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LONG-RUN RELATIONSHIP BETWEEN ECONOMIC GROWTH AND STOCK RETURNS: AN EMPIRICAL INVESTIGATION.

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Abstract

The present research makes use of the Vector Error Correction Models (VECM) throughout the process of modelling in order to concurrently abstract the short-run data as well as the long-run data. This is accomplished via the employment of the VECM. This research makes use of the co integration estimation approach in order to analyse the long-term connection that exists between economic growth and stock prices for both Dehi and India. The research focuses on the relationship that exists between these two variables in Dehi. The results of the cointegration experiments reveal that economic development and stock prices have a link that, over the long term, tends to settle into a state of equilibrium for both Dehi and India. This is the case according to the findings of the experiments. The findings of the VECM indicate that the chain of causality in the instance of India flows from economic growth to stock prices, but not the other way around. This conclusion contradicts the hypothesis that stock prices cause economic growth. Despite this, the data suggest that there is a causal relationship between economic growth and stock prices for the state of Dehi, and that this link operates in both ways. Specifically, this link operates in the direction of economic growth.

keywords: VECM, *Economic Growth, Long-Run, and Stock prices & Returns.*

Introduction

The distinctive services that are provided by the stock market to the economy, whether they are provided directly or indirectly, contribute to make a contribution to the expansion of the economy. The stock market provides a variety of key functions, the most significant of which are the mobilisation of savings, the generation of liquidity, the diversification of risk, the improvement of information transmission and acquisition, and the development of the incentive for good corporate governance. Increasing the pace at which the services that are provided by these activities are provided is one way that the rate of economic growth may be increased. If you do so, the functions' efficacy and efficiency will both see an increase as a result. According to Bencivenga et al. (1996), the stock market has the ability to offer liquidity, which has an effect on the quantity of economic activity. This ability has an influence on the stock market's ability to give liquidity. According to this school of thought, in order for an investment to produce a profit, it is necessary to make a substantial financial commitment that is sustained over time. On the other hand, a significant number of prospective investors may not feel comfortable or are unwilling to part with their assets for such a lengthy period of time. When equities markets are liquid, the risks that are often associated with investing are reduced, which in turn makes investing more enticing to those who are considering making financial investments. Therefore, the straightforward capability

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of transferring ownership of capital makes it much simpler for enterprises to have permanent access to cash earned through stock offerings. Therefore, the possibility of a prolonged expansion of the economy increases anytime there is a more liquid market to promote more efficient capital allocation. This is because a more liquid market allows for more effective capital allocation. Additionally, both saves and investments grow as a consequence of a reduction in the riskiness of investments, which is made possible by the liquidity of the stock market. This is another factor that contributes to the growth of savings and investments. People who think there are positive links between the growth of the stock market and the expansion of the economy have also claimed that as stock prices rise, customers experience emotions of affluence and spend more money on consumer products. This is something that those people who believe there are beneficial linkages between the development of the stock market and the expansion of the economy have proposed. This is the wealth impact, which not only modifies the consumption function but also further improves the national revenue thanks to the Keynesian multiplier effect. Empirical investigations of the influence on wealth, on the other hand, have shown that this advantage is not nearly as great as one might anticipate based on first impressions. According to the findings of studies conducted by Ludrigson and Steindel (1999) and Mehra (2001), an increase of one dollar in wealth is likely to result in an increase of three to four cents in expenditure.It has been found out that additional adjustments in wealth are not helpful in anticipating changes in consumer spending for the future. Based on these findings, it appears that the impact on consumption, regardless of how insignificant it may be, occurs almost entirely in the present. Another school of thought holds that rising stock prices are to blame for the increase in total investment levels that have been seen recently. The q-theory, which was created by Brainard and Tobin (1968), offers a persuasive case for the existence of a relationship between asset prices and real investment. Both Brainard and Tobin contributed to the development of this theory. When stock prices go up, the value of a company's capital goes up in the market, and this gain is more than the amount it would cost to replace the capital. As a consequence of this, managers react to higher stock prices by beginning new investment projects, which ultimately results in an increase in the total amount that is spent on investment across the economy. According to Malkiel (1998), the effects of the stock market on the economy might manifest themselves in at least three distinct ways. To begin, the typical growth in wealth is produced as a direct result of an increase in the stock price. Second, many of the world's largest corporations are able to minimise the amount of money they have to spend for new capital thanks to the increase in stock prices. Third, the influence of common expectations serves to enhance the confidence of both companies and their consumers towards the future. The stock market, in a nutshell, helps to economic growth and development in a variety of ways, including the mobilisation and allocation of savings, the diversification of risks, the capacity to provide liquidity, and the advancement of corporate governance, amongst other things. These are just some of the ways that the stock market contributes to economic growth and development. In spite of this, Demirguc-Kunt and Levine's (1996) alternative viewpoint on the relationship between the stock market and long-term economic growth suggests that there are a number of ways in which liquidity might potentially stifle growth: To begin, there is a potential that the savings rate may fall; this occurs when there is an increasing return on investment caused by income and the substitution impact. Additionally, there is a risk that the substitution impact

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may have an influence. If the savings rate continues to fall and there is an externality connected with the process of capital formation, then it is feasible that greater stock market liquidity may slow down economic development. This is the case even if there is no externality. Second, there is a chance that reducing the amount of uncertainty associated with investments may have an influence on the savings rate; however, the degree of this effect as well as the path that it will follow in the future are both unclear at this time. This is because it is a consequence of the degree to which economic agents avoid taking risks. This is the reason why this is the case. Thirdly, there is a risk that effective corporate governance, which is typically considered as a benefit of the liquidity of the stock market, may be severely impacted. This is a concern since effective corporate governance is generally cited as a benefit of the liquidity of the stock market. It is likely that investors' commitment may be diminished as a result of the ease with which equity may be disposed of. This could happen since equity can be disposed of so easily. This convenience also functions as a barrier to corporate control and vigilance on the part of investors, which results in the elimination of the role that investors play in monitoring the operation of a company. The final consequence of this is that the expansion of the economy is brought to a standstill. Since "asset prices are forward-looking, they constitute a potentially useful predictor of economic growth" (Stock and Watson, 2003), the long term relationship between economic growth and stock prices has been the subject of substantial investigation in the academic literature. This is due to the fact that "asset prices are forward-looking" (Stock and Watson, 2003). "asset prices are forward-looking" (Stock and Watson, 2003), which explains why this is the case. The bulk of the earlier studies that have investigated this link have founded their analyses on bivariate frameworks, and to the best of our knowledge, there is no research that use the multivariate technique. As a consequence of this, the objective of this investigation is to fill in this gap in the previously conducted research by making use of a multivariate strategy. By doing so, we will be able to avoid the distortions of the data that may arise as a result of the omission of significant components from the study. The current examination takes a novel strategy in that it considers both short-term and long-term interest rates as potential mediating factors. This is a significant departure from previous research in this area. Not only does the rate of interest have an impact on the expansion of the economy, but it also has an influence on the returns that equities generate. To begin, when interest rates are high, it is detrimental to the growth of the economy for both investment and consumption to have a negative influence. Because of increases in interest rates, businesses and households borrow less money, which means there is less money available for investment and consumption. Second, if interest rates were to go up, it may make it more difficult to generate gains in the stock market. When interest rates are high, investors are less inclined to put their money into the stock market because they would rather keep it in the bank to take advantage of the higher interest rates.

Because of these factors, the current investigation will not only investigate the causal link that exists between economic growth and stock returns, but it will also shed more light on the causal impacts that interest rates have on the causal relationships that exist between economic growth and stock returns. In other words, the investigation will not only investigate the causal link that exists between economic growth and stock returns, but it will also investigate the causal link that exists between economic growth and stock returns. In spite of the fact that many countries have had quite different experiences with regard to the operation of the stock

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market, the objective of this study is to investigate the long-term link between economic growth and stock prices in two significant economies in the Western world: Dehi and the United States. Both of these countries are located in the western hemisphere. These two economies are both located in the Western hemisphere. In order to study such a relationship, we make use of a technique known as co-integration estimation. Additionally, we build vector error correction models in order to get concurrently both short-term and long-term information throughout the process of modelling. This assists us to obtain a clearer sense of the bigger picture. An outline of the remaining portions of the article is presented in the following paragraphs: Part 2 contains a summary of the pertinent research, while Part 3 delves into the methodology. Both parts are accessible through the table of contents. In Section 4, both the data and the empirical findings are laid forth for the reader to peruse. In the fifth portion of the report, both the findings and the interpretations of the study are provided.

Literature Review

According to Stock and Watson (2003), within the past two decades there has been a substantial amount of study undertaken on estimating the level of economic activity based on asset valuations. This research has been carried out in a number of different countries across the world. According to Stock and Watson (2003), the research that has been conducted on forecasting using asset prices has identified a number of asset values as leading indicators of either economic activity or other sorts of activity. These forward-looking indicators take into account things like interest rates, dividend yields, term spreads, stock return rates, and currency exchange rates. Sims (1980), one of the initial researchers in this subject, found that eliminating the marginal predictive content of money for real production by integrating the commercial paper rate in vector autoregressions (VARs) with output, inflation, and money eliminated the marginal predictive content of money for real production. His findings were based on data for the United States. For example, Bernanke and Blinder (1992) found similar results in their research, which led them to the same conclusions. Other research that utilised data from the United States, such as Laurent (1988, 1989), Harvey (1988, 1989), Stock and Watson (1989), Chen (1991), and Estrella and Hardouvelis (1991), focused mostly on employing the term spread as a way to estimate output growth. These studies were published in Laurent (1988, 1989), Harvey (1988, 1989), Stock and Watson (1989), and Chen (1991). A number of studies came to the conclusion that changes in production occur after stock returns have already occurred. For instance, Fama (1990), Schwart (1990), and Barro (1990) discovered that major portions of the changes in stock value could be explained by the future value of real activity in the United States and that stock return were considerably associated with future economic growth. These authors also observed that the future value of actual activity in the United States could predict big sections of the changes in stock value. The findings were presented in a publication in the year 1990. However, Hassapis and Kalyvitis (2002) stated that such findings may suggest that market returns were a good proxy for future activity and might just operate as a leading indication due to the fact that these studies did not do any causality test. In addition, Hassapis and Kalyvitis (2002) suggested that such findings may show that stock returns were a good proxy for future activity and could simply function as a leading indicator. This is due to the fact that these studies did not investigate the connection that exists between stock returns and upcoming activities. In addition to this, they

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developed a model that revealed a positive correlation between shifts in stock price and future growth. This association was shown to be supported by the data. This hypothesis is predicated on the observation that fluctuations in stock prices typically come before expansions in economic activity. Using data for the G-7 countries in a VAR model, they made the discovery that real stock price variations acted as an effective predictor of output for these nations, with the exception of Italy. However, they did not find this to be the case for Japan. The only country to deviate from this norm was Italy. Levine and Zervos (1996, using data from forty-one countries) addressed the question of whether or not there is a significant empirical relationship between the development of stock markets and long-run economic growth. This study follows in the footsteps of Demirguc-Kunt and Levine (1996) in the sense that it develops an index of stock market development by integrating a number of different factors. Some of these indicators include the size of the stock market, its liquidity, and its integration with markets all over the world. The rate of increase of Gross Domestic Product (GDP) per capita was regressed on a variety of characteristics in order to account for beginning circumstances, political stability, investment in human capital, and macroeconomic conditions. This was done in order to better understand the relationship between these elements. After controlling for the rate of increase in GDP per capita, the conglomerated index of stock market development was also included in the study. This was done so after the first control. The analysis indicated that there was a strong relationship between the growth of the global stock market as a whole and the growth of the economy over the long term. This was discovered by looking at the correlation between the two variables. Several studies' conclusions have been based, at least in part, on the experiences of significant economies that are not members of the OECD. Harvey (1991). As an illustration, Hu (1993), Davis and Henry (1994), Plosser and Rouwenhorst (1994), Bonser-Neal and Morley (1997), Kozicki (1997), Campbell (1999), Estrella and Mishkin (1997), Estrella et al. (2003), and Atta-Mensah and Tkacz (2001) discovered evidence indicating that the term spread contained predictive content for real output growth. On the other hand, Binswanger (2000) found evidence that the considerable link between stock returns and real activity in the United States had disappeared in the early 1980s. This association had been observed previously. The findings of this researcher go counter to the conclusions of the earlier researcher. He maintained that although while a relationship of this kind existed during the first boom in the stock market, which lasted from the late 1940s until the middle of the 1960s, stock gains did not drive actual activity any more. This boom lasted from the late 1940s to the middle of the 1960s. Despite the fact that such a connection existed during the first surge in the stock market, this ended up being the case. According to him, the connection that had previously existed in the United States between the level of stock prices and the level of future economic activity has been broken since the early 1980s. This break has occurred in the correlation that had previously existed in the United States. In a subsequent piece of study, Binswanger (2003) expanded this analysis to include the other nations that make up the G-7 and discovered that Japan and the European economy as a whole had the same sorts of breakdowns. He came to this conclusion after finding that the G-7 nations all had similar kind of economic problems. He arrived at the conclusion that real income activity during the 1980s had not been led by stock markets, and that this was true even when the event that occurred in 1987 was removed from the equation. He got to this result after conducting

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research. The outcomes of the research conducted by Laopodis and Sawhney (2002) are comparable to one another. Kassimatis and Spyrou (2001) looked at the relationship between the equity market, the credit market, and the growth of the economy in a number of developing countries. They found, via several tests of causality, that in economies with stifled economic development, the stock market either had a negative influence on economic growth or had no impact on economic growth at all. This was the conclusion reached.

Between the years 1989 and 2002, the authors Gokdeniz et al. (2003) used the method of least squares to investigate how the effect of financial markets on the expansion of the Indian economy changed over time. The years 1989 through 2002 were included in the scope of the investigation. When seen through this lens, neither the public stock markets nor the private bond markets make any contribution, however slight, to the overall growth of the Indian economy. In the research that they conducted in 2009, Basdas and Soytas looked at the correlation between the VAR analysis and the Granger causality analysis, as well as economic growth, stock returns, and interest rates in India between the years 1997 and 2008. As a direct result of this, two separate chains of causation tying interest rates and stock revenue to economic expansion have been found. Both of these chains of causation are directly related to economic growth.

Because of the research that Aydemir (2008) did during the same time period using the Vector Error Correction Model (VECM) and the Granger causality test, he was able to determine that there is a meaningful and bidirectional link in the long run between stock returns and economic development. This conclusion was reached as a result of the fact that Aydemir was able to determine that there is a link between stock returns and economic development. Baker et al. (2005) found that the return on financial assets in the United States improved during times of economic boom between the years 1958 and 2004. This finding was based on data collected between 1958 and 2004. These conclusions are derived from the observations that were obtained throughout the aforementioned time period.

Methodology

In this study, the causality between the data of stock returns and economic growth in India from 1998Q2-2014Q2 has been investigated using unit root tests and causality tests. The time period covered by this study is 1998Q2-2014Q2. Stock returns (SR) and economic growth (EG) are the two factors that are put to the test in this investigation.

The following is an explanation of each of the variables:

Total quarterly return rates expressed as a percentage for the entirety of the BIST 100 Index (Borsa Istanbul).

EG: The annualised rate of expansion (%) of India's gross domestic product (GDP).

Empirical Methodology

In order to determine whether or not the series is consistent, the Augmented Dickey Fuller (ADF) and Philips-Perron (PP) unit root tests are going to be applied. After completing the unit root tests, the causal relationship between economic growth and stock returns will be studied using the Bootstrapped Toda-Yamamoto and Frequency Domain tests. This will take place after the application of the unit root tests has been finished. The Bootstrapped Toda-Yamamoto and Frequency Domain Causality Tests each have their own set of explanations, which may be found below.

Bootstrapped Toda-Yamamoto Causality Analysis

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Toda-Yamamoto (1995), have a chi-square distribution, implement the Wald test, and add the degree of integration of the series to the number of lags detected in the VAR model are all characteristics of the model. As a result, the Toda-Yamamoto technique eliminates the problems that are brought about by the conventional VAR model at the level value of variables in causality analysis. These problems arise when the researchers are determining the degree to which the series are integrated. Consequently, the Toda-Yamamoto method is able to solve these problems. In light of this, the process that is involved in VAR (2) may be explained as follows:

$$\ln EG_t = \sum_{i=1}^{k+d\max} \alpha_{1i} \ln EG_{ti} + \sum_{i=1}^{k+d\max} \beta_{1i} \ln EG_{ti} + \varepsilon_{1t} \qquad (1)$$

$$\ln SR_t = \sum_{i=1}^{k+d\max} \alpha_{2i} \ln SR_{ti} + \sum_{i=1}^{k+d\max} \beta_{2i} \ln SR_{ti} + \varepsilon_{2t} \qquad (2)$$

The value of d max indicates the degree to which the model's variables are integrated to their fullest extent, and the value of k indicates the optimal lag length that can be achieved by utilising the VAR model. In addition, the word t is used to indicate an error correction term that is founded on the notion of white noise. As contrast to using asymptotic chi-square distributions, Hacker and Hatemi-J (2006) established that bootstrap distributions result in a more correct inference being taken from the Toda-Yamamoto test statistic. This was the conclusion reached after they demonstrated that using bootstrap distributions. These are the findings that led the two researchers to come to this conclusion. Because of this, we will develop our very own vital values in the assessment of causality by making use of the Bootstrap simulation techniques. The Bootstrap method is a technique for estimating the distribution of a test statistic by generating new data sets that are analogous to the data set being analysed in the first place. The utilisation of this distribution has the potential to assist in reducing the amount of variance in the implication by providing more precise critical values. Because it is based on the actual distribution of the underlying data set, this approach does not make any assumptions about the normality of the data that it examines, which is an important point to keep in mind because it is crucial. Because of the importance it has, the presence of autoregressive conditional heteroscedasticity (ARCH) is another element that needs to be taken into account. In order to guarantee that the presence of ARCH effects will not result in the estimated findings deviating from their actual value in any way. The use of the Bootstrap causality test is required in order to carry it out in the manner that will be discussed further below. In the beginning, the raw residuals are computed with the restriction that there is no Granger causality on any of the equations that are included in the analysis. In order to obtain the raw residuals, this procedure is carried out. The estimated raw residuals are first rescaled by applying the leveraging strategy that was developed by Davison and Hinkley (1999). This is done so that the variance can be as precise as possible. The last step involves computing the adjusted residuals and guaranteeing that the mean of the adjusted residuals is equal to zero. After this, the stage is considered complete. Once the adjusted residuals have been computed, the estimated coefficients (,,..... 1 A Ap) and the Bootstrapped adjusted residuals (t *) are utilised to construct the simulated data (yt*). The statistic for the MWALD test will at long last be computed after what seems like an eternity. When applying the bootstrapping simulation process, one of the most significant considerations to make is

the size of the Bootstrap sample, which is also referred to as Nb. This analysis will make use of the Nb=1000 parameter as part of a study that was conducted by Davidson and MacKinnon (2004).

Frequency Domain Causality Analysis

The analysis of the frequency domain offers an explanation of the causal relationships that exist between the variables over the short, medium, and long periods by using the frequency domain to examine the data. In this respect, it diverges from the more traditional approach of determining cause and effect. Geweke (1982) and Hosaya (1991) recommended utilising measures of causality in the frequency-domain published by Breitung and Candelon (2006, 2001) to test for causation at a particular frequency. These measurements were presented by Breitung and Candelon. In this particular line of investigation, we make use of a method that is built upon the research conducted by Breitung and Candelon (2006, 2001). This method begins with the measurements of causality in the frequency domain. Assuming that [,]' t tt z xy = is a two-dimensional vector of the time series viewed at t T =1,....., which in turn represents a finite delay VAR fermentation of the following sort (Breitung and Candelon, 2006: 364), we work under the premise that the time series is observed at t T =1,..... Because of this, we are able to construct the following hypothesis: [,]' t tt z xy;

$$\theta(L)_{zt} = \varepsilon_t \qquad (3)$$

Where:

$$\theta(\mathrm{L})=\mathrm{I}-\theta_1 L-\cdots-\theta_p L^p \qquad (4)$$

is a 2 x 2 lag $L^k_{zt} = z_{t-k}$ polynomial.

Let the error vector $^{\Gamma}\varepsilon_t$ be white noise with $E(\varepsilon_t) = 0$ and $E(\varepsilon_t \varepsilon_t{}') = \Sigma$ where □ is positive) and Gthe lower triangular matrix of the Cholesky decomposition $G'G =$ Thus, the moving average representation of the system (assumed to be stationary) $\bar{\Sigma}^{-1}$. is:

$$z_t = \begin{bmatrix} x_t \\ y_t \end{bmatrix} = \phi(L)\varepsilon_t = \begin{bmatrix} \phi_{11}(L) & \phi_{12}(L) \\ \phi_{21}(L) & \phi_{22}(L) \end{bmatrix} \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix} \qquad (5)$$

$$= \Psi(L)\eta_t = \begin{bmatrix} \Psi_{11}(L) & \Psi_{12}(L) \\ \Psi_{21}(L) & \Psi_{22}(L) \end{bmatrix} \begin{bmatrix} \eta_{1t} \\ \eta_{1t} \end{bmatrix} \qquad (6)$$

Where $\Phi(L) = \theta(L)^{-1}$ and $\Psi(L) = \Phi(L)G^{-1}$

Equation 8 reports the spectral density of X_t:

$$f_x(\omega) = \frac{1}{2\pi}\left\{\left|\Psi_{11}(e^{-i\omega})\right|^2 + \left|\Psi_{12}(e^{-i\omega})\right|^2\right\} \qquad (7)$$

In spite of the fact that equations 9 and 10 specify the causality measurements suggested by Geweke (1982) and Hosaya (1991):

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$$M_{y\to x}(\omega) = \log\left[\frac{2\pi f_x(\omega)}{\left|\Psi_{11}(e^{-i\omega})\right|^2}\right] \quad (8)$$

$$= \log\left[1+\frac{\left|\psi_{12}(e^{-i\omega})\right|^2}{\left|\psi_{11}(e^{-i\omega})\right|^2}\right]$$

(ω) (9)

$H_0 = M_{y\to x}(\omega) = 0$

If $\left|\psi_{12}(e^{-i\omega})\right| = 0$ then y is not a frequency causality (ω) of x. Therefore, in order to test that y does not cause x at frequency (ω) our null hypothesis is:

$H_0 = M_{y\to x}(\omega) = 0$

Empirical Results

The ADF and PP unit root tests are utilised in order to determine whether or not the series possesses any unit roots and the degree to which the series is stationary.

Table 1. Results of ADF And PP Unit Root Tests

Variables	ADF		PP	
	Intercept			
	Level	1stDifference	Level	1stDifference
SR	-5.876(0)	-6.267(2)	-5.944	-14.021
EG	-1.947(8)	-24.000(2)	-7.434	-15.786
Variables	ADF		PP	
	Trend and Intercept			
	Level	1stDifference	Level	1stDifference
SR	-5.925(0)	-6.167(2)	-5.875	-13.830
EG	-2.116(3)	-23.803(2)	-8.703	-15.972

** The asymptotic critical values for intercept at the %1 and %5 levels are -3.571 and -2.922, respectively. These numbers were determined using the Schwartz Information. * The numbers that are surrounded in brackets and are placed below the lag lengths were chosen. *** At the 5% and 1% levels, the asymptotic critical values for trend and intercept are -4.156 and -3.504, respectively.

According to the findings of the ADF and PP unit root tests, the series for both variables may be considered consistent. As a result of this, the value I(0) is present in both series. The application of the unit root test is followed by the performance of causality tests. In addition, the results of the Bootstrapped Toda-Yamamoto causality test are presented in Table 2 below. This table may be found further down. The results of a Bootstrapped Toda-Yamamoto causality test indicate that there is no evidence to support the hypothesis that there is a causal link between the variables.

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Table 2. Results of Bootstrapped Toda-Yamamoto Causality Test

The Null Hypothesis	The Estimated Test Value (MWALD)	1% Bootstrap Critical Value	5% Bootstrap Critical Value	10% Bootstrap Critical Value
SR→EG	5.417	15.055	10.129	8.141
EG→SR	7.9	14.899	9.996	8.160

Notes: The notation seems to point to a causality that does not fall within the Granger category. The notation ***, **, and * denotes that the non-Granger causality null hypothesis is rejected at a significance level of either 1%, 5%, or 10%, respectively. This is shown by the asterisks. The lag order of the VAR model, which is represented by the symbol p, was modified to have a value of four. As a result of the fact that none of the variables have a unit root, the augmentation lag, which is represented by the letter d, was also set to equal zero.

An explanation of the short-, medium-, and long-term causal relationships that exist between the variables can be gleaned via doing an investigation of causation in the frequency domain. In this way, it varies from the traditional examination of causation that is generally carried out. This illustrates that the expansion of the economy is the key driver of stock returns over the medium to long term, whereas stock returns are the primary driver of economic growth over the short term. Therefore, this demonstrates that the expansion of the economy is the primary driver of stock returns over the medium to long term.

Table 3. Results of the Frequency Domain Causality

$?_i$	Long Term		Medium Term		Short Term	
	0.01	**0.05**	**1.00**	**1.50**	**2.00**	**2.50**
SR→EG	0.790	0.674	1.379	2.332	0.925	**6.461***
EG→SR	0.503	0.489	**13.019***	1.961	0.272	2.728*

Note: F- distribution with (2, T-2p) degrees of freedom equals 5.99. For every ωi (frequency) between 0 and π ,ω $\pi \in (0,)$ * implies the existence of a causal relationship.

Conclusion

The trend of liberalising and integrating financial markets has picked up speed as a direct outcome of the acceleration of globalisation. Because of this condition, investments in countries such as India are currently more enticing than they would have been otherwise. On the other hand, this circumstance has upped the stakes for premium financial markets. The amount of risk undertaken has an effect on the profitability. In addition, as was mentioned earlier in this investigation, India went through a new phase in which it accepted a floating exchange rate as a policy, the Central Bank became independent, the Banking Regulation and Supervision Agency (BRSA) was established, and political stability was maintained. All of these things were successful during this time period. In addition to these alterations, the policy of keeping a low exchange rate while concurrently keeping a high interest rate has been in effect since the early 2000s. This approach has been in place with the other adjustments. It has a beneficial effect on the cost of physical investment but a detrimental effect on the cost of portfolio investment. Since the early 2000s, the government of India has been implementing measures that have increased the desirability of portfolio investment in that country. All of these efforts not only resulted in a more safe environment for the

financial markets, but they also attracted direct investments from other nations. In addition to this, it was responsible for an increase in the rates of return on stocks. Because of the rise in the stock return rates, the companies' liquidity and capital levels also saw significant improvements. As a consequence of this, companies have the option of increasing the amount of money they invest. The acceleration of investment was having a stimulative impact on the rate at which the economy was expanding. In this context, the increasing in stock returns and economic growth owing to the decline in portfolio investments is compatible with the financing hypothesis, which assesses the relationship between economic growth and stock returns. In other words, the financing hypothesis predicts that the drop in portfolio investments will have a positive impact on both economic growth and stock returns. To be more specific, the rise in stock returns and the acceleration of economic development brought about by the fall in portfolio investments. Since the early years of the new millennium, the implementation of policy in India has had the impact of bringing down the expenses that are connected with portfolio investments. Because of the size of the issue, investors have demonstrated a great interest in it. In light of this, not only has there been an increase in physical investment, but there has also been a significant increase in the number of portfolio investments that have been made throughout the relevant work periods. This can be explained by the fact that there has been an increase in the number of people working on relevant projects. As a consequence of this, it is feasible to see that the theories of the passive informant and the appropriate active informant are both relevant to the situation in India. The Bootstrapped Toda Yamamoto and Frequency Domain Causation Tests were applied in this inquiry to explore the causation link that exists between stock returns and the development of India's economy. This analysis was carried out with the purpose of determining whether or not there is a causal relationship between the two variables. The results of the Bootstrapped Toda-Yamamoto causality test indicate that there is no correlation between the variables. On the other hand, the results of the Frequency Domain causality test indicate that stock returns cause economic growth in the short run, while economic growth causes stock returns in the medium term. Both of these relationships are reciprocal, with economic growth causing stock returns in the longer term. These two partnerships are based on giving and getting.

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