BEHAVIOURAL FINANCE PERSPECTIVE ON THE SENSITIVITY OF STOCK MARKETS IN THE FRAGILE FIVE COUNTRIES TO FINANCIAL STRESS AND FEAR INDEX: EVIDENCE FROM FOURIER-TYPE TESTS

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ABSTRACT

This study examines the distance between the stock markets of the fragile five economies and the financial stress (FS) and fear (VIX) indexes with-Fourier type tests using monthly data for the period 2009:01-2024:01. As it is not written down, no investigation can be conducted using the Fourier ADF, Fourier KPSS, and Fourier KSS unit root tests to determine initial time series characteristics of the variable series or also unknown forms and period intervals with robustness breaks. Fourier-type causality tests are employed to clarify potential causal linkages between these variables.

The empirical results generated can be categorized into three distinct groups: (i)The data for the period in consideration shows a one-way causal link from VIX to FS. (ii) A unidirectional relationship from FS to the stock markets of India, Indonesia and Brazil during the same period was found but a bidirectional causal relationship was established between FS and the stock markets of Turkey and South Africa. (iii) While a unidirectional causal relationship exists from VIX to the stock markets of Turkey and India, a bidirectional causal relationship was found between VIX and the stock market of South Africa. In addition, no causal relationship was detected between VIX and the stock markets of other countries in any direction. Within the framework of these results, while the domestic markets of the fragile five countries are completely sensitive to financial stress, the stock markets of India, Turkey, and South Africa are sensitive to fear ratios. Furthermore, since financial stress was found to be sensitive to fear ratios, the domestic markets of the fragile five countries were also indirectly strong against fear factors. These issues should be considered when determining portfolio and investment strategies in the market, and policymakers should take them into account when proposing policies regarding countries' own economic markets. Keywords: Stock markets, financial stress, fear regime, Fourier causality tests.

Keywords: Stock market dynamics, financial stress, fear regime, Fourier causality tests.

JEL Classification: C22, E23, G32.

INTRODUCTION

The financial stress and fear indices emerge as major indicators of market sentiment. Global crises and fluctuations can destabilize the market, thus investors' confidence and economies become prone to uncertainty. These indexes insight into the risk appetite of investors and the uncertainty in the markets, which helps calibrate to anticipate future moves of stock-markets. The sensitivity of stock markets to global financial volatility indices is especially important in developing economies, which are more sensitive; making the sensitivity of their stock markets to these indices significant. This research aims to assess the sensitivity of Brazil, India, Indonesia, South Africa and Türkiye (also known as the "Fragile Five") stock markets to financial stress and fear indices.

Global crisis and volatility affect the markets in a way that it disturbs the confidence of investors and increases economic uncertainty. Both these indices serve as a useful indicator of Investors degree of Risk Appetite and future market performance expectations.Instead of being influenced by behavioural biases such as overconfidence, a belief that there is a negative gain or positive gain, and disposition bias, can lead investors to follow financial stress and the VIX index as postures of risk perception when investing after sign of uncertainty. In line with behavioural finance that due to excessive uncertainty, investors may overreact or under-react towards information and stock market responses (which is heterogeneous from country to country) deviate from fundamentals (Shiller, 2003; Barberis & Thaler, 2003). Although the VIX or financial stress indicators have been studied recently on their impact on emerging stock markets, so far very few empirical evidence has treated the Fragile Five countries as a single large behavioural finance model. Furthermore, research to date primarily studies these economies independently from the perspective of macroeconomic fragility with relatively little consideration for how investor fear and financial stress at the aggregate level influences stock markets as a whole across this group of 16 disparate emerging market economies (Bekiros et al., 2016; Nazlıoğlu & Kök, 2021). Characteristic features of the Fragile Five countries are an over-reliance to external financing, chronic current account deficits, and increased dependence on foreign direct investment (FDI), along with their sensitivity to exchange-rate volatility and capital flows reversals which make them the most exposed in terms of changes in global investor sentiment (Lord, 2013; Küçüksille & Karaoğlan, 2016). These well-known structural characteristics represent an ideal context in which to examine behavioural finance phenomena because episodes of extreme human fear and uncertainty are expected to generate similar behavioural biases among investors while still permitting country-specific differences between groups of investor behaviour or mentalities. It follows that looking at these countries together as one cannot be properly analyzed by a traditional single-country analysis (Shiller, 2003; Barberis & Thaler, 2003).

To the best of our knowledge, this study is one of the works that conceptualizes the "Fragile Five" within an integrated behavioural finance framework by simultaneously examining the transmission of investor fear (VIX) and financial stress (FS) to stock markets using Fourier-based econometric techniques.

The "fragile five" comprising the five countries which have witnessed the severest currency depreciation against the US Dollar after announcement of monetary tightening by Federal Reserve These include Brazil, Turkey, India, Indonesia and South Africa. The reasons for labelling these countries as the "fragile five" are attributed to some common economic characteristics of these countries. These include high inflation, large current account deficits, vague expectations about capital movements and growth performance that is quite unstable (favorable and unfavorable) most of the time. After these statements, institution analyst James Lord advised investors to accumulate long USD positions saying that the countries have to carry out the structural reforms in order to attract capital globally (Lord, 2013; Küçüksille, E., & Karaoğlan, S. (2016).

Becker, B. (2006) mentioned wealth and executive compensation. This technic, stock returns fluctuate due to sudden shocks in the markets which this methodology aims to measure more accurately; thus revealing more clearly how stock markets react to stress and fear indices. The outcomes of the study indicate that both financial stress and fear indices have high impacts on the stock markets of the Fragile Five countries.

Such sensitivity, in particular, tends to rise during global financial crisis and global economic turmoil. This would have important implications for policy and investing. This paper, with its primary focus on the necessity of solidifying and protecting the financial structures of the Fragile Five nations amid times of global instability and uncertainty, is intended as a toolkit for these countries in determining their economic and financial policies.

This analysis of the Fragile Five countries contributes both to perspectives on financial vulnerability among developing economies and highlights the need to reassess their place and strategic importance in the global economic system. Future research may offer some of the more specific recommendations on boosting the growth impact of economic policies in these countries and increasing market resilience to global shocks may emerge. For example, the framework suggests to other asset classes bonds or currencies or integrating specific behavioural indicators.

DATA SET AND ECONOMETRIC METHODOLOGY

Data Set

The variables used in this study to calculate the financial stress and fear index of the stock market of the fragile five countries are; Financial Stress Index (FS), Borsa Istanbul (BIST), Bovespa, IDX, SENSEX, GUNAF and VIX variables.

Econometric Methodology

Fourier Unit Root Tests

FADF Unit Root Test

Starting with the FADF unit root test; this test procedure is carried out by estimating equation (10).

$$y_t = \delta(t) + \vartheta_t \quad (1)$$

$$\delta(t) = \delta_0 + \sum_{k=1}^{G} \delta_1^k \sin\left(\frac{2\pi kt}{T}\right) + \sum_{k=1}^{G} \delta_2^k \cos\left(\frac{2\pi kt}{T}\right) \quad (2)$$

$$\delta(t) = \delta_0 + \delta_1 \sin\left(\frac{2\pi kt}{T}\right) + \delta_2 \cos\left(\frac{2\pi kt}{T}\right) \quad (3)$$

$$y_t = \delta_0 + \delta_1 \sin\left(\frac{2\pi kt}{T}\right) + \delta_2 \cos\left(\frac{2\pi kt}{T}\right) + \vartheta_t \quad (4)$$

If equation (3) is superimposed on equation (1), equation (4) is obtained. In equation (4), represents the trend; T represents the number of observations and represents the value 3.1416. Finally, represents the frequency, i.e., the number of soft breaks, which can take values between 1 and 5 and minimizes the sum of squared residuals of equation (4). After determining the frequency number, the residuals are obtained using equation (5).

$$\vartheta_t = y_t - \left[\delta_0 + \delta_1 \sin\left(\frac{2\pi kt}{T}\right) + \delta_2 \cos\left(\frac{2\pi kt}{T}\right)\right] \quad (5)$$

The residuals obtained through equation (5) are subjected to the ADF unit root test. The equation summarizing the ADF unit root test is written below.

$$\Delta\vartheta_t = a_1 \vartheta_{t-1} + \sum_{i=1}^{m} \varphi_i \Delta\vartheta_{t-i} + u_t \quad (6)$$

The FADF unit root test procedure consists of three steps. The first step involves discovering the appropriate break structure, i.e., the optimal frequency number ( ), using equation (4). The second step involves obtaining the residuals using equation (5). The third step implies applying the unit root test procedure in equation (6) to the obtained residuals. The null hypothesis of this test states that the series has a unit root. In contrast, the alternative hypothesis tests the stationarity of the series. In summary, the null hypothesis of the FADF test procedure indicates that the series has a unit root, i.e., the equality $a1 = 0$; the alternative hypothesis expresses the inequality $a1 < 0$, indicating stationarity under structural breaks. The statistical significance of the trigonometric term coefficients (i.e., the length and width of the frequency) expressed by and in equation (4) is a prerequisite for the reliability of the findings obtained from the FADF unit root test. The statistical significance of the trigonometric term coefficients is tested using the F-test [ ]. The null hypothesis of the F-test is that the coefficients in the equation as a whole are insignificant. If the null hypothesis of the F-test cannot be rejected, it is concluded that the coefficients of the trigonometric terms in equation (4) are insignificant. Such a situation necessitates the preference of the traditional ADF unit root test instead of the FADF unit root test.

FKSS Unit Root Test

The FKSS unit root test procedure is the same as the first two steps of the FADF test procedure. That is, executing equations (4) and (5) constitutes the first two steps of the FKSS test procedure. In the third step, the KSS unit root test procedure is applied to the residuals obtained in equation (5) (i.e.,) to obtain the FKSS unit root test statistic. Equation (7) represents the third step of the test.

$$\Delta\vartheta_t = \gamma_1 \vartheta_{t-1}^3 + \sum_{i=1}^{m} \rho_i \Delta\vartheta_{t-i} + \varepsilon_t \quad (7)$$

As with the FADF and FKSS unit root test processes, the FKSS unit root test process also allows for the inclusion of structural breaks in the analysis while investigating whether the series contains a unit root. The null hypothesis of this test, as in its traditional specification, is constructed in the opposite way to other unit root tests. That is, the null hypothesis of the test indicates stationarity.

FKPSS Unit Root Test

The first two steps of the FKPSS unit root test procedure are the same as those of the FADF and FKSS unit root tests. In the third step, the KPSS unit root test procedure is applied to the residuals obtained in equation (5). Similarly, the significance of the trigonometric terms is tested using the F-test, and the resulting test statistic is compared with the critical values produced by Becker et al. (2006).

$$\tau_{\mu}(k) = \frac{1}{T^2} \frac{\sum_{t=1}^{T} \tilde{S}_t(k)^2}{\tilde{\sigma}^2} \qquad (8)$$

(2) no The FKPSS test statistic is included in equation no. (8). $\tilde{S}_t(k) = \sum_{j=1}^{t} \tilde{\vartheta}_j$ ve $\tilde{\vartheta}_j$ represents the residuals obtained from equation (5).

Fourier Granger Causality Test

Fourier-Type Causality Tests

The Fourier Granger causality (FGCT) test, introduced to the empirical causality literature by Enders and Jones (2016), is formulated under the assumption that structural breaks can occur as a function of time and with a smooth transition. The Granger and Toda-Yamamoto causality tests, whose traditional form is described above, were later moved beyond their linear definition. Enders and Jones (2016) were the first to do this for the FGCT test. So, why? The answer to this question is in its simplest form: Enders and Jones (2016) and similar studies are trying to find the closest mathematical, statistical and/or econometric definition to model the real behaviour of real-life macroeconomic series. These studies show that linear specifications cannot capture real-life macroeconomic relationships because these relationships exhibit nonlinear characteristics. In real life, there are structural breaks that disrupt the linear trend in macroeconomic or macro-financial series, or in the relationships between those series. These structural breaks stem from significant local or global events (such as economic crises, political upheavals, wars, migrations, and major policy changes) and permanently alter the course or behavior of macro series and the relationships between them; that is, the stochastic or deterministic trend. Therefore, nonlinear methods that also take structural breaks into account are being developed in causality analyses. Pioneering studies that draw attention to structural breaks include those by Perron (1989), Gregory and Hansen (1996), and Hatemi-J (2008). Enders and Jones (2016) model structural breaks that alter the trend of relationships between series as an unknown number of smooth transition structures. According to this definition, the course of relationships between series is likened to sine and cosine waves with smooth transitions, contained within Fourier functions. In equation (9) below, is the constant term, which is assumed to remain unchanged in a linear regression. This property does not apply to equation (3) because it is assumed that there is a break in the deterministic trend of and that this is captured using trigonometric terms (i.e., sine and cosine terms). That is, has become a smoothly changing function of time, as can be understood from (t) in its extension. If equation is fitted into equations (9) and (9), a new definition is obtained, shown in equations (10) and (11) respectively. In this study, these new definitions, developed by Enders and Jones (2016) and taking into account structural breaks, are also predicted. As pointed out by Gallant (1981), equation (9) shows a flexible Fourier series approximation, and when this structure is transferred to the causality equations; Causal relationships can be determined under structural breaks of unknown number, form, and time points.

$$\delta(t) = \delta_0 + \delta_1 \sin\left(\frac{2\pi kt}{T}\right) + \delta_1 cos(\frac{2\pi kt}{T}) \qquad (9)$$

$$Y_t = \beta_0 + \beta_1 \sin\left(\frac{2\pi kt}{T}\right) + \beta_2 \cos\left(\frac{2\pi kt}{T}\right) + \sum_{i=1}^{p} \theta_i Y_{t-i} + \sum_{i=1}^{p} \delta_i X_{t-i} + \varepsilon_t \qquad (10)$$

$$X_t = \gamma_0 + \gamma_1 \sin\left(\frac{2\pi kt}{T}\right) + \gamma_2 \cos\left(\frac{2\pi kt}{T}\right) + \sum_{i=1}^{p} \tau_i Y_{t-i} + \sum_{i=1}^{p} \varphi_i X_{t-i} + u_t \quad (11)$$

Based on the findings from the unit root tests, it is understood that the variables used in the analysis are integrated of the first order. Therefore, potential causal relationships between the relevant variables can be investigated using the FGCT test. Our empirical findings are presented in Table 18.

Fourier Toda-Yamamoto Causality Analysis

Another procedure similar to the FGCT test, which was introduced to the literature by Enders and Jones (2016) and obtained by adding the flexible Fourier series approach to the traditional Granger causality equations, is called the Fourier Toda-Yamamoto causality (FTY) test. The FTY test, proposed by Nazlıoğlu et al. (2016), is based on estimating the following equations. Nazlıoğlu et al. (2016) obtained the following equation (12) by adding equation (9) to the Toda-Yamamoto (1995) causality test process.

$$y_t = a_0 + a_1 sin\left(\frac{2\pi kt}{T}\right) + b_1 cos\left(\frac{2\pi kt}{T}\right) + \beta_1 y_{t-1} + \cdots + \beta_{p+d} y_{t-(p+d)} + \varepsilon_t \quad (12)$$

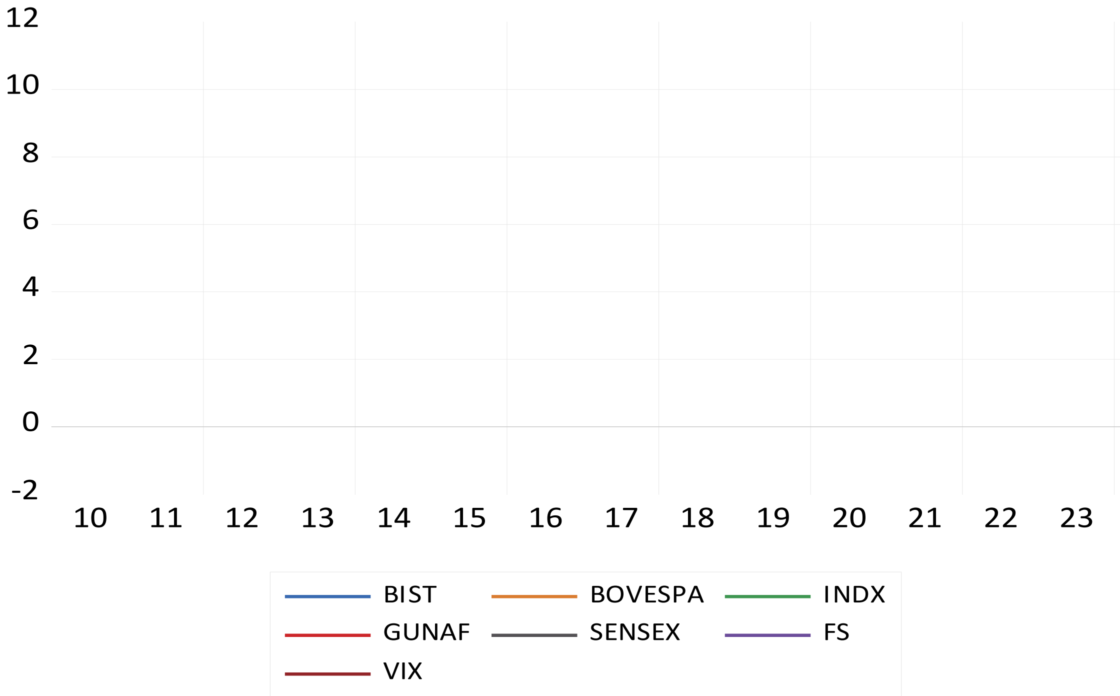
Like the previous Fourier-type causality test (FGCT), the FTY test also considers structural breaks in an unknown number, form, and time points in the causal relationship. The findings obtained from the estimated FTY causality equations among the series investigated in this study are reported in Table 19.

EMPIRICAL FINDINGS AND INFERENCES

Table 1: Descriptive statistics

	BIST	BOVESPA	IDX	GUNAF	SENSEX	FS	VIX
Mean	6.987668	4.304163	8.547159	10.70959	10.33535	-0.202989	2.880545
Median	6.773972	4.212572	8.563789	10.74259	10.28134	-0.313780	2.836737
Maximum	9.047428	4.899219	8.891897	11.20686	11.18775	3.856025	3.980429
Minimum	6.208691	3.698978	7.843468	10.05599	9.645683	-0.831125	2.252344
Std. Dev.	0.665059	0.321634	0.238174	0.293540	0.434558	0.542014	0.321902
Skewness	1.684354	0.178773	-0.706150	-0.432284	0.253391	3.393717	0.652688
Kurtosis	5.129381	1.662982	3.004208	2.430216	1.912126	23.08386	3.195194
Jarque-Bera	111.8390	13.48800	14.04538	7.549596	10.14210	3164.742	12.26733
Probability	0.000000	0.001178	0.000891	0.022942	0.006276	0.000000	0.002169
Observations	169	169	169	169	169	169	169

The descriptive statistics in Table 1 show that the variables have different distribution characteristics. In particular, the high skewness and kurtosis values of the Financial Stress (FS) index indicate the presence of extraordinary fluctuations and extreme observations throughoYut the period. The fact that the Jarque-Bera test results are significant for all variables reveals that the series do not exhibit a normal distribution. This situation shows that financial markets in the fragile five countries are affected by nonlinear structures and periodic shocks.



Findings from Fourier Unit Root Tests

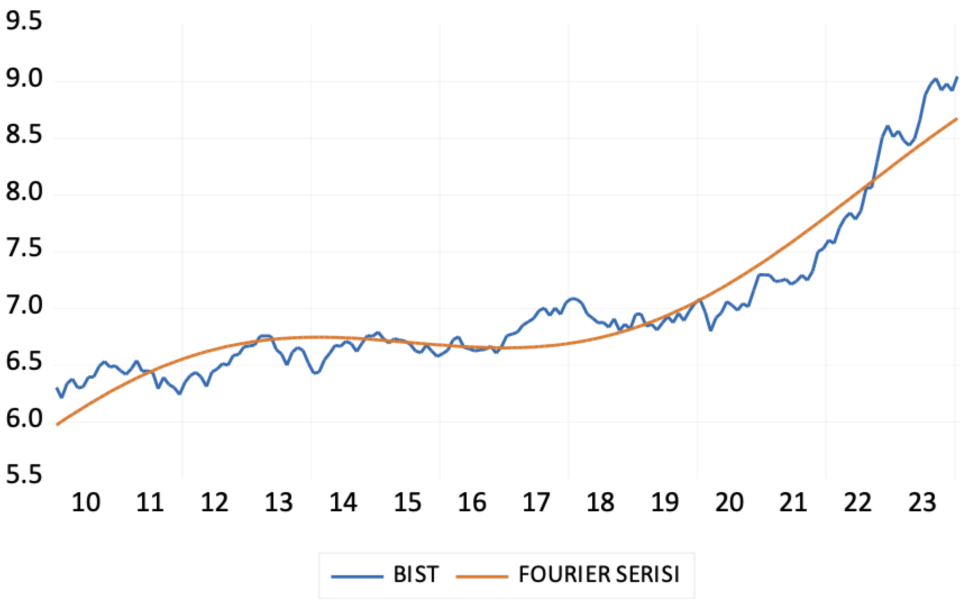
Table 2: PDF, KPSS and EKPSS Unit Stem Test Results

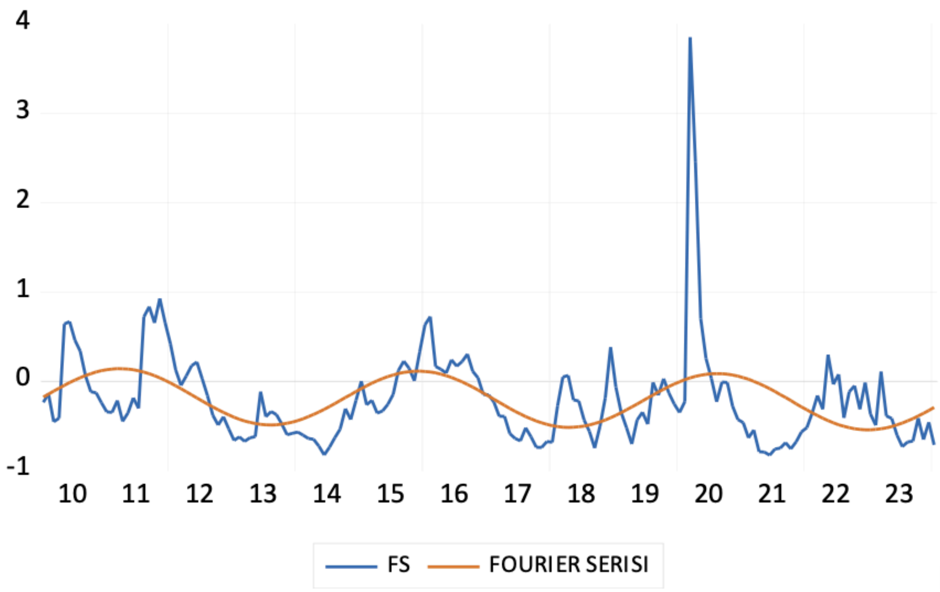
Değişkenler	Min. KKT	$\hat{k}$	FADF	FKSS	FKPSS	$F(\hat{k})$
FS	40.76469	3	-5.5589*** [0]	-5.0553*** [1]	0.2311 [7]	10.9634***
$BIST$	6.9503	1	-1.7857 [13]	-0.4233 [13]	0.5329 [9]	38.9541***
$BOVESPA$	1.485897	1	-2.0494 [13]	-1.6080 [12]	0.4885 [9]	72.6529***
IDX	1.187244	1	-1.6786 [12]	-2.0495 [12]	0.5105 [9]	52.6495***
SENSEX	1.205712	4	-3.7898* [0]	-4.7872*** [3]	0.5586 [9]	93.2591***
$GUNAF$	0.705267	1	-2.6827 [2]	-2.6043 [0]	0.6005 [9]	123.2645***
VIX	11.90447	1	-3.5288* [10]	-2.0024 [11]	0.0980** [7]	45.9855***
$\Delta BIST$	0.6335	5	-3.4868 [12]**	-1.9441 [11]	0.3015 [14]**	2.2781
$\Delta BOVESPA$	0.5846	5	-3.0166 [11]**	-2.7616 [11]**	0.1299 [14]**	2.0988
ΔIDX	0.3058	3	-2.9942 [11]*	-2.0459 [11]	0.6330 [2]	3.0672
$\Delta GUNAF$	0.2579	3	-7.0527 [4]***	-1.4210 [8]	0.5635 [12]	1.2163
			ADF	KSS	FKPSS	
$\Delta BIST$	-	-	-3.6910 [12]***	-4.9035 [1]***	0.2592 [7]**	-
$\Delta BOVESPA$	-	-	-4.8301 [8]***	-2.9959 [9]**	0.1079 [8]**	-
ΔIDX	-	-	-3.1239 [11]**	-3.4356 [5]**	0.1110 [2]**	-
$\Delta GUNAF$	-	-	-6.3969 [4]***	-3.5765 [2]***	0.0443 [12]**	-

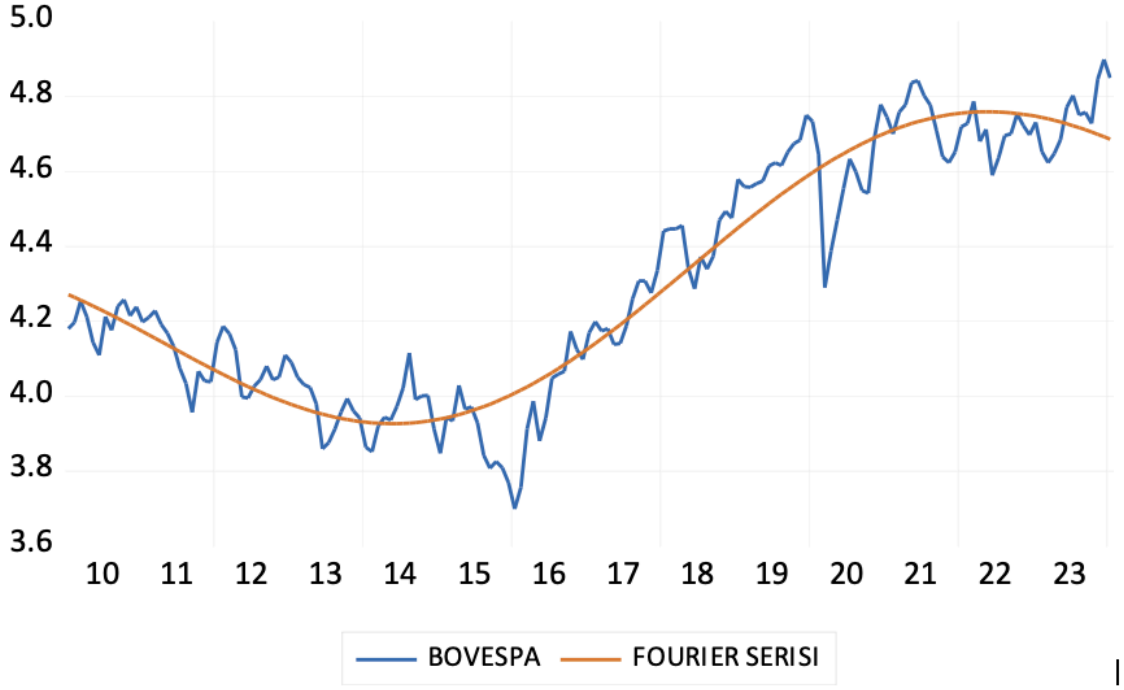
Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively. Values in [ ] are optimum lag lengths. For FKPSS, the 5% critical values with frequency (k) of 1 and 3 are 0.1720 and 0.4480, respectively. For FADF and FKSS, the 5% critical values with frequency (k) of 1 and 3 are -3.78 and -3.03, and -3.60 and -3.11, respectively. The 5% critical value for the F-statistic is 4.929. Accordingly, all trigonometric terms are significant.

Table 2: Fourier Unit Root Test Results

The FADF, FKSS and FKPSS test results presented in Table 2 show that the stationarity properties of the variables were examined considering structural breaks. The findings reveal that the series are largely not stationary at the level, but become stationary when their first differences are taken. Furthermore, the fact that the F-statistics are above the critical value indicates that the Fourier terms are significant and that there are soft structural breaks in the series. These results support the suitability of using Fourier-based methods instead of traditional methods in analyses.



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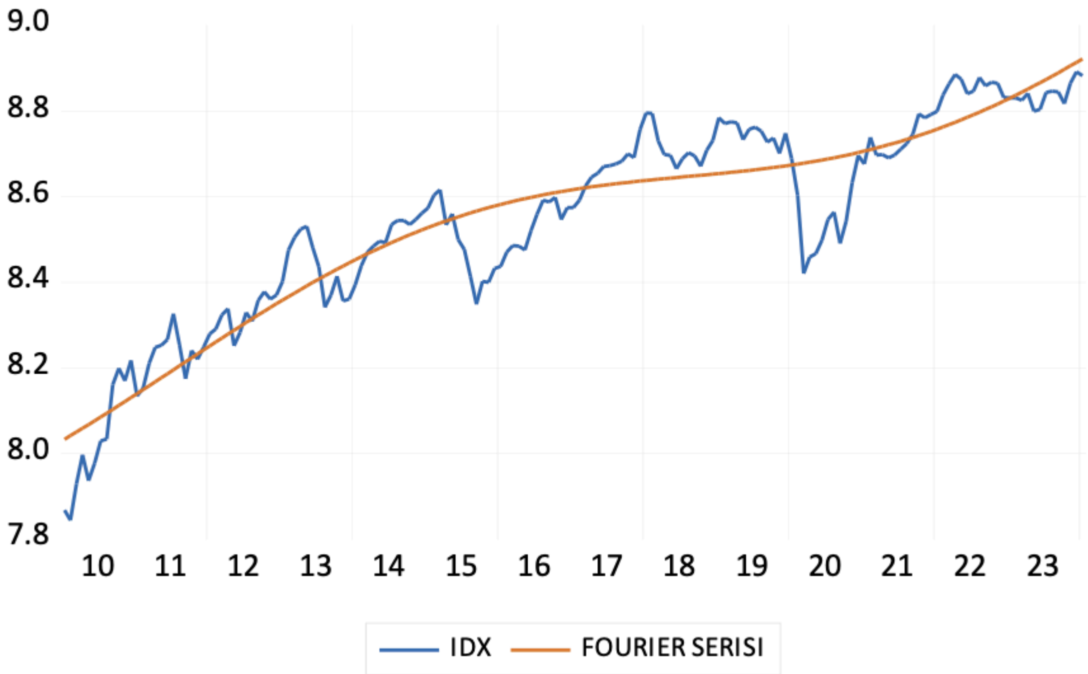
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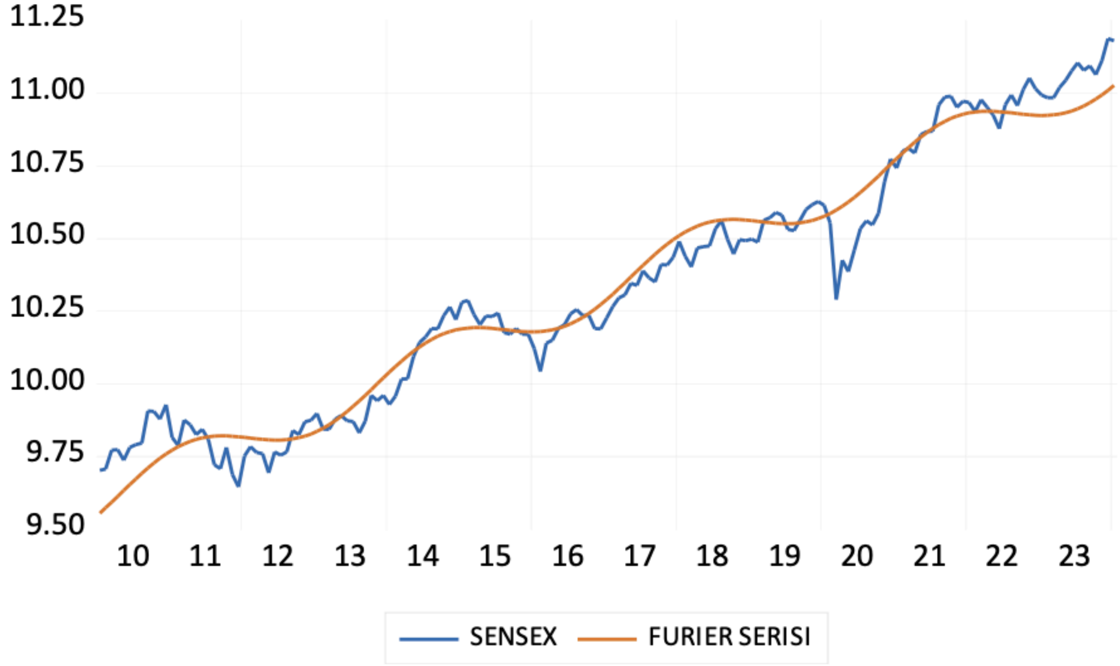
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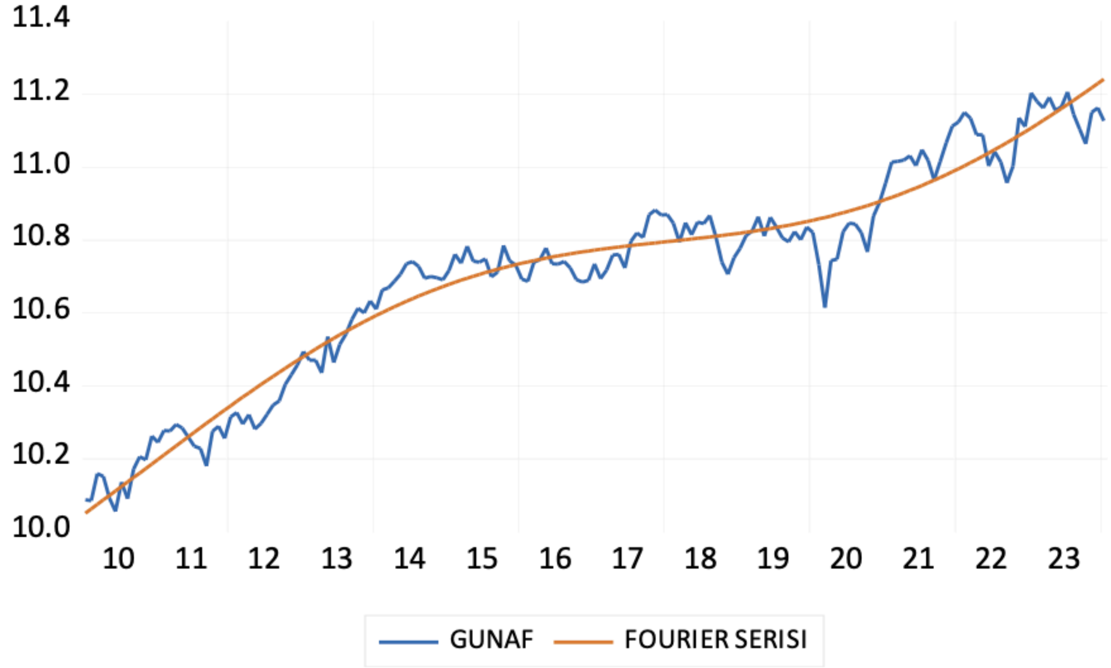
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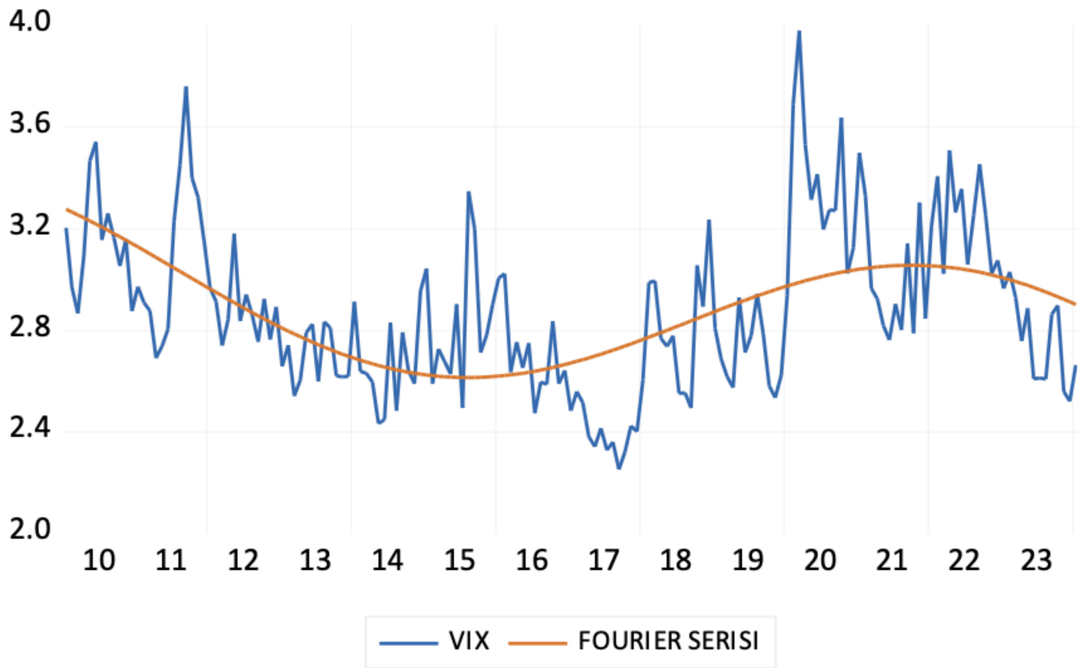

Findings from Fourier-Type Causality Tests

Findings from the Fourier Granger Causality Test (FGCT)

In light of the findings obtained from unit root tests, and because the variables used in the analysis are first-order integrated, the potential causal relationship between FS, SENSEX, and VIX was investigated using the Fourier Granger Causality Test (FGCT)

Table 3: Fourier Granger Causality Test Results

Causality direction (Null hypothesis)	Optimal frekans (k)	Optimal lag	Wald statistic	Bootstrap probability value	Decision
$FS \nRightarrow SENSEX$	3	4	19.412	0.010***	H0 is rejected.
$SENSEX \nRightarrow FS$	3	4	2.151	0.699	H0 cannot be rejected.
$FS \nRightarrow VIX$	3	4	3.582	0.415	H0 cannot be rejected.
$VIX \nRightarrow FS$	3	4	10.865	0.047**	H0 is rejected.
$SENSEX \nRightarrow VIX$	3	4	2.841	0.589	H0 cannot be rejected.
$VIX \nRightarrow SENSEX$	3	4	9.536	0.060*	H0 is rejected.

Note: ***, ** and * indicate 1%, 5% and 10% significance level, respectively. A≠>B expression; It summarizes the null hypothesis “A is not a Granger cause of B.”

Fourier Granger causality test results show that there are some statistically significant causal relationships between the variables examined. In particular, the rejection of some hypotheses at 1%, 5% and 10% significance levels reveals that the relevant variables have the power to explain each other's future movements. However, causality could not be determined for some relationships. Overall, the results show that indicators of financial stress and fear can have significant effects on the financial markets of the fragile five countries.

Findings from the Fourier Todo-Yamamodo Causality Test (FGCT)

Table 4: Results of the Fourier Todo-Yamamodo Causality Test

Causality direction (Null hypothesis)	Optimal frekans (k)	Optimal lag	Wald statistic	Bootstrap probability value	Decision
$FS \not\Rightarrow BIST$	1	2 (1+1)	2.839	0.096*	H0 is rejected.
$BIST \not\Rightarrow FS$	1	2 (1+1)	8.066	0.003***	H0 is rejected.
$FS \not\Rightarrow BOVESPA$	1	12 (1+11)	67.732	0.000***	H0 is rejected.
$BOVESPA \not\Rightarrow FS$	1	12 (1+11)	5.662	0.893	H0 cannot be rejected.
$FS \not\Rightarrow IDX$	2	10	187.782	0.000***	H0 is rejected.
$IDX \not\Rightarrow FS$	2	10 (1+9)	7.986	0.536	H0 cannot be rejected.
$FS \not\Rightarrow GunAf$	3	4 (1+3)	8.628	0.044**	H0 is rejected.
$GunAf \not\Rightarrow FS$	3	4	17.523	0.001***	H0 is rejected.
$VIX \not\Rightarrow BIST$	1	4	8.991	0.035**	H0 is rejected.
$BIST \not\Rightarrow VIX$	1	4	5.134	0.168	H0 cannot be rejected.
$VIX \not\Rightarrow BOVESPA$	1	4	3.251	0.363	H0 cannot be rejected.
$BOVESPA \not\Rightarrow VIX$	1	4	5.120	0.171	H0 cannot be rejected.
$VIX \not\Rightarrow IDX$	1	3	1.817	0.403	H0 cannot be rejected.
$IDX \not\Rightarrow VIX$	1	3	0.593	0.734	H0 cannot be rejected.
$VIX \not\Rightarrow GunAf$	1	4	7.546	0.066*	H0 is rejected.
$GunAf \not\Rightarrow VIX$	1	4	7.041	0.076*	H0 is rejected.

Note: Note: ***, ** and * indicate 1%, 5% and 10% significance level, respectively. The statement A≠>B summarizes the null hypothesis that "A is not a Granger cause of B".

The results of the Fourier Toda–Yamamoto causality test in Table 4, largely support the findings obtained from the Fourier Granger test. One-way causal relationships were found between some pairs of variables, and two-way causal relationships between others. This indicates that the effects of financial stress and fear indices manifest differently across countries. Overall, the results suggest that the stock markets of the fragile five countries are sensitive to global uncertainty and financial stress factors.

CONCLUSION AND IMPLICATIONS

The results of this study provide evidence of the high sensitivity of stock market dynamics to fear/financial stress indicators in some Fragile Five economies. Descriptive statistics showed that the series were not normally distributed and exhibited extreme volatility and outlier phenomena (particularly for the financial stress index). Likewise, Fourier type unit root tests showed the presence of structural breaks in the series; thus, indicating that linear methods may be inadequate. The output of causality analyses indicates that there is a high degree of interaction between financial stress and stock markets. Results from Fourier Granger and Fourier Toda–Yamamoto tests were overall comparable and showed that financial stress is an important factor within the transmission mechanism for markets.

Moreover, strong causal relations were found to exist in certain nations between the fear index, and it was showed that this was weaker in some markets. This indicates that, depending on the structure of national economy and finance, reactions to any uncertainties in global scales may differ. The results are generally consistent with the findings of the financial stress and investor sentiment studies in the existing literature of the behavioural finance and demonstrate a stronger exposure of fragile economies to global shocks. Higher financial stressed and fear indicators are known to have a stronger impact on stock markets of countries dependent on external financing with large macroeconomic frailties. Therefore, investors should monitor financial stress and fear indicators in their portfolios, while policy makers to develop measures that should devise policies to promote the stability of financial markets.

Finally, the results of this study show that financial shock is one of the most important factors in determining market movement or behaviour in the Fragile Five countries and, and fear indicators can affect market performance through direct or indirect means. This situation, this highlights on the need for policies that build financial resilience in these countries and protective mechanisms against systemic external shocks.

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