month of September (4.9225) and low mean yields were noted in the Month of January (-0.0653). Whereas compare to variance, high volatility was noted on the Month of May (115.772) and low volatility was noted in the Month of June (10.881). Skewness test revealed the positive value and it was noted during the Month of April (2.054), May (2.022), June (.408), July (1.058), November (0.088) and March (0.203) returns, which implies that most of the April, May, June, July, November and March month yields were more than the average yields.
The other Month’s yields were initiate negative Skewness, which implies that most of the Other Month’s yields were fewer than the average yields. The Kurtosis outcomes of the Shariah index yields were found leptokurtic in the Month of April (4.183) and May (4.327) returns. The other Month’s returns were found platykurtic. The Calculated P value of the ShapiroWilk test of Shariah index returns is fewer than 0.01, it is evidently showed that the figures are not normally scattered. Hence, anomaly occurs in Shariah index returns. Our outcomes do confirm the April effect for Shariah index. The average returns for March are low as related to the April average returns. This indication is reliable with the ‘tax-loss-selling’ hypothesis. It seems that investors in India sell stocks that have weakened in values, and book losses to save taxes. This reasons stake prices to weakening in March those results in lesser returns.

VII. SUGGESTIONS

High returns are noticed on September month; Hence, investors may prefer to stocks buy on January and August and sell them on September, May and June Month. There are various other factors to be considered before investing. We also suggest that the same can be applied in minimum number stocks and expand the same on blue-chips base on the risks and rewards. The Indian investor needs to study the publicly available evidence cautiously because it plays a vital part in the Market Effectiveness and changes in the market. The current study would be useful for native and foreign investors, traders and arbitragers who invent the profitable trading strategy in the stock market.

VIII. CONCLUSION

The results our investigation affirms the April effect for Shariah list. The normal returns for March are low as identified with the April normal returns. This sign is solid with the ‘charge misfortune selling’ speculation. The results affirm the presence of Monthly Effect in Shariah file. The investigation raises questions on the EMH which situations with stock costs are irregular and those financial backers can't get odd benefits utilizing authentic costs. The NSE Shariah designs consequently and instability can capable financial backers to take advantage of relatively customary market changes by manipulative and executing exchanging strategies, which justification such expectable structures. The existent speculations are insufficient in demonstrating financial exchange. The securities exchange is loaded with abnormalities. In the event that the market isn't proficient, financial backers can make benefit by breaking down the notable information. By diving in to huge information you can uncover a lot of failure which can be to make in to significant yields. By finding these shortcomings you can make the framework more proficient.

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