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Impact of National Culture on Stock Markets' Returns and Volatility: Evidence from BRICS-P

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Abstract. This study aims to investigate how national cultures affect stock market returns across the BRICS economies and Pakistan. The conceptual framework is how national cultures affect stock return and volatility with six dimensions (PDI, UAI, MAS, LTO, IDV, and IVR) and two control variables, the exchange rate and interest rate. The data samples are extracted from Six BRICS'P nations, including Brazil, Russia, India, China, South Africa, and Pakistan for the period from January 1, 2011, through December 31, 2021. Regression analysis using panel data was utilized in this study to examine the effects of the major factors both individually and collectively. The results of panel data analysis indicate that National culture has little effect on returns from all six countries. Furthermore, only MAS has a negative substantial impact on return in the national culture dimension. Volatility is adversely affected by national culture. National cultures affect stock market volatility and returns globally, but because it analyses long-term data and Hofstede's culture modifies the data over the years.

Key words: National Culture, Stock Return, Stock Volatility, Exchange rate, Interest Rate.

1 Introduction

People who belong to one social structure are distinguished from those who belong to other societies or groups by a shared set of values, customs, and beliefs known as culture (House et al., 2004). Culture has an impact on how people act since it establishes what is ethically right and wrong in society (Hofstede, 2001). National culture is defined as "the collective mental conditioning that separates inhabitants of one nation from those of another" (Hofstede and Minkov, 2010). Although the tradition is a broad and challenging notion to quantify, this research focuses on the aspect of national culture that aids in preventing uncertainty. Country differences in uncertainty avoidance (Hofstede and McCrae, 2004).

Culture is the taught and practiced manner of thinking and behaving among a group of people or a community. Significant cultural differences exist in terms of basic patterns of beliefs and attitudes. Indulgence vs. restraint, Power Distance (PDI), Individualism vs. Collectivism (IDV), Masculinity vs. Femininity (MAS), Uncertainty Avoidance (UAI), Long-Term Orientation (LTO), and Long-Term Orientation (LTO) are all examined using the Hofstede model of national

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culture (IVR). According to the study, the dominant national culture, which affects people's feelings about uncertainty, is a crucial emotional factor in understanding why investors in different nations reacted to the issue in such a variety of ways. People who belong to one social unit are distinguished from those who do not share set of values, beliefs, and customs known as culture (House et al., 2004). Human behavior is influenced by culture since it establishes what is morally right and bad in a society (Hofstede, 2001). "The collective mental training that distinguishes citizens of one nation from those of another" is how national culture is defined (Hofstede, 2001; Hofstede and Minkov, 2010).

The PDI dimension reflects the degree to which society's less powerful individuals accept and anticipate an unequal distribution of power. How a society responds to socioeconomic injustice is the main issue. The preference for a social structure in which people are expected to look out only for themselves and their immediate families is known as individualism. The MAS suggests that achievement, bravery, assertiveness, and monetary benefits for success are preferred in society. The average individual is not as competitive as the common person. Contrarily, femininity is characterized by a preference for community, humility, care for the vulnerable, and a high quality of life. A more prevalent viewpoint is held by the average person. The Uncertainty and Ambiguity Index (UAI), which assesses the emotional reaction to uncertainty, provides information about how uncomfortable a society's citizens are with ambiguity. High UAI nations adhere to strict religious and social norms and are intolerant of unusual practices and viewpoints. Cultures with low UAI are more prevalent and prioritize action over belief. Long-Term Orientation (LTO) holds that while addressing present and future problems, any community must preserve some historical connections. Both of these objectives are approached differently by societies. The relationship between BRICS'P and stock return and volatility is One of the primary distinctions that we have highlighted is that national culture is founded on the values that specific populations of individuals favour or believe are worthy of preservation. In fact, low-scoring societies react unfavorably to cultural advancement and seek to retain long-standing beliefs and customs IVR Indulgence societies—societies where basic, normal human desires—like taking pleasure in life—are mostly unchecked. A civilization that practices restraint places stringent societal restrictions on the fulfillment of aspirations.

The paper addresses two main issues: developing models for current research and using national culture as a proxy. Hofstede's 6 Dimensions of Culture, published in 1980 and 2001, is widely recognized as one of the most significant works in cross-cultural psychology (Beracha et al., 2014). The first four quantitative indicators created by Hofstede were "Power Distance" (PDI), "Individualism vs. Collectivism" (IDV), "Masculinity vs. Femininity" (MAS), and "Uncertainty Avoidance" (UAI) (1980). (UAI). Hofstede introduced two new indices, "Long-term vs. Short-term Orientation" (LTOWVS) and "Indulgence vs. Restraint" (IVR), to expand the (Hofstede, 2001). These indexes are believed to be current and capable of describing a nation's most significant cultural characteristics. The stock market's volatility is a significant cause for worry and confusion. The concept of recognized volatility (RV), which is based on the variance of stock market returns, has been demonstrated utilizing a range of time series analysis techniques and random differential conditions (Fornari and Mele, 2000). However, indicated instability (IV) is a frequently used sign of unpredictability. The produced IV file uses the entire financial exchange list as the main resource and is a weighted composite of costs for a number of alternatives. Han and Melecky (2013) is used as a tool to assess the market's overall sentiment.

2 Theoretical Background

2.1 Efficient Market Hypothesis

The market efficiency hypothesis postulates that a financial market is efficient when determining stock prices if it properly and completely reflects all pertinent information. A market is deemed efficient with regard to particular information sets in particular if disseminating that information to all players has no impact on the stock price. Additionally, the effectiveness of an information set shows that it is challenging to earn significant returns through trading. The Efficient Market Hypothesis (EMH) states that asset prices should be a fair reflection of all currently available information, and that returns should follow investors' perceptions of risk. The Efficient Market Hypothesis (EMH), one of the most popular and well-known modern financial theories, contends that all pertinent information is swiftly absorbed into securities prices as it is made available. Weak, semi-strong, and strong efficient markets are the three varieties (Naseer and Bin Tariq, 2015).

2.2 Risk-Reward Analysis

In this study, the risk-reward hypothesis contends that stock investors use the risk/reward ratio to manage their capital and risk of loss. The ratio is useful in analyzing the risk and return expectations for a market.

2.3 Gap Analysis

Nobody has looked into the relationship between country culture and stock market returns, despite the fact that many people have examined stock market returns and volatility. Country culture affects asset price in equity markets. The authors have identified four cultural characteristics: power distance, masculinity, uncertainty avoidance, and long-term orientation. These factors are mostly focused on in their findings. Even though, in contrast to other prospectuses, they do not pay any attention to all six dimensions, and do not indicate how they relate to one another. This research, which will contribute to the literature, will emphasize the importance of national culture as a gap in the chain (Aggarwal and Goodell, 2014; Nadler and Breuer, 2019).

2.4 Problem Statement

To debate about culture, including how different cultural behaviors affect stock market performance. Because there is a long-term and short-term orientation, cultural differences affect the power distance between countries, and because different cultures influence how investors behave in the stock market, this could lead to a crash in the market.

2.5 Research Questions

- Does national culture affect stock returns and volatility of financial markets?
- Does national culture affect the investor's decision?

2.6 Objectives of the Study

- To investigate the effect of national culture on stock return and volatility of financial markets.
- To examine how national culture affects investor's decision.

2.7 Significance of Study

Portfolio managers may be able to make wiser choices as a result of this study during a financial crisis. Additionally, it's critical for investors who are choosing between long-term and short-term investments during a pandemic. Risk managers can use this study to reduce risk, and policymakers and the government can also benefit from it. Additionally, business leaders and stock market decision-makers will be able to pinpoint strategies for successfully managing stock market volatility. Thus, the study concludes that leadership should be the main emphasis of international improvement of different resources since it is crucial for understanding culture, at least in multinational corporations. In order for us as researchers to comprehend market circumstances and their effects.

3 Literature Review

3.1 Impact of National Culture on Stock Return and Volatility

Yildiz and Karan (2020) looked into how national environmental performance and culture impacted the risk of stock price declines for companies that produce sustainable energy. They use a sizable sample of 626 sustainable energy companies from 31 nations to demonstrate a positive nonlinear relationship between national environmental performance and crash risk. National cultural traits, particularly in the wake of the global economic crisis, have a significant impact on projecting the risk of a sustainable energy failure. On the other hand, neither national culture nor environmental legislation significantly influence the likelihood that a fossil fuel corporation will fail. Other stock market crash risk estimations found no difference in the endogeneity of national cultural characteristics. According to Li et al. (2019), stock market volatility is a significant contributor to ambiguity. A cross-sectional analysis based on the Generalized Additive Model shows that all six variables have a significant influence on the volatility levels in individual stock markets. This study supports the long-term importance of national culture. The findings show the distinctive intuitive patterns of the six dimensions, which aid in understanding the levels of implied volatility in international equity markets. Despite being informal, national culture is more resistant to deliberate policies and institutional governance (North, 1990). National cultures also have a big influence, especially when it comes to global finance and other concerns (Shiller, 1999). The strong country-specific influence generally (Bekaert and Harvey, 1997). The influences of national culture are considerable even for economic institutions that are a part of market integration or an open market (Eun et al., 2015).

The major objective of the essay is to investigate the effects of infrastructure investment and development on economic growth in the BRICS (Brazil, Russia, India, China, and South Africa) countries. Each country's impact is examined both individually and collectively. The ordinary least squares regression approach is used to examine the effects of infrastructure investment and development on economic growth for each nation (Apurv and Uzma, 2020). Using panel data methodologies including the panel least square method, panel least square fixed-effect model,

and panel least square random effect model, the combined effects of the BRICS countries is investigated. The dynamic panel model is also used in the study for analysis. The study's results are inconsistent. There is not a significant link between infrastructure investment and development and economic growth for the BRICS countries. There is not much of a link between infrastructure investment, development, and economic growth in Brazil and South Africa. By making investments in and expanding its energy and transportation infrastructure, Russia's economy expands. In India, there is a negative relationship between telecommunications infrastructure development and economic growth, but in China, there is a negative relationship between transportation infrastructure development and economic growth. The results from the panel data demonstrate that economic growth is adversely connected with the growth of the communications infrastructure, but positively correlated with the growth of the energy infrastructure.

The purpose of this study was to explain why and how specific contextual aspects are significant, rather than just asserting that "context matters." The lack of a statistically significant correlation between performance-related pay and factors like labour turnover or productivity, for instance, may indicate that Pakistani values that place a premium on collectivism and seniority have an effect on how businesses implement this policy and/or how employees respond to financial incentives. 392 business owners in the banking, pharmaceutical, and IT sectors participated in a unique study (Rehman et al., 2019). Managers from both domestically and internationally held multinational subsidiaries are included by the authors to guarantee that the sample fairly represents enterprises in Pakistan. Similar to how businesses in Pakistan may conduct performance assessments that are substantially different from those in the UK, the USA, and other nations like BRICS and P, and which are not significantly related to any of our findings.

In a study influence of national culture on each person's attitude towards online brands and marketing. This study examined the impact of Hofstede's cultural elements on consumers' attitudes on internet companies and marketing. Self-control, individualism, masculinity and femininity, power distance, and long-term orientation were among the cultural factors. 200 Karachi residents who answered a closed-ended questionnaire using a Likert scale provided the evidence. Confirmatory factor analysis and structural equation modelling were used to analyse the data. The findings indicated that attitudes towards online advertisements are predicted by individualism and long-term orientation. Apart from these findings, an additional finding was that there is no favourable correlation between internet advice and masculinity. The relationship between masculinity and attitudes towards online brand advertisements was the hypothesis that was rejected; however, there were some favourable correlations between these attitudes and other aspects of culture.

The KSE-100 index, the KSE-30 index, and the KMI-30 index are three Pakistani indices that were the subject of a study conducted (Khan et al., 2020). The study used an event analysis approach to examine how the outbreak affected individual firm stock returns. The study used a 160-day estimate period and a 61-day event window that included the event date. Significantly impacted stock returns in the post-event window negatively. In the post-event window, there is a sizable negative connection between the stock returns.

3.2 Impact of Exchange Rate and Interest Rate on Stock Return and Volatility

Using monthly time series data for the Bangladeshi economy from 1997 to 2010, Muktadir-al Mukit (2012), investigated the impact of exchange rates and interest rates on stock market performance. This study measures the long and short-term relationship between variables using

the concepts of cointegration and the error correction model as well as variance decomposition analysis. To examine causal relationships, the Granger causality test was applied. The Cointegration method was used to find that, over the long term, a 1% increase in the exchange rate and a 1% increase in the interest rate, respectively, lead to an increase of 1.04% and a decrease of 1.71% in the market index. The anticipated error correction coefficient indicates that 7.8% of stock returns are modified in the short term. The market index and the currency rate, as well as the market index and the interest rate, have a unidirectional association, according to Granger causality analysis.

Researchers Jabeen et al. (2022) looked into how macroeconomic news affected the value of the Pakistani rupee. It achieved this by using GARCH models and current macroeconomic information, such as exchange rates. The results demonstrate that macroeconomic variables are related to the daily fluctuations of the Pakistani rupee. The Pakistani rupee's value is greatly influenced by macroeconomic news releases on a national and worldwide scale. The majority of macroeconomic news, both domestic and foreign, immediately modifies the Pakistani rupee's volatility and return on investment. The majority of US and PAK domestic macroeconomic news has an instantaneous impact on PKR/USD exchange rates as compared to the impact of other international and local macroeconomic news on Pak rupee exchange rates. Nevertheless, there were a total of 6,072 announcements made during the analysis period. Along with 1,056 news items from Europe and Pakistan, 1,320 news items are available from the United States, the United Kingdom, and Japan. The article also demonstrates how different major currencies are impacted differently by domestic and global macroeconomic news announcements in terms of exchange rate returns and volatility. The information suggests that the behavior of the Pakistani rupee exchange rate is consistent with theories on how exchange rates are determined and how such monetary authorities respond.

3.3 Hypothesis of the Study

The review of different studies helps to develop the following hypothesis:

H_1: *National culture has an impact on stock return and volatility*

4 Data Description and Methodology

4.1 Population and Sample of Study

In order to account for the diversity of national cultures, the population and sample of the study are divided into six countries, all of which are emerging markets. Hofstede's national culture with six dimensions (PDI, UAI, MAS, LTO, IDV, and IVR), Daily stock market data are used in this study. The study's sample period runs from January 1, 2011, through December 31, 2021. These 6 nations' data in Table 4.1 were collected from investing.com.

Table 4.1: Emerging Markets

B	Brazil
R	Russia
I	India
C	China
S	South Africa
P	Pakistan

4.2 Econometric Model

Impact of National Culture on Stock Market's Returns and Volatility is estimated by using panel regression model is define as:

$$\text{Return}_{it} = \beta_0 + \beta_1 \text{ National culture}_{it} + \beta_3 \text{ Exchange rate}_{it} + \beta_4 \text{ Interest rate}_{it} + \epsilon$$

Table 4.2: Description of Variables

Variables		**Description**
Dependent Variables	Return	R = ln(Pt /Pt-1) Where pt is the return for the day and pt-1 is the return for the previous day
	Volatility	Volatility is forecast from EGARCH Model
Independent Variable	National Culture	Calculate index from Hofstede's culture indices Power Distance (PDI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS), Uncertainty Avoidance (UAI), Long-Term Orientation (LTO), and Indulgence versus Restraint (IVR)
Control Variables	Exchange Rate	Exchange rate from historical X-rate in PRs /$
	Interest Rate	Interest rate formula I/Pt = r data gathered from investing.com

5 Data Analysis and Discussion

Stock Returns

5.1 Descriptive Statistics

Descriptive statistics are a tool for data analysis that looks at how data behaves statistically. The data's location, a measure of central tendency, and a measure of dispersion are the three components. The data's kurtosis and skewness can be used to determine its position. In addition

to the mean and standard deviation, Table 4.2 shows the maximum, minimum, skewness, and kurtosis. From January 1, 2011 to December 31, 2021, the behavior of data for all variables in the study model was examined. The mean and median are two central trend indicators. The standard deviation of the data, which is a measure of dispersion, shows the average risk per day.

Table 4.2 displays the descriptive statistics for all variables included in the results. The numbers in the table indicate that the average return on cultural investment is 50.86%. The greatest profit for the day is 69.00%. It denotes the day's highest cultural return. The highest loss per day is 36.00%. The average variation is 8.21%. With a positive skewness of 0.172510, the return is liptokartic and lower. The kurtosis 2.67 value of the return data is less than 3, indicating that the data is flat.

The figures in the table show that the typical individualism (IDV) return is 45.63%. The daily maximum profit is 91.00%. It stands for the highest individualism (IDV) return of the day. The daily maximum loss is 14.000%. There is a 24.23% average variation. The return is positively skewed at 0.59 percent, suggesting a liptokartic and lower return. The return data's kurtosis (2.23) value is less than 3, suggesting that the data is flat.

Table 5.1: Descriptive Statistics

	ER	CULTURE	IDV	IR	IVR	LTO	MAS	PDI	SR	SV
Mean	0.0016	50.86	45.63	0.093	39.22	50.06	55.426	60.43	0.00497	0.126
Max	0.0032	69.00	91.00	0.97	71.00	88.00	95.00	93.00	0.00699	0.201
Min	0.0005	36.00	14.00	0.00078	0.00	14.00	10.00	11.00	0.0037	0.091
Std. Dev.	0.0009	8.21	24.23	0.28	24.56	22.26	17.29	20.35	0.000975	0.029
Skew	0.475	0.173	0.599	2.85	-0.26	0.28	-0.063	-0.703	0.503	1.301
Kurtosis	1.679	2.67	2.23	9.098	1.74	2.061	4.328	3.0023	2.448	4.525
Observations	66	66	66	66	66	66	66	66	66	66

The average uncertainty avoidance (UAI) return in the table's statistics is 54.38%. 95.00% is the highest profit for the day. It is the UAI uncertainty avoidance return for the day. The daily maximum loss is 8.00%. The standard deviation is 22.41%. The return is positively skewed at 0.038, indicating that it is lower and liptokartic. The kurtosis 2.63 value for the return data is less than 3, which denotes that the data is flat.

The long-term orientation (LTO) return is on average 50.068 percent. High profit for the day is 88.00%. The day's long-term orientation is coming to a finish (LTO). The maximum loss per day is 14.000%. 22.26% is the standard deviation. The return is liptokartic and lower, with a positive skewed value of 0.28. The kurtosis 2.06 value of the return data is less than 3, which means that the data is flat.

The numbers in the table show that the average return for masculinity versus femininity (MAS) is 55.43%. The maximum profit for the day is 95.00%. The biggest masculine vs. femininity (MAS) rematch of the day is taking place. The daily maximum loss is 10.00%. 17.29% of the variance is average. The return is negatively skewed at -0.063, indicating a lower and liptokartic return. The behavior is leptokurtic and the research concludes that the data has peaked because the kurtosis (4.328) value of the return data is more than 3. The figures shown in the table in-

dicate that the average power distance (PDI) return is 60.43 percent. The highest profit for the day is 93.00%. The day's PDI rematch is taking place. The maximum loss per day is 11.00%. The average variance is 20.35%. The return is leptokurtic and lower since it is negatively skewed, at -0.703129. The study concludes that the data has peaked because the return data's kurtosis (3.0023) value is higher than 3.

The figures in the table show that the average indulgence versus restraint (IVR) return is 39.22%. The greatest profit for the day is 71.00%. It's today's biggest indulgence versus restraint (IVR) return. The return is negatively skewed at -0.26, implying a leptokurtic and lower return. The return data's kurtosis (1.73) value is less than 3, suggesting that the data is flat.

According to the information in the table, the average return on exchange rates is 0.0016%. The maximum return for the day is 0.0032%. It indicates the day's highest return on the exchange rate. The maximum loss per day is 0.00052%. The variation is 0.00094% on average. At 0.474975, the return is favourably skewed, pointing to a liptokartic and lower return. The return data's kurtosis 1.679 value is less than 3, which denotes that the data is flat.

IR, or interest rate return, is typically 0.093%. The day's greatest profit is 0.97%. At the end of the day, it's the exorbitant interest rate (IR). The daily loss cap is set at 0.000786. The standard deviation is 22.26%. The return is positively skewed at 0.279, indicating liptokartic and lower. Because the return data's kurtosis 9.0979 value is more than 3, the study concludes that the data is peaking.

This table shows that the typical stock return (SR) is 0.0049%. The day's highest profit is 0.0069%. At the end of the day, everything is about having the highest stock return (SR). The daily maximum loss is 0.0037%. The standard deviation is 0.00097%. The return is favorably skewed at 0.503, which denotes liptokartic and lower. The research can be sure that the data is flat because the kurtosis (2.448) value of the return data is less than 3. This table shows that the average stock volatility (SV) is 0.126%. The highest profit for the day is 0.2012%. The highest stock volatility is what it is at the end of the day (SV). The daily loss cap is 0.0909%. It is 0.029% for the standard deviation. Given that the return is positively skewed at 1.301, liptokartic and lower are likely. The analysis concludes that the data has peaked because the return data's kurtosis 4.525 value is more than 3.

5.2 Panel Regression Model

Three models in the panel regression model: the fixed effect model, the random effect model, and the common effect model and which model to proceed with based on the results.

5.2.1 Redundant Fixed Effects Tests-Likelihood:

In a panel data framework, the effect of national culture on the return of different countries is explored. The likelihood results are listed in Table 5.2.

Table 5.2: Redundant Fixed Effects. Tests-Likelihood

Effects Test	**Statistic.**	**d.f.**	**Prob.**
Cross-section F.	0.004353	(15,126)	1.0000
Cross-section Chi-square.	0.088030	8	1.0000

The appearance of insignificant results suggests that the Fixed Effect model is ineffective.

5.2.2 Hausman Test

In a panel data framework, the research examines the impact of national culture on the return of different countries. The results of the Hausman test are presented in the table 5.3.

Table 5.3: Correlated Random Effects-Hausman Test

Test Summary	**Chi-Sq. Stat.**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	0.00	4	1.00

The Hausman test is not appropriate, because probability is 1.00. There are insignificant outcomes, the random effect model is suitable. So, that's why the research use the common effect model to interpret our results, as given in Table 5.4.

Table 5.4: Common Effect Model

Method: Panel Least Squares- common				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.004312	0.000384	14.1210	0.0000
CULTURE	-1.28E-07	5.47E-06	-0.059911	0.8104
EXCHANGE_RATE	0.524043	0.051349	7.904215	0.0000
INTEREST_RATE	0.001616	0.000196	5.352711	0.0000
R-squared.	0.734954	Akaike info criterion.		-9.99131
Adjusted R-squared.	0.726461	Schwarz criterion.		-9.90124
F-stat.	35.00358	Hannan-Quinn criter.		-9.95478
Prob(F-stat.).	0.000000			

The results mentioned in Table 7, indicate that culture has a negligible effect on stock returns because the probability is 0.8104 and the coefficient is -1.28E-07. Stock returns are dramatically decreased by the COVID dummy. People experience fear and apprehension when they are in COVID circumstances. The exchange rate used as the control variable has a considerable impact on stock returns. Therefore, changes in exchange rates directly affect the values of stock returns. Interest rates have a big impact on stock outcomes. The model is well specified and valid when there is an F-statistics value greater than 2. The model's explanatory power is 72%. 72% is the explanation power.

Table 5.5: Dependent Variable: STOCK_RETURN- common effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004054	1.48E-05	190.6969	0.0000
IDV	4.42E-07	3.37E-07	1.305037	0.2389
PDI	-2.32E-07	1.85E-07	-1.36735	0.3018
MAS	-1.23E-07	8.14E-08	-2.304307	0.0215
IVR	-5.01E-07	4.03E-07	-1.276861	0.2018
LTO	2.01E-07	1.84E-07	1.035158	0.2351
UAI	-1.21E-07	1.33E-07	-0.615010	0.4047
EXCHANGE_RATE	0.571014	0.000503	1320.775	0.0000
INTEREST_RATE	0.001356	1.86E-07	5920.669	0.0000
R-squared	0.737010	Akaike info criterion		-9.93465
Adjusted R-squared	0.717330	Schwarz criterion		-9.72350
F-statistic	22.31817	Hannan-Quinn criter.		-9.86238
Prob(F-statistic)	0.000000			

5.3 Individualism (IDV)

Individualistic civilizations show that people solely care about themselves and their immediate family. People who are "in groups" in collectivist civilizations tend to them in return for their allegiances. With a chance of 0.2389 and an IDV coefficient of 4.32E-07, the IDV is insignificant. The common effect model is used to compute the results. The return on stocks is unaffected. This is demonstrated by a member's steadfast, long-standing loyalty to their "group," which could be their family, their extended family, or other ties. Loyalty takes precedence over all other group values, principles, and laws in a collectivist culture.

5.4 Power Distant (PDI)

This element highlights the fact that not everyone in a society is the same and demonstrates how that culture views social injustice. When a community's less powerful members of organizations and institutions merely tolerate an unbalanced power structure, this is referred to as power gap. With a probability of 0.3018 and a PDI coefficient of -2.22E-07, the results of the common effect model suggest that the PDI is negatively negligible and has no impact on stock return.

5.5 Masculinity versus Feminity (MAS)

A high score on this dimension (masculine) suggests that society will be motivated by competition, success, and achievement with the aim of being the greatest in one's field and instilling in students a sense of ethics and integrity that permeates the culture of the business. A low score (feminine) on the dimension suggests that quality of life and care for others are the most important social factors. Success in a culture dominated by women is characterized by an acceptable level of living, and deviating from it is frowned upon. Desires drive people, such as the urge to focus (which is masculine) or the want to take pleasure in what they can do (feminine).

According to the common effect model, the MAS coefficient is 1.93E-07 with a probability of 0.0215, indicating that the MAS is negatively significant. MAS motivates people and improves their quality of life. Family success is an important part of the MAS, which is seen in almost all 6 countries.

5.6 Indulgence versus Restraint (IVR)

Indulgence and restriction, respectively, relate to a lack of control and a severe degree of constraint. As a result, civilizations might be categorized as either extravagant or frugal. According to the common effect model, the IVR coefficient is -5.09E-07 with a probability of 0.2018, indicating that it is adversely negligible and has no impact on stock return. It suggests that people have no control over their inclinations. It implies that issues arise because people are not fully aware of themselves and are unable to manage their desires.

5.7 Long-term Orientation (LTO)

The common effect model was used to determine the LTO coefficient, which came out to be 0.215E-07 with a probability of 0.2351, showing that the LTO is not significant. According to this argument, society, customs, values, and standards have no bearing on stock return rates.

5.8 Uncertainty Avoidance (UAI)

The UAI score reflects a culture's level of fear of ambiguous or unclear situations as well as the institutions and beliefs that people have developed to guard against them. According to the common effect model, the UAI coefficient is -1.18E-07 with a probability of 0.4047, indicating that it is unfavorable and minor. These groups have an underlying need for values (even though the rules seem to never work).

5.9 Exchange Rate and Interest Rate

Stock returns are significantly impacted by the exchange rate. This is because foreign investors profit more and more when the exchange rate rises. Interest rates have a significant impact on stock returns. The model is correctly specified and valid, as shown by the F-statistics value being more than 2. Explanatory power of the model is 71%.

5.10 Stock Volatility

5.10.1 Redundant Fixed Effects Tests-Likelihood

The impact of national culture on the volatility of different countries is investigated using panel data analysis. The possible results are mentioned in Table 5.6.

Table 5.6: Redundant Fixed Effects Tests

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.014567	(15,126)	1.0000
Cross-section Chi-square	0.215444	8	1.0000

The redundant fixed effect test is not appropriate, because probability is 1. 000.The presence of statistically insignificant results shows that the Fixed Effect model is ineffective.

5.10.2 Hausman Test

This study examines how national culture affects a country's volatility using a panel data approach. To choose an appropriate model, the Hausman test is applied. The table 5.7 shows the Hausman test results.

Table 5.7: Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

The Hausman test fails because the probability is 1.000. When there are negligible effects, the random effect model is incorrect. As a result, the research uses the common effect model as given in Table 5.8, to understand its findings.

Table 5.8: Dependent Variable: STOCK_VOLATILITY- common effect

Variable.	Coefficient	S. E	t-Stat.	Prob.
C	0.104559	0.005327	14.39311	0.0000
CULTURE	-1.13E-05	0.000126	-0.091177	0.5245
EXCHANGE_RATE	7.06178	1.451275	3.902312	0.0000
INTEREST_RATE	0.073492	0.004334	8.15357	0.0000
R-squared.	0.246403	Akaike info criterion		-3.123209
Adjusted R-squared.	0.240380	Schwarz criterion		-3.323138
F-stat.	106.0410	Hannan-Quinn criter.		-3.126677
Prob(F-stat).	0.000000			

The likelihood is 0.5245 and the coefficient is -1.13E-05, which demonstrates that culture affects stock volatility. Stock returns are dramatically decreased by the COVID dummy. The exchange rate has a considerable effect on stock volatility. This is so that foreign investors can profit more and more as the currency rate increases. Stock returns are significantly impacted by interest rates. An F-statistics value greater than 2 indicates that the model is well-defined

and valid because when new monetary policies are implemented and interest rates decrease, investors become more interested in investing in the stock market. The model's explanatory power is 24%. Table 5.9: Dependent Variable: STOCK_VOLATILITY common effect.

Table 5.9: Dependent Variable: STOCK_VOLATILITY common effect

Variable.	**Coefficient**	**S. E**	**t-Stat.**	**Prob.**
C	0.104503	0.010329	8.20349	0.0000
IDV	1.24E-05	3.75E-05	0.178041	0.6519
PDI	-4.32E-06	3.05E-05	-0.030693	0.7463
MAS	-3.34E-06	2.54E-05	-0.020474	0.5352
UAI	-2.43E-06	4.62E-05	-0.050616	0.7358
LTOVST	5.11E-06	3.26E-05	0.113432	0.7217
IVR	-1.56E-05	3.70E-05	-0.233238	0.5323
EXCHANGE_RATE	8.05135	1.235692	5.018137	0.0000
INTEREST_RATE	0.073408	0.004703	12.53741	0.0000
R-squared.	0.846895	Akaike info criterion		-4.405753
Adjusted R-squared.	0.833172	Schwarz criterion		-4.310612
		Hannan-Quinn criter.		-4.431389

5.10.3 Individualism (IDV)

The IDV coefficient is 1.24E-05 with a probability of 0.6519, indicating that there is no effect on stock volatility, according to the calculations made using the common effect model. This is shown by a member's strong, sustained commitment to their "group," whether it be their immediate family, extended family, or wider ties. In a collectivist culture, loyalty takes precedence over the majority of other community norms and laws. Offense causes shame and face loss in collectivist societies.

5.10.4 Power Distant (PDI)

The degree to which minor institutions and organizations within a society assume unequal power distribution is referred to as "power gap." With a probability of 0.7463 and a PDI coefficient of –4.32E-06, the results of the common effect model show that the PDI is negatively insignificant and has no impact on stock volatility.

5.10.5 Masculinity versus Feminity (MAS)

The MAS coefficient is -3.34E-06 with a probability of 0.5352, which indicates that the MAS is unfavorable and minor, according to the common effect model. MAS uplifts individuals' spirits and elevates their standard of living. Family success has a significant role in the MAS, which is present in all 6 nations.

5.10.6 Indulgence versus Restraint (IVR)

The IVR coefficient, which is calculated using the common effect model and has a probability of 0.5323 and a value of -1.56E-05, demonstrates that the IVR is negatively negligible and has no impact on stock volatility. It suggests that people have no control over their inclinations. It contends that issues arise because people are not properly socialized and lack control over their desires.

5.10.7 Long-term Orientation (LTO)

The LTO coefficient was calculated using the common effect model, and it is 5.11E-06 with a probability of 0.7217, indicating that the LTO is insignificant. This shows that market volatility has nothing to do with culture, traditions, or values.

5.10.8 Uncertainty Avoidance (UAI)

The UAI score reflects a culture's aversion to ambiguous or perplexing circumstances as well as the institutions and ideas it has developed to guard against them. According to the common effect model, the UAI coefficient is -2.43E-06 with a probability of 0.7358, indicating that the UAI is unfavorable and minor. While precision and punctuality are necessary, people naturally want to be creative and active at work. However, creativity can also be rejected, and safety is a key factor in motivating people.

5.10.9 Exchange Rate and Interest Rate

The exchange rate has a major impact on stock volatility. Stock returns are significantly impacted by interest rates. An F-statistics value greater than 2 indicates that the model is well-defined and valid because when new monetary policies are implemented and interest rates decrease, investors become more interested in investing in the stock market. The model's explanatory power is 83%.

6 Conclusion

The subject of national culture is the most contentious. Examining how national culture affects stock market returns and volatility is the major goal of the study. The study focuses on how national culture affects stock market volatility and national-level country-level volatility. The six sample nations are Brazil, Russia, India, China, South Africa, and Pakistan. For the last 11 years (2011-2021), daily data on relative funding through markets for these 6 nations were used to create panel estimates. This study used panel data regression analysis to look at the effects of the important variables both separately and together. For the first time, the national culture with its six dimensions (PDI, UAI, MAS, LTO, IDV, and IVR), and two control variables, the interest rate and exchange rate, are used to examine the impact on stock return and volatility in 6 emerging countries.

In each of the six countries, the influence of national culture on returns is negligible. Only MAS has a major impact on stock return when considering national culture; all other factors have negative effects. According to the common effect model, the MAS is significantly negative. Because of MAS, people are motivated and experience an improvement in their quality of life. The MAS, which is broadcast in nearly all six countries, emphasizes the value of successful families. Using daily stock market returns from six different nations and cases reported.

The volatility is negatively impacted by national cultures and dimensions as well as by variances between nations. The power distance findings are negligible due to the large risk, proving that it cannot prefer volatility. The degree to which less powerful members of organisations and institutions within a community expect and tolerate unequal power distribution is referred to as "power gap." The fact that the risk is high and the IDV returns are little suggests that volatility cannot be favored. By using MAS, people are inspired and have a higher quality of life. The MAS emphasizes the value of a successful family. It cannot favor volatility because the results are negligible and the danger is enormous. The results of the IVR are negligible because to the large risk, which suggests that volatility cannot be favored. The results of the IVR are negligible because to the large risk, which suggests that volatility cannot be favored. It suggests that people are powerless to resist their inclinations. Because they tend to adhere to long-standing traditions and conventions while being wary of societal change, normative cultures do poorly in this area. This demonstrates how market volatility has nothing to do with tradition, culture, or ideals. The LTO results are negligible due to the high risk, therefore volatility cannot be preferred. Given the size of the danger and the significance of the UAI results, volatility cannot be favored.

According to the research, stock market volatility increased and returns reduced as a result of the outbreak. Global financial markets saw extremely high volatility and significant negative returns as a result of the epidemic (Iqbal et al., 2021). The study looks at how shocks—both good and bad—have an impact on the volatility of Australian stock returns, as well as how leverage has an effect on volatility and how shocks differ depending on their severity.

This research is supported by the risk-reward hypothesis. This study claims that pandemics increase fear because they impair individual's capacity for making judgments, leading some people to panic and take reckless actions. Investors in stocks manage their capital and the danger of losing money by using the risk/reward ratio.

6.1 Limitation and Recommendations of the Study

Although this study's main objective is to examine how national cultures affect stock market returns and volatility globally, its results are fairly dismal since it uses long-term data and Hofstede's culture alters the data over time.

6.2 Future Directions

- It has been discovered that a short-term approach yields better results than a long-term one.
- If employed a short-term strategy to determine whether the results were meaningful after using the survey approach with a questionnaire to find the results.
- Finding and calculating national cultural data over more than a decade may be more successful, or it may have the reverse effect.

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