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Dynamic Interactions Between Market Volatility Indices: Case US

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Abstract

This paper examines the volatility of market indices, which appears to have had a major impact during the period 2015-2022. This market volatility is shown through employing methods: ordinary least squares (OLS) and dynamic conditional correlation generalized autoregressive conditionally heteroskedastic DCC-GARCH. Our principal finding indicated that the volatility index will create disturbances in the financial market through the combining of indices VIX, VXV, VIX futures term structure, and SP 500. These associations revealed a high degree of correlation, indicating that the intensity of risk aversion increases when near-term uncertainty outweighs longer-term risks. Based on these findings, a comprehensive review of the associations is as follows: It is imperative to discern between temporary volatility spikes and systemic risks. Furthermore, it is essential to identify stress regimes versus normal risk. Hence, market expectations of volatility over time must be gauged, and the timing of hedging or trading strategies must be improved. The study of the association between indices contributes to the existing literature through its use of advanced volatility forecasting models for future volatility to form a more comprehensive picture of risk.

JEL Classification: G01, G15.
Keywords: financial crisis, market indices, volatility, financial assets.

Interacciones dinámicas entre los índices de volatilidad del mercado: el caso de Estados Unidos

Resumen

Este estudio analiza la volatilidad de los índices del mercado durante el período 2015–2022 y su impacto en los mercados financieros. Para ello, se emplean modelos econométricos como Mínimos Cuadrados Ordinarios (OLS) y el modelo DCC-GARCH, que permite estimar correlaciones dinámicas entre variables financieras. Los resultados muestran que los índices de volatilidad —particularmente el VIX, el VXV, la estructura temporal de los futuros del VIX y el S&P 500— presentan una alta correlación entre sí. Esto sugiere que la aversión al riesgo de los inversionistas aumenta cuando la incertidumbre de corto plazo supera los riesgos esperados de largo plazo. A partir de estos hallazgos, el estudio destaca la importancia de diferenciar entre picos temporales de volatilidad y riesgos sistémicos persistentes. Asimismo, subraya la necesidad de identificar períodos de estrés financiero frente a condiciones normales de mercado. Analizar las expectativas de volatilidad a lo largo del tiempo puede mejorar la toma de decisiones en estrategias de cobertura y negociación. En conjunto, el estudio contribuye a la literatura al utilizar modelos avanzados de pronóstico de volatilidad para ofrecer una visión más completa del comportamiento del riesgo en los mercados financieros.

Clasificación JEL: G01, G15

Palabras clave: crisis financiera, índices de mercado, volatilidad, activos financieros..

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1. Introduction

In recent years, the field of market volatility has attracted a growing amount of interest due to its worsening phenomenon, which led to the recent financial crisis, and these effects have cast a harsh light on the triggering of bubbles and may lead to bank and company failures that are often disastrous, which affect the financial system. This research revolves around the concept of the volatility index, where the concept of volatility is a pivotal component of financial market analysis, as it serves to quantify the degree of uncertainty associated with fluctuations in asset and index prices. As demonstrated in the relevant literature, it has been the subject of considerable interest from researchers and practitioners (Orabi, M. M. A., & Alqurran, T. A., 2015). The concept of volatility, understood as the variability in stock returns, serves as a metric for quantifying the uncertainty associated with these returns. This concept is of paramount importance in the domains of portfolio management and risk assessment. Recent studies have highlighted the importance of understanding the dynamics of volatility in emerging stock markets, which often exhibit distinct characteristics compared to their developed counterparts. The stock market plays a pivotal role in the global economic landscape, functioning as an indicator and a warning signal for economic and financial activities within a nation or region (Nwosa, P.I., 2011). Hence, the different indexes, such as the SP500 index, the VIX index, the VXV index, the VIX futures index, SP500 options, and skew, are evidence that there is a significant relationship between these indicators is following:
- The SP500Index is a stock market indicator that tracks the performance of 500 large listed US companies. The index is developed and overseen by the American financial enterprise Standard & Poor's (SP), and its components are weighted based on the market capitalization of the included businesses (Pistikou, V., Flouros,F., Deirmentzoglou, G.A. & Agoraki, K.K., 2023).
- The Volatility Index (abbreviated as VIX, implied volatility of SPX options over the next month) serves as a metric quantifying anticipated fluctuations in the SP500 Index options within a 30-day timeframe. The VIX, frequently referred to as the "fear index," is calculated in real time by the Chicago Board Options Exchange (CBOE). Subsequently, the VIX futures enable market participants to engage in the trade of volatility futures product, which is derived from the VIX Index methodology. Fourthly, the VIX futures are a financial instrument that reflects the market's estimate of the value of the VIX Index at various expiration dates in the future. This product offers a variety of benefits to market participants, including the ability to implement their strategies using volatility trading, effective risk management, the generation of additional revenue, and diversified investment portfolios. Sixthly, the VXV (implied volatility of SPX options over the next three months) is a factor to be considered, where the VXV is anticipated to exceed the VIX, a crossing below 1.0 or 0.95 following a period of heightened volatility could be indicative of a market or volatility stabilization.
- The SKEW index has been identified as a crucial metric for assessing the potential risk in financial markets (Sircar, R., & Sturm, S., 2011). It has been associated that are linked to tail risk, which to predict recessions and market downturns well (Bollerslev, T. & Todorov,V.; Kelly, B., & Jiang, H., 2014; Almeida, C., Graveline, J., & Joslin, S.,2011; Gao, P., Song, Z., & Yan, Y., 2018). Analogous to the VIX index, the SKEW index from the Chicago Board Options Exchange (CBOE) can function as a proxy for investor sentiment and volatility. The SKEW is a measure of perceived tail risk in the SP 500. This index functions as a metric for quantifying the perceived tail risk in a stock's price. The placement of

the stock within the tails of the standard normal distribution curve indicates its position at either extreme of the curve. Such price fluctuations are, as a rule, unlikely to occur. Today, these indexes are more complex and uncontrollable and are considered a danger because of unlimited losses and volatility. It is subjected by some and realizing considerable gains by others, which, for lack of financial control. To address this problem, we propose to understand the origin of the volatility of stock markets. And, we would like to further demonstrate that our research aims to answer a number of fundamental questions related to the volatility index. How does the impact volatility index affect the financial market?

Recent studies emphasize that financial crises are not driven by isolated indicators but by dynamic and causal interactions among macro-financial and market-based variables, where volatility plays a central role in transmitting shocks across markets (Cantu-Esquivel, J., Ríos-Bolivar, H., & Jiménez-Preciado, A., 2023). The objective of this study is to answer how the volatility index affects the financial market through a model test that uses different indices. It is relevant to measure this association between these indicators, which are useful for investors because they enable a rapid assessment of the general market climate. A rising stock market index can suggest that the economy is booming, which can then encourage more people to invest in the financial markets. They contribute to identifying trends and economic cycles. It is as follows:

- An analysis of the concept of different indexes.
- An analysis of the relationship between indicators of index and volatility.

2. Literature Review

The capital markets play a pivotal role in economic development and expansion by facilitating investment and channeling funds from savers to investors (Bello, U., Zubairu, U., & Ibrahim, U. A., 2022). In a rather difficult international economic situation in the period post-crisis, financial markets have witnessed volatility in market indices and a negative correlation between stock returns and volatility (Bouchaud, J.-P., Matacz, A., & Potters, M., 2001). (Zhang, J. E., Shu, J., & Brenner, M., 2010) analysis of recent data resulted in the establishment of a theoretical relationship between VIX Futures and the VIX index. The researchers proposed a model that provides reliable VIX futures prices under typical market conditions. This model could be employed to price VIX options. Recent studies emphasize that volatility indices interact through dynamic and causal transmission mechanisms that intensify during periods of financial stress. (Esquivel, J., Bolivar, H., & Jiménez Preciado, A., 2023) demonstrate that cyclical synchronization and causality among financial variables play a crucial role in the formation and propagation of financial crises. Despite the popularity of the Black-Scholes model for pricing options, many researchers have shown that the model's constant volatility assumption across different strikes is inconsistent with market prices (Rubinstein, M., 1994). It has been shown that the implied volatilities generally increase as the strike price decreases (Poon, S. H., & Granger, C. W. J., 2003). Furthermore, the relationship between the volatility skew and the leverage effect is such that as the stock index value declines, the market's leverage increases concomitantly, resulting in an escalation in the riskiness of the equity. As (Whaley, R. E., 2009) demonstrated in their research, a negative correlation exists between the returns on the SP 500 Index and the fluctuations in the Volatility Index.

The study demonstrated that the relationship between SP 500 returns and the change in the VIX index is not uniform; that is to say, it is asymmetric (Giot, P., 2005). The index declines more significantly when the VIX index rises, yet it does not increase as much when the VIX index declines. Hence, excessive market volatility has been demonstrated to result in periods of uncontrolled growth, followed by subsequent decline, leading to the depletion of funds for numerous investors and the insolvency of traders (Jebabli, I., Arouri, M., & Teulon, F., 2022). Conversely, if volatility continues to escalate, it may exert a deleterious effect on investors and policymakers (Uddin, M., Chowdhury, A., Anderson, K., & Chaudhuri, K., 2021). Investors may associate higher risk with greater uncertainty and consequently modify their investment decisions accordingly. The potential of the stock market to exert a deleterious effect on the economy is a cause for concern among policymakers (Rehman, M. U., Kang, S. H., Ahmad, N., & Vo, X. V., 2021). Volatility is conventionally measured using the standard deviation or variance of returns from a single security or market index (Muguto, H., & Muzindutsi, P., 2022). The present study diverges from the approaches adopted in other research in that it focuses on three dimensions of the stock market: namely, volatility, correlation, and liquidity. In accordance with the precepts of modern portfolio theory, the risk of a given portfolio is contingent upon two factors: namely, volatility and the correlation between its constituent elements. The volatility of the market is measured using the Volatility Index, also known as the VIX index. Empirical finance studies such as emphasize the relevance of volatility indices and derivatives-based measures for assessing market risk and investor sentiment within dynamic modeling frameworks (Svitlana, M., Olha S. C., Nataliia O. H., Yaroslav V. Y., Dmytro I. S.-K., 2026).

3. Methodology

Following the instability of the financial market is caused by dynamic and causal interactions between financial indicators. So, we study this interaction in an econometric framework to examine the interdependence between market volatility indices in the US. This paper undertakes a thorough examination of several key variables, including the SP500 index, the VIX index, the VXV index, the VIX futures index, SP500 options, skew, and other relevant financial indicators. Following empirical finance standards highlighted, volatility indices and derivatives-based indicators are employed to capture time-varying risk and uncertainty transmission across markets (Svitlana, M., Olha S. C., Nataliia O. H., Yaroslav V. Y., Dmytro I. S.-K. 2026). To be more precise, the present study examines the dynamic relationship between these variables over the period from 1 January 2015 to 31 December 2022, with a focus on monthly frequencies. The period was selected based on the availability of data for various indices. Our sample is composed of the US. The choice of the US is due to a financial crisis situation based on the volatility index.

Table1. List of variables

Variables	Description
SP500 Index	Standard & Poor's 500, is a stock market index
SP500 Returns	Daily or periodic returns of the SP 500.

SP Option	Possibly measures of implied volatility or option prices.
VIX Index	Volatility Index, measures expected 30-day volatility of the SP 500.
VXV Index	measures the expected 3-month (90-day) volatility index, similar to VIX.
VIX Futures	Futures contracts on the VIX index.
VIX Option	Volatility Index Option.
SKEW	Measures tail risk (i.e., probability of extreme downside events).

Source: author's elaboration.

4. Data and Methodology

4.1 Analysis Volatility of S&P500 and VIX Index

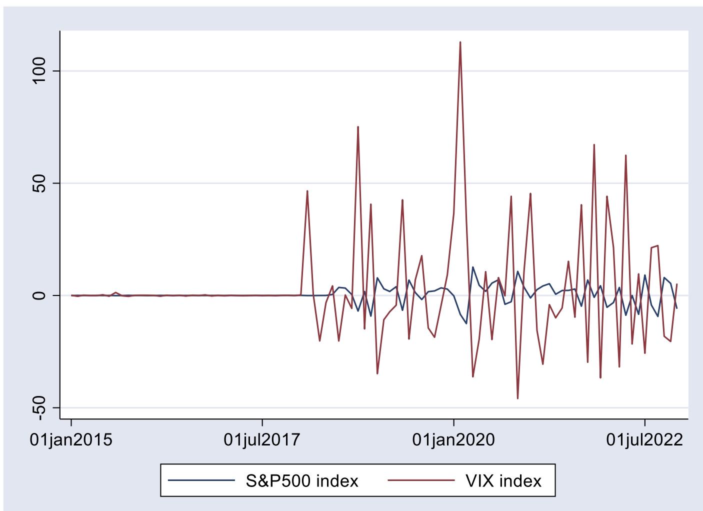

Figure 1. Daily closing levels of the SP 500 and Volatility Index VIX during January 1, 2015- December 31, 2022. Source: Compiled using data from the CBOE and the Saint-Louis Federal Reserve.

Regarding the SP500 (blue line) in Figure1, it demonstrates relatively stable and predictable fluctuations over time. The pattern remains relatively stable, exhibiting minor upward and downward fluctuations. The index VIX (Red line) exhibited significantly higher levels of volatility, with recurrent sharp spikes in value. A substantial increase was observed around early 2020, which corresponded to the emergence of the novel Coronavirus pandemic (a period characterized by market volatility). The VIX, also referred to as "the fear index," has been observed to exhibit an increase in value during periods of downward trends or increased volatility in the SP 500. An inverse relationship has been noted, indicating that rising values of the VIX are often accompanied by dips in the SP 500, suggesting a state of market anxiety. The highest peak was documented in January 2020, thereby validating the leverage effect that (Black, F. 1976) delineated in the study of stock market volatility in this paper. This behavior is consistent with the causal amplification mechanisms, which show that crisis episodes are characterized by heightened synchronization and transmission of shocks across financial variables.

4.2 VIX Futures

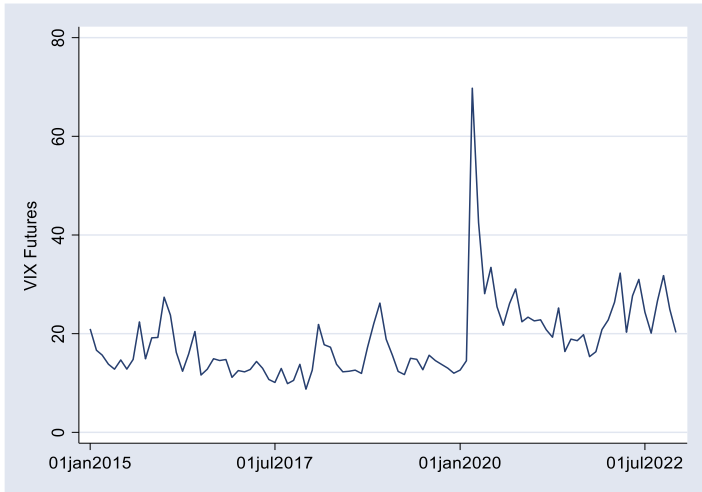

Figure 2. VIX Futures monthly, open interest and volume during January 2015-December 2022. Source: Compiled using data from the CBOE and the Saint-Louis Federal Reserve.

According to Figure2, the VIX Futures values fluctuate between approximately 10 and 30. While small peaks and dips are discernible, no extreme changes are evident. A notable spike emerges in early 2020, surpassing 80. This phenomenon coincided with the emergence of the novel strain of coronaviruses known as Sars-Cov-2, which led to a global pandemic. The market experienced significant fluctuations as a result. In the post-crisis period, the values exhibit a decline, yet they persist in demonstrating heightened volatility in comparison to the levels observed prior to 2020. This development signifies an escalation in market uncertainty.

4.3 VXV Index

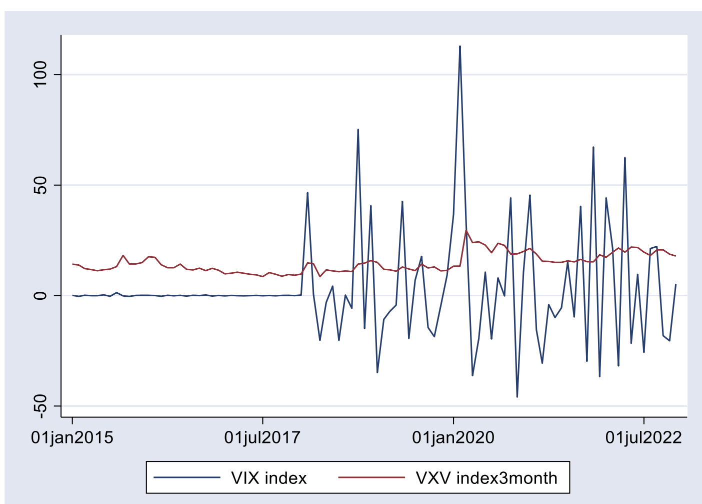

Figure 3. VIX and VXV indexes during January 2015-December 31, 2022. Source: Compiled using data from the CBOE and the Saint-Louis Federal Reserve.

According to Figure3, the VXV measures expected volatility over the next 3 months. In terms of comparison with the VIX, it is much smoother and more stable, indicating that longer-term volatility expectations are generally more anchored. It also rises slightly during the same crisis periods (e.g., early 2020), but with less intensity than the VIX. However, during periods of market stress, there is an observable widening of the gap between VIX and VXV.

4.4 Volatility Skew of SP500 Index Options

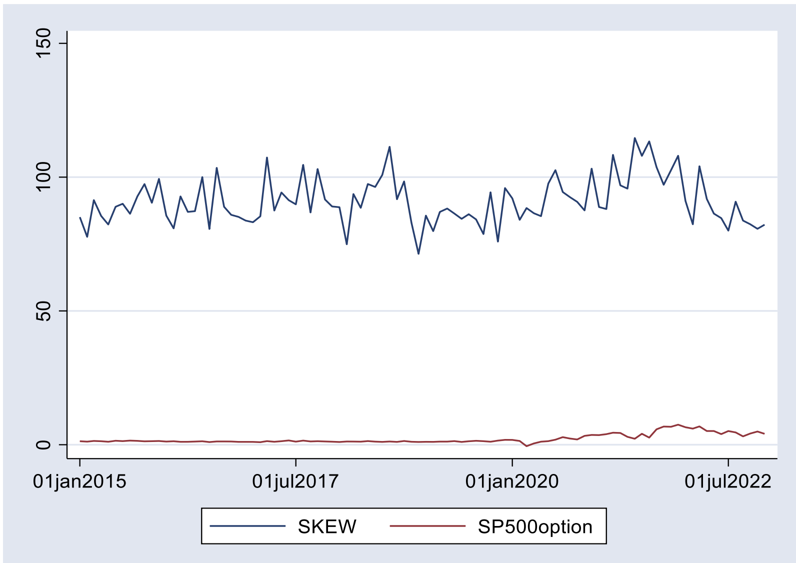

Figure 4. SKEW and SP500 Option during Janaury 2015-December 2022. Source: Compiled using data from the CBOE and the Saint-Louis Federal Reserve.

According to Figure 4, this is probably a reference to the CBOE SKEW Index (illustrated in blue), which typically ranges from 70 to 120. It suggests a prevailing concern about tail risk that they exhibited notably volatile behavior during the early months of 2020, a phenomenon that could be caused by market shock caused by the pandemic known as «COVID-19». Consequently, the SP500 option (illustrated in red) demonstrates a notable deviation from the mean. This may signify a particular option-based metric associated with the SP 500, which exhibits a notable decline in comparison to SKEW over the observed period. However, a modest increase will be observed in early 2020 and in mid-2021.

5. Empirical validation

5.1 Descriptive statistics of the different variables

Before presenting our results, we present the descriptive statistics of the endogenous variables and the explanatory variables which appear in the following table (for more details see appendix). All the considered variables are collected at a month's frequencies (according the Table2). In the first step, followed by Table1, the SP500 option (σ =1.7) exhibits a relatively low standard deviation, indicating a reduced level of risk. It is evident that the lower variable is associated with a reduced level of risk. In contrast, the VIX index (σ = 24.76) shows a much higher standard deviation, reflecting greater volatility.

Table2. Statistic descriptive of different variables

	SP500	SP500 return	SP500 Option	VIX	VIX Futures	SKEW
Mean	0.458	0.885	2.2	3.09	14.78	18.72
Std.dev	4.195	3.58	1.71	24.76	4.32	8.22
Max	12.68	6.51	7.5	112.9	29.57	69.76
Min	-12.51	-18.92	-0..533	-45.9	8.58	8.75
Skewnes	0.2736	0.000	0.000	0.000	0.0012	0.000
Kurtosis	0.018	0.000	0.04	0.0001	0.381	0.0000

Source: Compiled using data from CBOE and the St. Louis Federal Reserve.

Furthermore, the reported skewness and kurtosis values indicate asymmetries across the variables. However, their magnitudes suggest that the distributions do not substantially deviate from normality.

5.2 Correlation matrix

Table3. Correlation matrix of different variable

	SP500	SP500return	SP500Option	VIX	VXV	VIX Futures	SKEW
SP500	1						
SP500 return	0.44	1					
SP500 option	0.064	-0.107	1				
VIX	-0.73	-0.496	0.02	1			
VXV	-0.027	0.097	0.439	0.042	1		
VIX Futures	-0.12	0.164	0.201	0.021	0.867	1	
SKEW	0.14	0.037	0.247	-0.067	-0.0115	-0.0772	1

Source: Compiled using data from CBOE and the St. Louis Federal Reserve.

This table 3 is based on the correlation matrix, we observe a strong negative relationship between the SP 500 and the VIX index (correlation coefficient: -0.73). This indicates that when the SP 500 rises, the VIX tends to decline, and vice versa. Such behavior is consistent with the nature of the VIX, which measures market expectations of volatility-typically increasing during periods of market stress and decreasing when markets are stable or rising. In addition, the correlation between the SP 500 and VIX futures is weaker (-0.12), but it still suggests a general inverse relationship. This weaker correlation may reflect the fact that VIX futures incorporate expectations of future volatility, which may not move in lockstep with the current spot VIX index or immediate market movements.

The correlation results show some interesting patterns. For example, the correlation between the VIX Index and VXV Index is only 0.042, which is unexpectedly low given that both measure volatility (short-term vs. medium-term). This suggests the data may need to be double-checked, as these indices are usually more closely related. In contrast, the correlation between the VXV Index and VIX Futures is 0.867, which is more in line with expectations since both reflect market-implied volatility and typically move together. Meanwhile, the SP 500 Option and VXV Index correlation of 0.439 indicates a moderate positive relationship, which makes sense as option pricing often responds to shifts in medium-term volatility expectations.

5.3 Analyze Variance-Covariance

Subsequently, an examination of the linear relationships between these variables is conducted through the utilization of the variance-covariance. In this regard, it is important to analyze the potential associations between different variables based on the ANOVA (Analysis of Variance) / MANOVA (Multivariate analysis of variance).These methods constitute a statistical technique for the purpose of comparing means for different indices. In the event that observed differences are determined to be statistically significant or due to random chance, the subsequent analysis shall be conducted. Hence, a statistical technique known as analysis of variance (ANOVA) is utilized to assess the significance of variations by means of three or more independent variables. So, MANOVA represents a statistical technique that is employed to make comparisons between the means of two or more dependent variables. Table 4 illustrates the analysis of variance-covariance. At first glance, we have studied the relation N°1 SKEW with SP500Option. In the second step, we studied the relation N°2 between SP500 returns with the VIX index and VIX Futures.

Table4. Variance-Covariance of different variables

	Partial SS	**df -MS**	**Root of MSE**	**R2**	**Adj-R2**	**F**	**Prob>F**	**Partial SS**
SKEW	455.592	1	455.592	8.62	0.06	0.05	6.13	0.015
SP500 Option	455.592	1	455.592	-	-	-	6.13	0.015
SP500 return	339.231	2	169.61	3.08	0.27	0.26	17.83	0.000
VIX	306.009	1	306.0	-	-	-	32.16	0.000
VIX Futures	37.58	1	37.58	-	-	-	3.95	0.04

Source: Own elaboration with data from CBOE and the St. Louis Federal Reserve, Stata13.

We find the significance at the 1% level tells us there are indeed statistically significant differences between at least some of the four concentrations. Although the output is the usual ANOVA table, let's run through it anyway. Above the table is a summary of the underlying regression. The ANOVA F-test would have rejected the null hypothesis (that all group means are equal). But the effect size differs drastically between Relation N°1 and Relation N°2:

- Relation N°1: Statistically significant but practically weak (low R^2 = 0.06, high RMSE=8.62).
- Relation N°2: Statistically significant and practically more meaningful (better fit, lower error, low R^2 = 0.27, high RMSE=3.08).

The first line of the table 4 offers a synopsis of the model. The sum of squares (Partial SS) for the relation N°1 is 455.5927, with 1 degree of freedom (df). However, the second relation is found to be 339.23183, with two degrees of freedom (df). The mean square (MS) of this line is calculated to be 455.5927, which is equivalent to 455.5927. However, the second relation has a mean square (MS) of 339.23183/2 ≈ 169.61592. We conclude, both Relation N°1 and Relation N°2 contribute significantly to explaining variation in the dependent variable. Relation N°2 shows much stronger evidence ($F = 17.83$, $p < 0.001$) compared to Relation N°1 ($F = 6.13$, $p = 0.0151$). Overall, the model is statistically significant, meaning it provides meaningful explanatory power.

5.4 Estimation results

Then, our estimates are through the application of Stata econometric to a sample of the US over a period of 8 years (from the year 2015 to 2022). Most of the results obtained show the existence of relationships between the skew, SP Option, in the first step and the SP500 index, VIX, and VIX Futures in the second step. We use the linear regression method for the relationship between different variables. From the table, the estimation of the aforementioned relationship is based on the methodology proposed by Engle and Granger in 1987 (Engle, R. F., & Granger, C. W. J., 1987), which employs the so-called ordinary least squares method (OLS). The function:

- Skew(t)= α + β1SP500 Option+$\mathcal{E}$t
- SP500 return(t)= α + β1VIX+ β2VIX Futures+$\mathcal{E}$t

With hypothesis: H0: Skew has an effect on the SP500 Option.
H1: Skew has not affected the SP500 Option.
H2: SP500 return has an effect on the VIX index and VIX Futures.
H3:SP500 return has an effect on the VIX index and VIX Futures.

Table5. Estimation of different variables «OLS»

	RelationN°1	**RelationN°2**	
	SP500Option	**VIX**	**VIX Futures**
Coeff	1.27	-0.072	0.076
Std.dev	0.5	0.012	0.038
P>t	0.015	0.000	0.05
F	6.13	17.83	
P>F	0.015	0.000	
R2	0.06	0.277	

Source: Own elaboration with data from CBOE and the St. Louis Federal Reserve, Stata13.

Relation N°1 : Skew(t)= α +β1 SP500 Option +$\mathcal{E}$t

According to table 5, the results indicate that the variable Skew has a positive and statistically significant impact on the SP 500 option. The null hypothesis (H_0) is therefore accepted, since the p-value is $0.015 < 0.05$. This finding suggests that skewness in implied volatility is significantly related to option pricing. In particular, most of the results highlight how the implied volatility of options varies systematically with the strike price. Relation N°2 : SP500 return(t)= α + β1VIX+ β2 VIX Futures+$\mathcal{E}$t

From the estimation results, we find that the overall model is statistically significant; P>F(2,93)=0.000. The relationship between the SP 500 return and the VIX index is significantly negative (P=0.000< 0.05). In contrast, the relationship between the SP 500 return and VIX Futures is positive and statistically significant at the 5% level (P=0.05). Therefore, hypothesis H2 is accepted.

5.5 Robustness Check

Table6. DCC Results The values in the parenthesis are the std errors. *1%, **5%, and *** 10% represent significance levels at 1%, 5%, and 10%, respectively.

	RelationN°1	**RelationN°2**	
	SP500Option	**VIX**	**VIX Futures**
Coeff	1.27	-0.0724	0.0765
Std.dev	0.509	0.0125	0.037
P>t	0.012	0.000	0.043
Chi2	6.26	36.83	

Source: Own elaboration with data from CBOE and the St. Louis Federal Reserve, Stata13.

Consistent with the dynamic risk-measurement approaches commonly adopted in applied finance research (Svitlana, M., Olha S. C., Nataliia O. H., Yaroslav V. Y., Dmytro I. S.-K), the DCC-GARCH model is used to estimate time-varying correlations among volatility indices. To check the robustness of our results, we implemented the DCC-GARCH(1,1) model. The results, reported in table 6 for the full sample and the post-crisis period, indicate that the sum of α and β is less than one for all models, satisfying the necessary stationary restriction. Moreover, all β values, reflecting persistent volatility, are significant at the 1% level. Overall, the findings provide evidence of substantial dynamic interdependencies among the variables, suggesting a highly integrated financial market. The DCC-GARCH(1,1) results further support our conclusion that the VIX market is the most volatile among the financial markets studied. Although volatility rose significantly in the post-crisis period, notable declines were observed in specific pairs, particularly the Skew and SP 500 options and SP 500 returns & VIX index. This implies that VIX futures offer attractive portfolio diversification opportunities amid high market uncertainty. Overall, these results align closely with our correlation analysis.

6. Conclusions

In this paper, we examined these relationships between different indices that have strengthened the contagion through different variables to identify the interdependency between the market index and financial assets. We used descriptive statistics and the correlation matrix to study the relationship between variables in the first step and present the effect of the market index on index volatility of financial assets in a second step using the «OLS» method. We then conducted robustness checks by applying a DCC-GARCH model. Overall, we found that the market index SP500 and VIX indicate an inverse relationship. Notably, the VIX index augmented significantly during the post-crisis, wherein SP500 is low. However, other variables are obtained to show the existence of a relationship between the stock market index and financial assets. This relationship shows the existence of financial drifts, which would lead to the bursting of the financial bubble. It is possible and anticipated that there will be another financial crisis. The findings imply that the anticipated occurrence of a fall in the index market and the deviation of the financial system is caused by the contagion risk. It states that increasingly complex and uncontrollable derivative instruments are considered today as a danger because of unlimited losses. They represent considerable gains, which contributed to the obscene wealth of the capitalists because of the lack of financial control.

The financial market volatility resulting has led to widespread investor apprehension regarding potential monetary losses. This information can be used by investors to make informed investment decisions, aiming to mitigate risk in their portfolios. The findings of this study indicate the presence of specific policy implications that, if given immediate consideration and subsequent implementation, could contribute to the preservation of optimal financial system performance and the regulation of index return volatility. Firstly, empirical estimates demonstrate that the return volatility of six indexes has had a significant impact on financial markets. Consequently, any modification to financial policy must consider the dynamics of the financial market. This is because modifications to policies pertaining to index returns will have a substantial impact on the US financial system, particularly in the next years. This study employed an empirical approach to analyze the price return movements of indices in the years preceding the current period.

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