URKUND

Document Information

Analyzed document	IJIEF paper 1.docx (D74454462)
Submitted	6/9/2020 6:24:00 AM
Submitted by	Dr. Mohammad Irfan
Submitter email	mohammad.irfan@aurouniversity.edu.in
Similarity	19%
Analysis address	mohammad.irfan.auro@analysis.urkund.com

Sources included in the report

W	URL: https://www1.nseindia.com/content/indices/Method_Nifty_Shariah_Indices.pdf Fetched: 6/9/2020 6:25:00 AM	⊞	2
W	URL: https://www.researchgate.net/publication/318788912_A_Study_of_Islamic_Stock_Indice … Fetched: 3/11/2020 6:24:37 AM	⊞	3
W	URL: https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf Fetched: 5/2/2020 12:50:20 PM	⊞	6
W	URL: https://bspace.buid.ac.ae/bitstream/1234/744/1/100102.pdf Fetched: 5/4/2020 1:14:32 PM	⊞	3
W	URL: https://docplayer.net/148296861-Economicgrowthandmacroeconomicfundamentalsevidence … Fetched: 5/4/2020 11:45:59 AM	⊞	2

Entire Document

DO GOOGLE TRENDS AND SHARIAH COMPLIANT STOCKS CO-INTEGRATED? AN EVIDENCE FROM INDIA

ABSTRACT The objective of study is to understand the dynamic relationship between Shariah compliant stocks and Google search value index (GSVI). The search strength is identified by search volume of Shariah compliant stocks on the Google. The sample for study consists of Shariah compliant stocks commonly available in all the three Shariah indices in India, sample stock data has been extracted on weekly basis from Sept 2014 to Sept 2019. The results of the study are based on the diagnostic analysis suggests that there is no serial correlation as demonstrated by LM residual test, CUSUM test shows stability in data, coefficient Wald test is showing there is no short run causality running between selected Shariah compliant stocks and GSVI. The outcome suggests that there is a long run equilibrium relationship existing between Shariah compliant stocks and Google search value index. Trace statistics has five co-integration equations and Max-Eigen statistics has one co-integration. Vector error correction model (VECM) suggests the acceptability of model. There are many potential investment opportunities for the investors in Islamic stock market of India. The motive of Shariah is to provide an avenue for ethical and viable investment to the investors. This study will not only be advantageous for the Muslim investors, but also the other investors, industrialist, Shariah compliants advisor as well. JEL classification: G10, G17 Keywords: Nifty Shariah Indices, Google trends, Co-integration, Granger Causality.

1. INTRODUCTION 1.1 Background of the study

Google is not limited to the search engine. Many of researchers have proved that, it is like a barometer of public opinion and the voice of the world at any given point of time. Google trends track the frequency of search terms entered in Google. Analytics revealed that Google trends track the seasonal pattern, it also helps in the making strategy for investing in the stock market CITATION Str13 \l 1033 (Stromberg, 2013). Google is the well-known search engine all over the world. It maintains records of search statistic for items or terms and reflects them in Google trends. In previous years Google searches have been used as a proxy for investor attention and also used to measure the sentiment of the investors and customer attention CITATION Lau15 \l 1033 (Laurens, Glenn, & Eirik, 2015). Nowadays, with the help of advancement in technology like the internet, the use of Google search has increased. Internet has become the core source of information for people across the world. Google trends collects the data of the user's behavior, most recent search terms, etc. In the search items some of the data are publicly available on Google trends. In terms of global scale this data tells very important aspects about human information gathering activities. Its open new opportunities to identify collective decision making CITATION Cur13 \l 1033 (Curme, Stanley, Moat, & Preis, 2014). In the past, it was very difficult to predict stock market trends. The stock market is definitely affected by the macro-micro condition of the countries and for this historical data was used in forecasting stock market movements. In the present context, Google search value index (GSVI) becomes more popular term, people are tend to seek data or information from the Internet and express opinions on social networks CITATION Tip28 \l 1033 (The Invest, 28). Google trends permit researchers to analyze terms which are frequently searched. It helps in explaining search volume terms like bullish and bearish. It helps in drawing the sentiment index of the investors. In investment research Google trends data are play an important role and open exciting frontiers of the research in the stock market return. It are starts with a Google search which stock gives highest return or stable. Google trends also explore the how many new investors enter into the market in most recent yearsCITATION Usi18 \l 1033 (Seeking Alpha, 2018). The sentiment of the investors is the good sign for other investors for trading in the stock market. With the invention of internet technology it becomes easy to find availability of information also the recently observed sentiment of the market, all this information people can get easily with the help of online search invention. Investor sentiments are studied based on the search keywords about companies CITATION Dim17 \l 1033 (Dimpfl & Kleiman, 2017). The term Buy, most of them used with respective company name, when people search for this type of data it indicates the investor interest in that particular company. Google trends are such an amazing tool for gathering vast data. Most of the decisions of the investors are also made up by this type of searchCITATION Kri18 \l 1033 (Krishnan, V, & Sureshkumar, 2018).

Shariah Compliant Indices in India Shariah Indices consist of socially responsible investment (SRI) products in India. The SRI offer the product to those who wants to invest in Shariah compliant stocks. Shariah compliant stocks are not only attractive to Muslim investors but also Non-Muslim

68%	MATCHING BLOCK 1/16	W	https://www1.nseindia.com/content/indices/Meth ...

investors, these instruments are based on the Islamic faith to invest without violating their religious principles

of the IslamCITATION Met18 \l 1033 (NSE Indices, 2018).

Nifty500 Shariah Index Sources: CITATION NIF19 \l 1033 (NIFTY500 Shariah index, 2019) The

83%	MATCHING BLOCK 2/16	W	https://www1.nseindia.com/content/indices/Meth ...

NIFTY500 Shariah index covers more than 90% of the total market capitalization and 80% of total traded volume on the

NSEs. Shariah Indices are screened by Shariah principlesCITATION Met18 \l 1033 (NSE Indices, 2018).

Nifty50 Shariah Index This index is based on the principle of Shariah compliant and also screened by Shariah compliance. Nifty50 Shariah track the performance of parent indexCITATION Met18 \l 1033 (NSE Indices, 2018).

Sources: CITATION NIF191 \l 1033 (NIFTY50 Shariah index, 2019)

Nify25 Shariah Index Nifty25 Shariah index is independent and have fixed number of scripts in it. This index is different from the Nifty500 Shariah and Nifty50 Shraih Indiex. It does not give the open platforms to the all constituentsCITATION Met18 \l 1033 (NSE Indices, 2018).

Sources: CITATION NIF192 \l 1033 (NIFTY Shariah 25, 2019)

Research Gap

The current study focuses upon examing the relationship between the google search queries of the Sariah compliant stocks and their volatility by investigating the causality and the extent of responsiveness of Islamic stocks and GSVI. This relationship is important for two reasons viz, for investors to know the impact of google trends on the Islamic stock market in India and for governments to take precautionary action to avoid the possible financial downturn in their respective countries due to investor perception based on google trends.

1.2 Objective of the Study

• The objective of study is to understand the dynamic relationship between Shariah compliant stocks and google trend (GSVI).

2. LITERATURE REVIEWS ON EMPIRICAL STUDIES 2.1 Background of theory

There are a number of studies discussed about the Google search queries (GSVI). The objective of the study is examine the relationship between Shariah compliant stocks and Google search index value (GSVI). In the past, it works as assets pricing model on the basis of efficient market hypothesis. Efficient market covers the market price which reflects all the available information (Fama 1976). In the real world investors do not have the access of all the information, but now-a-days, anyhow they have collected the week information, semi-strong information and strong information. But important thing is, which information is directly associated with your problem and solution, as this intention is called cognitive activity (Kahneman 1973). This reality may determine the efficient market hypothesis, and then invite the question to the investors, and what extent market prices are reflects according to the interest of the investors. According to Merton (1987), investors intention is directly associated with the stock prices and its liquidity. It is really difficult to measure the degree of investor's intention. Here, Google trends is provide the online services to measure the investor's intention. (Takeda & Wakao, 2014) Analyzes the relationship between intensity of online search and behavior of stock-trading. Data were gathered from 189 Japanese stocks, period ranging from 2008 to 2011. The result of the study revealed that there is strongly positive correlation between weakly positive stock returns and trading volume. It also suggested that increases of trading activity associated with the increase of search activity. 2.2 Previous Studies

CITATION Aou13 \l 1033 (Aouadi, Arouri, & Teulon, 2013) Found that the influence of investor attention to stock market volatility. The French stock market data were used for the study. On the basis of investors' online search behavior, researcher constructs a non-standard proxy of investor attention. Result of the study shows that there is strong correlation between trading volume and investor attention.

(Smet, 2015-16) Identified profitable trading strategy using internet search engine data. Author also tried to construct a profitable trading model by using search volume data. The study found that there is correlation between market index returns and search volumes changes. It is also revealed that degree of financial relevance and performance of a word is positively correlated with each other.

CITATION Goo15 \l 1033 (Tower, 2015) Predict stock movements within the tech sector using Google search volume Index. The study were used weekly data from April 2004 to March 2015. Within this, three different time periods correlations was established. Result of the study shows that there is strong positive correlation between weekly trading volume and Google SVI.

CITATION Lau15 \l 1033 (Laurens, Glenn, & Eirik, 2015) Forecast stock returns of different time period by using google search statistic and also identify trading strategies by using their models. They used Google search data of daily, weekly and quarterly. The data were collected from the period ranging from 2010 to 2014. The result of the study found that there is short-term positive relationship between daily searches and excess stock returns.

CITATION Dim17 \l 1033 (Dimpfl & Kleiman, 2017) Identify relationship between German stock market and sentiment of retail investors. Authors analyzed the sentiment captured by the IPIs of weekly changes in the predictive power. Study found that an increase in retail investor pessimism is accompanied by decreasing contemporaneous market returns and an increase in volatility and trading volume. Future returns tend to increase while future volatility and trading volume decrease.

CITATION Kha19 \l 1033 (Khan & Ahmad, 2019) Identify lead−lag relationship between returns of the market and sentiment of the investors. Data were gathered from stock market of Pakistan, from the period of 2006 to 2016. The study reveals nine indirect proxies and other direct proxy on Google search volume index. It finds sufficient evidence of irrational behavior of investors in the thin market of Pakistan.

CITATION Cur13 \l 1033 (Curme, Stanley, Moat, & Preis, 2014) Analyze stock market moves with search value index. Data were collected from 2004 to 2012 yearly. Research reveals that there is a relationship between stock market moves and internet search. Which is related to business and politics. It also found that stock market falls because of increase in search volume by general people.

CITATION Dim11 \l 1033 (Dimp & Jank, 2011) Identify stock market volatility and retail investor's attention by queries of internet search. The researcher found that Search queries are useful to predict volatility. It also improves the different forecasting horizons in-sample and out-of-sample as well. Search queries contain additional information about market volatility.

CITATION Lat132 \l 1033 (Latoeiro, Ramos, & Veiga, 2013) Predict stock market activity using web search queries. Researcher used the data from European stock market. Study found that an increase for web search queries for the market index leads to a decrease in the returns of the index as well as of the stock index futures and an increase in implied volatility.

CITATION Cur13 \l 1033 (Curme, Stanley, Moat, & Preis, 2014) Explore search terms related with finance by using Google query volumes. Result of the study found patterns that may be interpreted as ''early warning signs'' of stock market moves. It further explains that for better understanding of collective human behavior this behavioral set is very useful.

CITATION Bij16 \l 1033 (Bijl, Kringhaug, Molnár, & Sandvik, 2016) Explored the volatility of stock returns can be identified by using trends on Google. They further analyze trading strategy based on selling stocks with high Google search volumes and buying stocks with infrequent Google searches. The data were collected from the period 2008 to 2013. Result of the study declared that it leads negative return when there is high search on Google. Research further finds that when transaction cost is not including this strategy becomes useful.

CITATION Nas19 \l 1033 (Nasir, Huynh, Nguyen, & Duong, 2019) Used search values on Google trends to predict returns and volume of Bitcoin. Data were gathered from the period 2013 to 2017. The study revealed that the when there is increase in frequency of Google search tend to give positive result and it increase trading volume of Bitcoin.

CITATION Oli \l 1033 (Oliveira, Cortez, & Areal, 2013) Analyzes the six major stocks. They developed several indicators and also identify value of three markets variables. Basically they are returns, volatility and trading volume. Data from stock twist were used in this study. Research found that there is no evidence of return predictability using sentiment indicators, and of information content of posting volume for forecasting volatility. It also suggested that posting volume can improve the forecasts of trading volume.

(Huang, Rojas, & Convery 2019) Investigate the different terms for S&P 500, researcher used the relative volume of Google searches. Kaplan- Meier test used for analyses. Study declared that there is high persistence relationship between search trend data and the stock market series.

CITATION XuS \l 1033 (Selene, 2018) Predict weekly changes in stock price using data from Google trend website and the Yahoo finance website. It used the conventional time series analysis technique. Data were collected events related to a selected stock and news. The result of the study shows the significant correlation between important news/events computed from the Google trend website and the changes in weekly stock prices.

3. METHODOLOGY

3.1 Data used

Present study shows that the online search value intensity to measure the degree of investors' interest on the particular item. Data were collected from the Google Trends (https://trends.google.com/trends/) (Bank et al. 2011). Google Trends provided time series data is called GSVI (Google search value index) on the behalf of frequency of searches of a specific keywords viz., companies/Industries/indices/stock market at a time and location specified by the user (Joseph et al. 2011). GSVI has given time series data in numbers, which is in the scale of 0 and 100 (Takeda & Wakao, 2014). Solely secondary data has been used for the study pertaining to the Shariah compliant stocks from the Shariah Indices of India respectively Nifty500 Shairah, Nifty50 Shariah and Nifty25 Shariah Index. Shariah Indices were working since 2007 in India. The aim of study is to examine the relationship between google search index value and Shariah compliant stocks movements in India. The sample of study consists of 10 Shariah compliant stocks, which are commonly available in the all the three Shariah indices in India. The data is spread over the six years from Sept 2014 to Sept 2019 with 261 weekly data points of the observations. The weekly price information on Shariah indices including Shariah compliant stocks data collected from Yahoo finance and Google search value index collected from Google trends. 3.2 Model Development The data extracted of selected Shariah compliant stocks from the premier source for global media property i.e. Yahoo! network special from the Yahoo! Finance. Google trends : Analyses the propolarity of top search queries (Da et al. 2011). More recent studies have used aggregate the search value frequency in Google trends. Investors search intention world wide data have been collected from google trends (Joseph et al. 2011). Table:1, shows that the search keywords on Google finance and Yahoo! Finance.

Table 1. Indices Shariah Compliant Stocks Yahoo Finance Google Trends Nifty Shariah25, Nifty50 Shariah, Nifty500 Shariah

Infosys Ltd. INFY.NS Information Technology Consulting Co.

Tata Consultancy Services Ltd. TCS.NS Information Technology Consulting Co.

Hindustan Unilever Ltd. HINDUNILVR.NS Hindustan Unilever Company

Asian Paints Ltd. ASIANPAINT.NS Asian Paints Company

HCL Technologies Ltd. HCLTECH.NS Information Technology Company

Titan Company Ltd. TITAN.NS Titan Company

Tech Mahindra Ltd. TECHM.NS Information Technology Company

Oil & Natural Gas Corporation Ltd. ONGC.NS Oil & Natural Gas Corporation Co.

Hero MotoCorp Ltd. HEROMOTOCO.NS Auto Maker Company

Britannia Industries Ltd. BRITANNIA.NS Food Company

3.3 Method used As per the direction of objective, this study is based on time series data. There is requirement of smooth showing the data, first, researcher required to calculate the summary of statistics. The diagnostic analysis are based on three different test i.e., the residual test, stability test and coefficient test. Residual test is demonstrated by LM Test, which shows that serial correlation. CUSUM test following the stability in the data and coefficient test depends upon the Wald test, which shows that the short run causality in the data. To check the stationary of data, then just go to used ADF test (Augmented Dickey−Fuller Test Statistic). To measure the indication of co-integration equations between the Shariah compliant stocks and Google trends (GSVI), adopted the Johansen co-integration test. To identify the casual relationship between selected Shariah compliance stocks and Google trends (GSVI), researcher run the Vector Error Correction Model (VECM) to know the acceptability of model.

4. EMPIRICAL RESULTS

Time series data analysis will carry the explained empirical finding, which will be follow the in the policy, implication and amendments are suggested. Which will be also unlock the new opportunities in broad area of Shariah compliance stocks and Google trends (GSVI).

4.1 Results Table 2, Descriptive statistics of Shariah Compliant Stocks Parameters Infosys TCS HUL Asian Paints HCL Titan Tech Mahi. ONGC Hero Moto Britannia Mean 575.33 1472.44 1168.33 1079.15 905.90 614.23 578.40 157.60 3070.73 1963.90 Std. Dev. 94.50 353.21 378.39 238.20 99.58 289.25 117.73 23.08 440.00 737.51 Kurtosis -0.37 -0.64 -1.28 -0.96 -0.77 -0.99 -1.10 -0.27 -1.11 -1.19 Skewness 0.81 0.99 0.58 0.13 0.29 0.68 0.24 0.25 0.24 0.26 Min. 442.15 1050.57 720.35 628.70 717.50 303.30 380.00 110.73 2292.55 665.90 Max. 840.15 2259.60 1881.90 1615.20 1143.05 1334.70 831.80 219.66 4047.30 3386.73

Parameters Log-Infosys log-TCS log-HUL log-Asian Paints log-HCL log-Titan log-Tech Mahi. log-ONGC log-Hero Motor log-Britannia Mean 0.27 0.23 0.39 0.37 0.15 0.46 0.12 -0.14 0.03 0.58 Std. Dev. 3.05 3.20 2.89 3.04 3.34 3.72 3.67 3.75 3.54 3.47 Kurtosis 0.36 0.44 1.63 0.55 2.02 3.72 1.78 1.82 0.41 1.20 Skewness -0.17 -0.13 0.43 -0.08 -0.54 0.67 -0.15 -0.16 0.36 0.02 Min. -8.48 -9.84 -7.94 -8.07 -13.35 -13.84 -16.89 -17.01 -9.17 -10.42 Max. 8.56 8.59 14.37 11.45 9.14 18.54 12.62 13.47 10.90 13.88

Table 2, in the outcomes of Shariah compliant stocks std. dev. are more than 3 in the all selected stocks meaning that all are highly risky stocks. In the case of skewness all are positive means all the stocks have high value more in comparison to the low values in time series. Summarizes the data in significant ways of the Shariah compliant stocks log. The standard deviation shows the volatility, which is morethan 3 percent, meaning that 9 selected Shairah stocks are high volatile, but only HUL has 2.89 Std. Dev. whichis less volatile.

data.

Table 3, Descriptive statistics of Google Search Value Index (GSVI) Parameters Infosys TCS HUL Asian Paints HCL Titan Tech Mahi. ONGC Hero Moto Britannia Mean 25.12 52.71 50.95 48.75 65.62 62.20 58.01 33.14 38.38 37.56 Std. Dev. 8.25 11.39 11.39 10.87 11.70 13.22 10.63 10.98 9.47 16.73 Kurtosis 28.00 1.55 2.25 2.04 0.30 -0.32 0.30 7.07 7.38 1.06 Skewness 3.90 1.15 1.36 1.01 0.82 0.77 0.58 2.19 1.93 1.34 Min. 14.00 33.00 33.00 31.00 39.00 41.00 34.00 18.00 26.00 17.00 Max. 100 100 100 100 100 100 100 100 100 100

Parameters Log-Infosys log-TCS log-HUL log-Asian Paints log-HCL log-Titan log-Tech Mahi. log-ONGC log-Hero Motor log-Britannia Mean 2.41 1.04 0.94 0.56 0.34 0.56 1.27 1.44 0.87 1.68 Std. Dev. 26.38 15.50 13.70 9.87 10.44 8.41 17.08 19.42 13.98 16.51 Kurtosis 27.94 2.46 1.37 3.47 2.24 0.91 4.47 1.81 100.79 1.15 Skewness 4.05 0.42 0.65 -0.69 0.83 0.60 1.18 0.75 7.48 0.68 Min. -47.06 -37.93 -31.91 -41.51 -28.33 -20.90 -40.35 -48.65 -63.00 -38.36 Max. 226.32 75.44 53.19 29.87 49.09 34.72 100.00 93.10 177.78 61.40

Table 3 summarizes the data in significant ways of the selected Shariah compliant of GSIV. Skewness of the distribution of GSIV and GSVI-log is positive right skewed that means no.

standard deviation shows the volatility of GSVI selected Shariah stocks, which is more than 3 percent, meaning that all selected Shariah stocks are highly volatile. In log series of GSVI summary reflection of row data.

Table 4, Unit Root Test on Shariah Compliant Stocks and GSVI Augmented Dickey-Fuller test statistic Null Hypothesis: 1% level 5% level 10% level t-Statistic Prob.*

Shariah compliant stocks has a unit root -3.455 -2.872 -2.573 -0.643 0.857 ASIAN_PAINTSG has a unit root -3.457 -2.873 -2.573 -9.592 0.115 BRITANNIAG has a unit root -3.455 -2.872 -2.573 -2.433 0.134 HCLG has a unit root -3.456 -2.873

-2.573 -2.728 0.171 HERO_MOTOG has a unit root -3.456 -2.873 -2.573 -3.426 0.111 HULG has a unit root -3.456 -2.873 -2.573 -1.467 0.549 INFOSYSG has a unit root -3.455 -2.872 -2.573 -7.643 0.146 ONGCG has a unit root -3.456 -2.873 -2.573 -8.600 0.113 TCSG has a unit root -3.456 -2.873 -2.573 -7.335 0.254 TECH_MAHINDRAG has a unit root -3.456 -2.873 -2.573 -3.912 0.233 TITANG has a unit root -3.456 -2.873 -2.573 -1.003 0.753

Table 4 the results of Augmented Dickey-Fuller (ADF) test for selected Shariah compliant stock benchmark. As shown, the null hypothesis of non-stationarity for the ADF tests is accept, indicating that Shariah compliant stocks data are non-stationary in level. P-value is more than 5%. Meaning that all-time series data become non stationary after applying the coefficient should be negative and p-value should be less than 5%. Although researcher can run the further test of co-integration.

4.2 Robustness test of Shariah Compliant stocks and GSVI

Table 5,

83%	MATCHING BLOCK 5/16	W	https://mpra.ub.uni-muenchen.de/75966/1/MPRA_p ...

Breusch-Godfrey Serial Correlation LM Test ASIAN PAINTS F-statistic 8.857 Prob. F(2,256) 0.200 Obs*R-squared 16.827 Prob. Chi-Square(2) 0.300

BRITANNIA

57%	MATCHING BLOCK 6/16	W	https://mpra.ub.uni-muenchen.de/75966/1/MPRA_p ...

F-statistic 0.190 Prob. F(2,256) 0.828 Obs*R-squared 0.384 Prob. Chi-Square(2) 0.825 HCL F-statistic 0.749 Prob. F(2,256) 0.474 Obs*R-squared 1.512 Prob. Chi-Square(2) 0.470 HERO MOTOR F-statistic 1.308 Prob. F(2,256) 0.272 Obs*R-squared 2.629 Prob. Chi-Square(2) 0.269 HUL F-statistic 0.719 Prob. F(2,256) 0.488 Obs*R-squared 1.452 Prob. Chi-Square(2) 0.484 INFOSYS F-statistic 0.984 Prob. F(2,256) 0.375 Obs*R-squared 1.984 Prob. Chi-Square(2) 0.371

ONGC

F-

66%	MATCHING BLOCK 7/16	W	https://mpra.ub.uni-muenchen.de/75966/1/MPRA_p ...

statistic 2.659 Prob. F(2,256) 0.072 Obs*R-squared 5.291 Prob. Chi-Square(2) 0.071 TCS F-statistic 0.667 Prob. F(2,256) 0.514 Obs*R-squared 1.348 Prob. Chi-Square(2) 0.510 TECH MAHINDRA F-statistic 1.853 Prob. F(2,256) 0.159 Obs*R-squared 3.710 Prob. Chi-Square(2) 0.156 TITAN F-statistic 0.540 Prob. F(2,256) 0.583 Obs*R-squared 1.093 Prob. Chi-Square(2) 0.579

Table 5,

shown that the residual diagnostic, first check the serial correlation in the data. Here, Observed R-squared and p-value is more than 5% in selected Shariah compliant stocks and GSVI, researcher cannot reject the null hypothesis rather accept the null hypothesis meaning that there is no serial correlation exist between the GSVI and Shariah compliant stocks.

Stability Diagnostic Pattern Chart Represent the stability diagnostic analysis by recursive estimation of CUSUM test and CUSUM of squares test, we can see the middle line of individual Shariah stocks in between the resistance and support line, meaning that there is stability in selected Shariah compliant stocks in with benchmark and GSVI. Brittannia, HCL, HUL and Titan data have stable in CUSUM test, in the other side Asian Paints, Hero Motors, ONGC, Infosys, TCS and Tech Mahindra have also shown stable in nature when we run the CUSUM of squares test.

Table 6, Wald Test Coefficient Diagnostic Shariah Compliant Stocks Test Statistic Value Df Probability ASIAN PAINTS F-statistic 1.048 (2, 258) 0.352

Chi-square 2.097 2 0.351 BRITANNIA F-statistic 5.725 (2, 258) 0.004

Chi-square 11.449 2 0.003 HCL F-statistic 0.513 (2, 258) 0.599

Chi-square 1.026 2 0.599 HERO MOTOR F-statistic 0.243 (2, 258) 0.784

Chi-square 0.486 2 0.784 HUL F-statistic 3.280 (2, 258) 0.039

Chi-square 6.561 2 0.038 INFOSYS F-statistic 1.732 (2, 258) 0.179

Chi-square 3.464 2 0.177 ONGC F-statistic 1.644 (2, 258) 0.195

Chi-square 3.288 2 0.193 TCS F-statistic 0.769 (2, 258) 0.465

Chi-square 1.538 2 0.463 TECH MAHINDRA F-statistic 0.233 (2, 258) 0.792

Chi-square 0.467 2 0.792 TITAN F-statistic 6.093 (2, 258) 0.003

Chi-square 12.185 2 0.002

Table 6, Coefficient diagnostic i.e., Wald test: Coefficient restrictions, here null hypothesis is C(1)=C(2)=0 jointly. Results are shown that accept the null hypothesis, there is no short run causality running between selected Shariah compliant stocks and GSVI. 4.3 Analysis Table 7, Lag Selection of Optimal Order

| 95% | MATCHING BLOCK 8/16 | W | https://bspace.buid.ac.ae/bitstream/1234/744/1 … |

Lag LogL LR FPE AIC SC HQ 0 -10118.24 0.000 3.9E+22 80.383 80.53 80.44 1 -9971.48 280.699 2.7E+22 80.012 81.552 80.632 2 -9851.461 220.036 2.7e+22* 79.86* 82.794* 81.036* 3 -9766.775 148.536 2.6E+22 79.974 84.316 81.721 4 -9687.641 132.519 3.1E+22 80.140 85.882 82.451 5 -9614.957 115.948 4.0

E+22 80.357 87.500 83.231 6 -9543.033 109.027 5.2E+22 80.580 89.123 84.017 7 -9462.665 115.450 6.4E+22 80.735 90.679 84.737 8 -9368.131 128.2963* 7.2E+22 80.779 92.123 85.344 Table 7, Here * indicate lag order selected by criteria. In the first case of LR * indicate on the 8 lag, meaning that 8 lag should be chosen. Second criteria is FPE * indicate on the 2 lag, in the case of AIC, selection criteria is lower the value better the model meaning that lag 2 is chosen. Same criteria followed SC and HQ, lower the values better the model. According to the SC and HQ lag 2 should be selected. Now actually all criteria are good, but here majority of criteria recommended that 2. The optimum lag would be 2, researchers shall be using the 2 lag for the Johnson test and vector auto regression.

Table 8, Johansen Test of Co-integration of Shariah Compliant Stocks and GSVI Hypothesized Eigenvalue

Trace Statistic Critical Value 0.05 Prob.**

| 80% | MATCHING BLOCK 9/16 | W | https://bspace.buid.ac.ae/bitstream/1234/744/1 … |

No. of CE(s) None * 0.274 371.705 285.143 0.000 At most 1 * 0.215 289.749 239.235 0.000 At most 2 * 0.203 227.845 197.371 0.001 At most 3 * 0.155 169.856 159.530 0.012 At most 4 * 0.123 126.783 125.615 0.042

At most 5 0.098 93.152 95.754 0.075 At most 6 0.090 66.885 69.819 0.084

At most 7 0.070 42.637 47.856 0.142

| 75% | MATCHING BLOCK 10/16 | W | https://mpra.ub.uni-muenchen.de/75966/1/MPRA_p … |

At most 8 0.047 24.184 29.797 0.193 At most 9 0.043 11.787 15.495 0.167 At most 10 0.002 0.428 3.841 0.513 Trace test is indicates 5 co-integrating equation(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

The

outcomes of table 8 shown that there are 5 co-integration equation exist between Shariah compliant stocks GSVI. Meaning that there is long run relationship with in two cluster.

Table 9, Johansen Test, of Co-integration of Shariah Compliant Stocks and GSVI Hypothesized Eigenvalue Max Eigenvalue

Critical Value 0.05 Prob.**

No. of CE(s) None * 0.274 81.955 70.535 0.003 At most 1 0.215 61.904 64.505 0.087 At most 2 0.203 57.990 58.434 0.055 At most 3 0.155 43.073 52.363 0.321 At most 4 0.123 33.631 46.231 0.549

At most 5 0.098 26.267 40.078 0.684 At most 6 0.090 24.248 33.877 0.438 At most 7 0.070 18.453 27.584 0.458

At most 8 0.047 12.397 21.132 0.509 At most 9 0.043 11.359 14.265 0.137 At most 10 0.002 0.428 3.841 0.513 Max Eigen value test Statistics is indicates 1 co-integrating equation(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

The outcomes of the Johansen's

Max Eigen-value tests are shown in Table 9 where it is found that there is 1 co-integration equation among Shariah compliant stocks and GSVI. Therefore, it can be concluded that there is long-run or equilibrium relationship between selected Shariah compliant stocks and GSVI. Table 10, Vector Error Correction Model (VECM) of Shariah Compliant stocks and GSVI Parameters

Coefficient Std. Error t-Statistic Prob. C(1) -0.004 0.004 -0.925 0.026 C(2) -0.031 0.067 -0.470 0.064 C(3) -0.002 0.067 -0.031 0.075 C(4) -0.335 0.358 -0.936 0.035 C(5) -0.165 0.335 -0.492 0.052 C(6) -0.238 0.245 -0.969 0.033 C(7) -0.126 0.250 -0.502 0.062 C(8) -0.428 0.281 -1.527 0.013 C(9) -0.363 0.281 -1.290 0.020 C(10) -0.180 0.284 -0.634 0.053 C(11) -0.198 0.243 -0.814 0.042

C(12) -0.375 0.274 -1.366 0.017 C(13) -0.096 0.239 -0.401 0.069 C(14) -0.100 0.218 -0.457 0.065 C(15) -0.035 0.216 -0.163 0.071

C(16) 0.178 0.203 0.874 0.138

C(17) -0.159 0.200 -0.794 0.043

C(18) 0.176 0.176 1.002 0.172 C(19) -0.014 0.175 -0.081 0.036 C(20) -0.322 0.198 -1.626 0.011 C(21) 0.006 0.194 0.033 0.073 C(22) -0.060 0.275 -0.217 0.053 C(23) -0.172 0.286 -0.601 0.055 C(24) 2.320 1.417 1.637 0.100 R-squared 0.582 Mean dependent var 2.227542 Adjt R-squared 0.571 S.D. dependent var 22.12054 S.E. of regression 22.378 Akaike info criterion 9.142467 Sum squared resid 117184 Schwarz criterion 9.472975 Log likelihood -1358.2 Hannan-Quinn criter. 9.275366 F-statistic 0.744 Durbin-Watson stat 2.004435 Prob(F-statistic) 0.045

Table 10, after the analyzing the results co-integration, Researcher found that there is co-integration equations in between Shariah compliant stocks and GSVI. Now researcher identify the error correction term i.e., VECM model. The outcome of error correction term found that C(1) to C(24) coefficient are

negative in sign and significant. Meaning that there is long run causality running

in between Shariah compliant stocks and GSVI. In this model value of R square is 58 percent which near to 60 percent so Model is fit. F-statistic of p-value it is significant 0.045 which is less 5 than percent so accept the model.

5. DISCUSSION The objective of this paper is to examine the relationship among selected Shariah compliant stocks and GSVI. Diagnostic analysis using by the coefficient, residual and stability for judge the short run causality in the data. This

paper found that there is no serial correlation, no short run causality, data are stable in the nature. ADF test shown that there is non stationarity in two set of data i.e., selected Shariah compliant stocks and GSVI. There is co-integration relationship (long term equilibrium) within Shariah compliant stocks and GSVI, and also have 5 co-integration equation between the cluster of Shraiah compliant stocks and cluster of GSVI (Takeda & Wakao, 2014). There is no short run relationship exist between the Shariah complaint stocks and GSVI, but have long run relationship between the clusters CITATION Kha19 \l 1033 (Khan & Ahmad, 2019). This study creates scope for both local and international investors to diversify their Islamic Investment portfolios, which will put Shariah compliant stocks in India as one of their investment destination. VECM shows that model is fit.

5.1 CONCLUSION The results of the study, leads to the conclusion that the returns of Shariah compliant stocks are more volatile in comparison of GSVI. Skewness measure the distribution of Infosys, TCS, Asian Paints, HCl, Tech Mahi, ONGC data are negative left skewed that means no. of low values are more in comparison high values in Shariah compliant stocks. Skewness of GSIV and GSVI-log is positive right skewed that means no.

96%	MATCHING BLOCK 16/16	W	https://www.researchgate.net/publication/31878 …

of high values are more in comparison low values in the time series data.

Robustness test shows that there is no serial correlation between Shariah compliant stocks and GSVI. Shariah compliant stocks and GSVI have stability in the time series data. There is no short run relationship, but it influenced the long run relationship. Vector error correction model shows that the model is fit. To conclude, there are many potential investment opportunities in Islamic stock markets for the investors. Small investors can invest separately in different Shariah compliant stocks, because policy and implications do not have an impact on it. The motive of Shariah is to provide an avenue for ethical and viable investment to the investors. As it is found that Shariah stocks are homogeneous in nature, in the sense of selection criteria only otherwise individual Shariah stock has its own justification of returns and sustainable growth.

5.2 Recommendation Future Direction for Research: The present research work has been undertaken by considering the selected Shariah compliant stocks of and GSVI. The data extracted from the yahoo finance database on a weekly basis. The researchers in the future can take data for the different time period of the Shariah stocks can study the relation. Additionally, they chosen Sariah indices of the different countries like Malaysia, Indonesia, and analyze the volatility, VAR (Vector autoregressive model), Granger causality test. Social implications: The motive of Shariah compliant stock is to provide an avenue for ethical and viable investment to the investors. The perception of the investors about the Google trends (GSVI) analyses the popularity of top searching queries in the google over a time. Basically, google trends have high more values in comparison to the lower value, meaning that people are given importance to google search queries. The investors are suggested to make the investment decision in any of the three (Nifty500 Shariah, Nifty50 Shariah, Nifty25 Shariah) Shariah indices by studying them individually. This important information enables the investors to adjust their financial portfolio and also helps the respective market regulator. Google trends is a new platform for the seek the intention of the investor perception. This study will not only be advantageous for the Muslim investors, but also the other investors, Shariah practitioners, advisor, legal-regulatory firm and industrialist as well. REFERENCES

URKUND

Hit and source - focused comparison, Side by Side

Submitted text	As student entered the text in the submitted document.
Matching text	As the text appears in the source.

1/16	**SUBMITTED TEXT**	17 WORDS	**68%**	**MATCHING TEXT**	17 WORDS

investors, these instruments are based on the Islamic faith to invest without violating their religious principles

investors, as these instruments allow followers of the Islamic faith to invest without violating their religious principles.

W https://www1.nseindia.com/content/indices/Method_Nifty_Shariah_Indices.pdf

---

2/16	**SUBMITTED TEXT**	21 WORDS	**83%**	**MATCHING TEXT**	21 WORDS

NIFTY500 Shariah index covers more than 90% of the total market capitalization and 80% of total traded volume on the

NIFTY500 Shariah: The NIFTY 500 covers more than 90% of the total market capitalization and more than 80% of total traded volume on the

W https://www1.nseindia.com/content/indices/Method_Nifty_Shariah_Indices.pdf

---

3/16	**SUBMITTED TEXT**	33 WORDS	**31%**	**MATCHING TEXT**	33 WORDS

Skewness of the distribution of Infosys, TCS, Asian Paints, HCl, Tech Mahi, ONGC data are negative left skewed that means no. of low values are more in comparison high values in the

Skewness of the distribution of all macroeconomic variables and Islamic capital market data are positively right skewed that means number of high values are more in comparison to low values in the

W https://www.researchgate.net/publication/318788912_A_Study_of_Islamic_Stock_Indices_and_Macroecon ...

4/16	**SUBMITTED TEXT**	16 WORDS	**96%**	**MATCHING TEXT**	16 WORDS

of high values are more in comparison low values in the time series data. The

of high values are more in comparison to low values in the time series data. The

W https://www.researchgate.net/publication/318788912_A_Study_of_Islamic_Stock_Indices_and_Macroecon ...

SUBMITTED TEXT 136 WORDS **83% MATCHING TEXT** 136 WORDS

Breusch-Godfrey Serial Correlation LM Test ASIAN PAINTS F-statistic 8.857 Prob. F(2,256) 0.200 Obs*R-squared 16.827 Prob. Chi-Square(2) 0.300

Breusch-Godfrey Serial Correlation LM Test: F-statistic 0.224380 Prob. F(2,10) 0.8029 Obs*R-squared 0.987820 Prob. Chi-Square(2) 0.6102

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

SUBMITTED TEXT 552 WORDS **57% MATCHING TEXT** 552 WORDS

F-statistic 0.190 Prob. F(2,256) 0.828 Obs*R-squared 0.384 Prob. Chi-Square(2) 0.825 HCL F-statistic 0.749 Prob. F(2,256) 0.474 Obs*R-squared 1.512 Prob. Chi-Square(2) 0.470 HERO MOTOR F-statistic 1.308 Prob. F(2,256) 0.272 Obs*R-squared 2.629 Prob. Chi-Square(2) 0.269 HUL F-statistic 0.719 Prob. F(2,256) 0.488 Obs*R-squared 1.452 Prob. Chi-Square(2) 0.484 INFOSYS F-statistic 0.984 Prob. F(2,256) 0.375 Obs*R-squared 1.984 Prob. Chi-Square(2) 0.371

F-   statistic 0.450902 Prob. Obs*R-squared 8.075429 Prob. Chi-Square(12) 0.7792   explained SS 1.199706 Prob.   Chi-Square(12) 1.0000 Test: ARCH F-statistic 0.071099 Prob. F(2,18) 0.9316 Obs*R-squared 0.164598 Prob. Chi-Square(2) 0.9210 Heteroskedasticity Test: F-statistic 1.058711 Prob. F(12,10) 0.4707 Obs*R-squared 12.86986 Prob. Chi-Square(12) 0.3786 explained SS 9.579563 Chi-Square(12) 0.6528 Heteroskedasticity Test: Glejser statistic 0.631177 Prob. Obs*R-squared 9.912576 Prob. Chi-Square(12) 0.6236

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

SUBMITTED TEXT 445 WORDS **66% MATCHING TEXT** 445 WORDS

statistic 2.659 Prob. F(2,256) 0.072 Obs*R-squared 5.291 Prob. Chi-Square(2) 0.071 TCS F-statistic 0.667 Prob. F(2,256) 0.514 Obs*R-squared 1.348 Prob. Chi-Square(2) 0.510 TECH MAHINDRA F-statistic 1.853 Prob. F(2,256) 0.159 Obs*R-squared 3.710 Prob. Chi-Square(2) 0.156 TITAN F-statistic 0.540 Prob. F(2,256) 0.583 Obs*R-squared 1.093 Prob. Chi-Square(2) 0.579

statistic 0.450902 Prob. F(12,10) 0.9038 Obs*R-Prob. Chi-Scaled explained SS 1.199706 Prob. Chi-Square(12) 1.0000 Heteroskedasticity ARCH F-statistic 0.071099 Prob. F(2,18) 0.9316 Obs*R-squared 0.164598 Prob. Chi-Square(2) 0.9210   Heteroskedasticity Test: F-statistic 1.058711 Prob. F(12,10) 0.4707 Obs*R-squared 12.86986 Prob. Square(12) 0.3786 Scaled explained SS 9.579563 Prob. Chi-Square(12) 0.6528 Heteroskedasticity Test: F-statistic 0.631177 Prob. F(12,10) 0.7774 Obs*R-squared 9.912576 Prob. Chi-Square(12) 0.6236

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

UrKUND

Lag LogL LR FPE AIC SC HQ 0 -10118.24 0.000 3.9E+22 80.383 80.53 80.44 1 -9971.48 280.699 2.7E+22 80.012 81.552 80.632 2 -9851.461 220.036 2.7e+22* 79.86* 82.794* 81.036* 3 -9766.775 148.536 2.6E+22 79.974 84.316 81.721 4 -9687.641 132.519 3.1E+22 80.140 85.882 82.451 5 -9614.957 115.948 4.0

Lag LogL LR FPE AIC SC HQ 0 109.657 NA 1.23E-08 -4.025 -3.837 -3.953 1 516.558 719.902 5.16E-15 -18.713 -17.588 -18.282 2 566.698 79.067 2.02E-15 -19.68 -17.616* -18.889* 3 591.99 35.019 2.14e-15* -20.158* -16.218 -18.647 *

W https://bspace.buid.ac.ae/bitstream/1234/744/1/100102.pdf

No. of CE(s) None * 0.274 371.705 285.143 0.000 At most 1 * 0.215 289.749 239.235 0.000 At most 2 * 0.203 227.845 197.371 0.001 At most 3 * 0.155 169.856 159.530 0.012 At most 4 * 0.123 126.783 125.615 0.042

No. of CE(s) Eigenvalue Statistic Critical Value Prob.** None * 0.702 61.822 33.877 0.000 At most 1 0.386 24.877 27.584 0.107 At most 2 0.333 20.675 21.132 0.058 At most 3 0.229 13.274 14.265 0.071 At most 4 0.045 2.324 3.841 0.127

W https://bspace.buid.ac.ae/bitstream/1234/744/1/100102.pdf

At most 8 0.047 24.184 29.797 0.193 At most 9 0.043 11.787 15.495 0.167 At most 10 0.002 0.428 3.841 0.513 Trace test is indicates 5 co-integrating equation(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

At most 1 * 0.576441 33.73619 29.79707 0.0167   most 2 0.329718 13.97774 15.49471 0.0836 At Trace test   indicates 2   &n bsp;   cointegrating s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values 1

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

---

No. of CE(s) None * 0.274 81.955 70.535 0.003 At most 1 0.215 61.904 64.505 0.087 At most 2 0.203 57.990 58.434 0.055 At most 3 0.155 43.073 52.363 0.321 At most 4 0.123 33.631 46.231 0.549

No. of CE(s) Eigenvalue Statistic Critical Value Prob.** None * 0.702 61.822 33.877 0.000 At most 1 0.386 24.877 27.584 0.107 At most 2 0.333 20.675 21.132 0.058 At most 3 0.229 13.274 14.265 0.071 At most 4 0.045 2.324 3.841 0.127

W https://bspace.buid.ac.ae/bitstream/1234/744/1/100102.pdf

12/16 | **SUBMITTED TEXT** | 274 WORDS | **59%** **MATCHING TEXT** | 274 WORDS

SUBMITTED TEXT	MATCHING TEXT
At most 8 0.047 12.397 21.132 0.509 At most 9 0.043 11.359 14.265 0.137 At most 10 0.002 0.428 3.841 0.513 Max Eigen value test Statistics is indicates 1 co-integrating equation(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.	At most 1 * 0.576441 33.73619 29.79707 0.0167 11 At most 2 0.329718 13.97774 15.49471 0.0836 At most 3 * 0.187525 4.776421 3.841466 0.0288 Trace test indicates 2 cointegrating s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values 1

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

13/16 | **SUBMITTED TEXT** | 1184 WORDS | **100%** **MATCHING TEXT** | 1184 WORDS

SUBMITTED TEXT	MATCHING TEXT
Coefficient Std. Error t-Statistic Prob. C(1) -0.004 0.004 -0.925 0.026 C(2) -0.031 0.067 -0.470 0.064 C(3) -0.002 0.067 -0.031 0.075 C(4) -0.335 0.358 -0.936 0.035 C(5) -0.165 0.335 -0.492 0.052 C(6) -0.238 0.245 -0.969 0.033 C(7) -0.126 0.250 -0.502 0.062 C(8) -0.428 0.281 -1.527 0.013 C(9) -0.363 0.281 -1.290 0.020 C(10) -0.180 0.284 -0.634 0.053 C(11) -0.198 0.243 -0.814 0.042	Coefficient Std. Error t-Statistic Prob. C(1) 0.887376 1.045781 0.848529 0.4127 C(2) -1.169103 0.387541 -3.016721 0.0107 C(3) 1.134698 0.948253 1.196620 0.2546 C(4) -1.189003 0.620695 -1.915599 0.0795 C(5) 0.159053 0.711334 0.223598 0.8268 C(6) 0.136578 0.728304 0.187529 0.8544 C(7) -1.964493 1.147575 -1.711864 0.1126 C(8) -0.494156 1.070382 -0.461663 0.6526 C(9) 1.126319 0.652770 1.725446 0.1101 C(11) 0.040730 0.024043 1.694052 0.1160

W https://mpra.ub.uni-muenchen.de/75966/1/MPRA_paper_75966.pdf

14/16 | **SUBMITTED TEXT** | 1092 WORDS | **96%** **MATCHING TEXT** | 1092 WORDS

SUBMITTED TEXT	MATCHING TEXT
C(18) 0.176 0.176 1.002 0.172 C(19) -0.014 0.175 -0.081 0.036 C(20) -0.322 0.198 -1.626 0.011 C(21) 0.006 0.194 0.033 0.073 C(22) -0.060 0.275 -0.217 0.053 C(23) -0.172 0.286 -0.601 0.055 C(24) 2.320 1.417 1.637 0.100 R-squared 0.582 Mean dependent var 2.227542 Adjt R-squared 0.571 S.D. dependent var 22.12054 S.E. of regression 22.378 Akaike info criterion 9.142467 Sum squared resid 117184 Schwarz criterion 9.472975 Log likelihood -1358.2 Hannan-Quinn criter. 9.275366 F-statistic 0.744 Durbin-Watson stat 2.004435 Prob(F-statistic) 0.045	C(1) C(2) C(3) C(4) C(5) C(6) C(7) R-squared Mean dependent var Adjusted R-squared S.D. dependent var S.E. of regression Akaike info criterion Sum squared resid Schwarz criterion Log likelihood Hannan-Quinn criter F-statistic Durbin-Watson stat Prob(F-statistic) 15 24

W https://docplayer.net/148296861-Economicgrowthandmacroeconomicfundamentalsevidencefrombangladesh.html

| 15/16 | SUBMITTED TEXT | 14 WORDS | 76% | MATCHING TEXT | 14 WORDS |

negative in sign and significant. Meaning that there is long run causality running

negative in sign and significant, then we can say that, there is long run causality running

W https://docplayer.net/148296861-Economicgrowthandmacroeconomicfundamentalsevidencefrombangladesh.html

| 16/16 | SUBMITTED TEXT | 15 WORDS | 96% | MATCHING TEXT | 15 WORDS |

of high values are more in comparison low values in the time series data.

of high values are more in comparison to low values in the time series data.

W https://www.researchgate.net/publication/318788912_A_Study_of_Islamic_Stock_Indices_and_Macroecon ...