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The Effect of Trust and Trade on Stock Markets Comovement

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Abstract

Trust is a basic component of social trust that has been neglected in existing empirical literature regarding stock markets comovements. It is an important factor due to its implications for portfolio management and financial system stability. This study investigates how trust distance affects the way stock markets co-move together in ASEAN, BRICS, and G12 countries. Further, we investigate the moderating effect of trust distance on trade between different nations and the comovement of their stock markets. This is because trade is an important factor when it comes to stock market integration. Our findings based on the OLS and quantile regression demonstrate that similarity in trust positively affects the way stock markets move together, however, this is not always the case during market turmoils because of increased volatility. For the quantile regression we discovered that trust distance has an asymmetric effect to stock markets co-movement as it is only significant below the 60th percentile only. Moreover, we find that trust positively moderates the effect of trade on stock markets' co-movement between BRICS and G12 nations as it increases openness to trade which in turn leads to synchronizing business cycles and equity markets. This however is not the case with ASEAN nations as they are still nascent markets and not yet mature. The policy implications for stakeholders imply that invetors need to diversify their portfolios to markets which are furthest in trust distance above 1 and that policymakers like central banks need to put in place regulations which consider trust distance in order to avoid financial contagion during market turmoils.

Keywords: trust, trade, stock market co-movement.

JEL Classification: G01, G12, G15.

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Introduction

Stock markets' comovement[4] is a hot topic in the finance literature because of its critical importance to portfolio management/diversification and financial system stability (Ando, 2019; Bekaert et al., 2014; Younis et al., 2020). This is because geographical and sectoral diversification is a fundamental concept in portfolio theory while the stability of the financial system is a critical agenda for policymakers globally. The transmission of any shock or contagion[5] from one correlated market to another may destabilize the financial system and thereby jeopardize the whole economy.

Although several studies have investigated the determinants of stock market co-movement e.g.(Anagnostopoulos et al., 2021; Gohar et al., 2018), this topic is still evolving due to its practical implication for portfolio management and financial systems' stability. Among other cultural dimensions, cultural distances in individualism, masculinity, power distance, and uncertainty avoidance have also been identified as important drivers of stock market integration recently. For example, the stock markets in emerging markets

4 Stock market 'comovement' is a label that is broadly-understood as a phenomenon in which two or several entities/time series 'move together'(Jach, 2017).

5 Increased stock market correlation is highly likely to lead to contagion destabilizing an economy (Quoreshi et al., 2019).

show a higher correlation as they have smaller cultural distances between them (Fenske & Kala, 2021; Nash & Patel, 2019; Singh et al., 2017; Zhou et al., 2019).

Besides the aforementioned cultural dimensions, trust is also an important feature of national culture that strongly affects financial decisions (Burke & Hung, 2021; Engle-Warnick et al., 2016) and potentially influences stock markets' co-movements. From a theoretical perspective, we argue that similarity in trust or a closer trust distance between countries will lead to their stock markets co-moving together. This is because if there is less trust distance then there will be more information flow and less information asymmetry (Xu et al., 2017).

It is therefore important to expand research in this field by exploring how the similarity in trust between nations influences investing behavior and thereby equity market comovement, a topic which has been neglected up until now.

Furthermore, today in the era of globalization and trade, capital flows between nations have increased enormously. Various trading blocs e.g. ASEAN, BRICS have been formed and some are still emerging e.g. The Regional Comprehensive Economic Partnership (RCEP), (Sytsma, 2020). All this leads to economic integration which has implications for the stock-markets correlations (Valdes et al., 2016). A stream of the literature shows that culture along with trade openness interacts and influence financial markets. For example, Eun et al., (2014) show that trade and financial openness have a moderating effect on domestic culture for stock price co-movement.

However, up until now, there has not been a comprehensive study that investigated the interactive effect of both trade and trust on stock markets' integration. This is of particular importance to investors who wish to diversify their portfolios and allocate assets globally to reduce concentration in their own countries to reduce the home equity bias (Ghironi & Wolfe, 2018).

Therefore, this study also aims to further this body of literature and determine if trust between countries has a moderating effect on trade in determining if stock markets are correlated between certain economic blocs. We expect a smaller trust distance between nations to enhance trade openness (Bekaert et al., 2009) and thereby positively moderate the effect of trade on stock market comovement.

Against this backdrop, this study answers the following research question and contributes to the ongoing literature.

Q1. How does the difference in trust among nations influence their stock market's comovement and is this the same across all periods of stability and crisis?

Q2. Does trust moderate the effect of trade among countries of different trading blocs for their stock markets to co-move.?

Literature Review

Social trust and stock market comovement

When we talk about stock market comovement between countries this relates to how market prices and especially the returns move together over time. This is important from a portfolio point of view as investors need to diversify their stock holdings and therefore need to make optimal asset allocation decisions. We also know that markets are driven by information while trust facilitates the flow of information. Therefore, we must understand how similarity in trust affects the way equity markets co-move together and how contagion spreads during market turmoils.

One of the most notable works on stock market comovement is a study by Bekaert & Harvey (1995) where the authors investigated why different countries' equity indices experience different returns. In their investigation they found out that some markets seem to be more integrated based on prior knowledge of investment restrictions; however, this was not always true. Recently a distinction between contagion and spillover was made by Shahani & Umar (2020) where they define spillover as the transmission of shock with one lag while contagion is residual shock transmitted to another country. Many theories have been proposed as the source of the spillover effect including but not limited to a high share of country bilateral trade (Canh et al., 2018; Curtin, 1995; di Giovanni & Levchenko, 2010; Eun et al., 2014). Apart from bilateral trade Moagar-Poladian et al. (2019) also show that an increased exchange rate volatility contributes to higher stock market contagion.

Though it has been proven that most markets do move in tandem, it was not always the case and that investors can still benefit from international diversification (Kinnunen & Martikainen, 2017).

This notion brings to light that, market integration does not always translate to stock market comovement. In their investigation, Pukthuanthong & Roll (2009) conclude that global integration across markets is not a reliable measure for market comovement and that perfectly integrated markets can show a weak correlation. On the other hand, Chen (2018) finds that there exists a single global factor as the source of volatility, proving that stock markets move in union-some. In his analysis, he concludes that the degree to which a market co-moves with others is associated with the country's integration into the global economy. Other measures that have been used to analyze market comovement include the "Thick Pen" analysis as presented by Jach (2017) and the Wavelet analysis by Younis et al. (2020). In our study, however, we will use correlation and cross-effect methods which are robust yet simple and novel.

We must understand why trust is the glue that holds our argument together and why it is chosen as the main concern and proxy for social trust in this study. Our definition of choice for social trust is from Afzali (2020). The author explains that the whole idea is focused on social relationships and its main foundations include civic networks, social engagement, norms of reciprocity, and generalized trust. Social trust components are usually difficult to measure as they are intangible and often impossible to quantify (Saukani & Ismail, 2019). There is a consensus that culture, defined by Hofstede as the "software of the mind" has a significant impact on the way markets move together. As an example other authors (Aggarwal et al., 2010; Galariotis & Karagiannis, 2021; Singh et al., 2017) agree that culture and more especially cultural distance along with geographical distance using gravity models play a role in determining stock market correlation. Social trust has been lagging in this manner and our goal in this study is to use trust distance as a proxy to measure how it affects stock market co-movement. We are also motivated by numerous authors who have also recommended that new dimensions of culture be used to test their impact on financial markets (Rothonis et al., 2016).

Social trust or trustworthiness facilitates any exchange process (Arrow, 1972). If we look at any type of transaction either be financial or any other, it is predicated on the perception of trust (Bannink & Wyman, 2016; Galiani et al., 2020). It has been shown that in institutional and economic environments where trust is high, it will usually also be followed by high investment (Pareek & Zuckerman, 2011). Liu (2019) tests whether trust distance is useful in determining the variations in stock market correlation, conditional on several control variables. The author finds a negative and significant relationship between trust distance and stock market correlations. Moreover, she examines the trust distance effect in active trading groups and thin-trading groups and finds that the effect is more pronounced in the active-trading group compared to thin trading groups because they are more developed and process information faster. We re-examine this question again albeit in a different context and pose the following hypothesis;

H1. The difference in trust for nations has a negative effect on their stock market co-movement.

Furthermore, this study also investigates the effects of trust distance on stock markets' co-movements under different financial system conditions— before, during, and after the crisis—which has never been investigated systematically. Since the effect of trust can be heterogeneous due to financial system conditions, it is important and insightful to examine the effects of trust distance on stock markets' comovements, before, during, and after the crisis. We expect that trust distance will not have the same effect for all the periods as during a market crisis there is a lot of volatility and after a major event like that there are usually market reforms. Some of the literature explains that during crisis periods, information asymmetry increases, and trust is important during periods where there is less volatility (Laeven & Valencia, 2020). Our goal is to test this prediction and to study the evolution trust plays pre, during, and post the crisis with the 2008 global financial crisis (GFC) as our point of reference. Therefore this all makes way for our second hypothesis being,

H2. Trust between nations has a similar effect on the stock market before, during, and after the global financial crisis of 2008.

Trade and market comovement

It has been empirically shown that a higher volume of trade between nations increases stock market integration among other things (Jana, 2021; Vithessonthi & Kumarasinghe, 2016). Other researchers who came to the same conclusion include Eiling & Gerard (2015) and also Inaba (2020) who found that indeed trade openness was a catalyst to stock market correlation while di Giovanni & Levchenko (2010) found that countries that trade together showed a similar type of business cycle. On the other hand, there is a handful of research papers

that suggest that market liberalization and international trade have caused structural breaks in terms of stock market relationships, and one such investigation was by Blackburn & Chidambaran (2012). In terms of the aim of this study, try to show how all these pieces fit together being culture, trade, and financial markets.

One such investigation is by Stulz & Williamson (2003) who try to understand if culture has any mitigating effect on trade liberalization. The authors conclude that a nation's inherent willingness to international trade mitigates the impact of religion on creditors' rights. Also, it has been shown that proximity in culture positively promotes bilateral trade (Cyrus, 2015) and more importantly close trust distance promotes export trade (Lo Turco & Maggioni, 2018; Xing & Zhou, 2018). Another significant research was conducted by Eun et al. (2014) who found out that trade and financial openness had a weakening moderating effect of domestic culture on stock price comovement. We intend to add to this body of literature and determine if culture, or in our case trust between countries has a moderating effect on trade in determining stock market comovement. We test these using trade-economic blocs and investigate if trading leads to synchronous business cycles and equity market comovement. This brings us to our third hypothesis being,

H3. High trust similarity between nations does not moderate the volume of trade between nations for their stock markets to co-move together

In light of current geopolitics surrounding China and USA trade tensions, along with other trade blocs like ASEAN, BRICS, and G12 countries, this question is also appropriate. We want to investigate if mutual trust and trade have a similar effect across the three blocks mentioned above and if not, what could be the reason some blocs don't show the same result. We theorize that it has no similar effect as the size of these markets are not the same and some are actively trading while some are not (Liu, 2019). Our final hypothesis is, therefore;

H4. Trust and trade volume has a homogeneous effect on stock markets' comovement across various trading block being tested i.e., BRICS, ASEAN, and G12.

Methodology and research methods

Data and Description: In our analysis, we will examine 20 countries from the ASEAN, BRICS, and G12 countries, we select these 20 mainly because of data limitations otherwise we could have used all nations in those blocs. We will then permutate and combine the country pairs to generate 190 country pairs in total. Our first and main variable of interest is the trust index for each country, these are readily available on the World Value Survey (WVS) website (Worldvaluessurvey.org, 2019). Generally, the survey question asks citizens if they are trusting or not? (Drobetz et al., 2020; Wei & Zhang, 2020). There has been a total of 7 waves for surveys spanning from the year 1981 to 2020, however not all countries participated during each study so we will use the averaging method to fill in the missing data.

We contend that averaging does not alter the results as Uslaner (2008) found that generalized trust is stable among generations because it is transmitted from parents to children. Since the wave survey is not annual and has different survey periods for differing countries, we will use the latest updated scores from 2015 and use the Excel package to calculate the country average scores, (Liu, 2019). See table 1 for the average score of the country averages in trust.

Further, we will use the daily stock prices of major country indices obtained from Datastream spanning from 2003 to 2017. These daily prices are then transformed to log returns to generate annual correlations for the country pairs using Matlab software. Therefore, in total, our sample will have a panel of 190 country pairs over 15 years giving an observation number of 2850. This is so that we have an equal number of periods before and after the crisis period which is from 2008 to 2010.

Table 1. Country Trust Index

Country	Average Trust Index	Partnership Block
Indonesia	43.39981	ASEAN
Korea (Repulic)	31.60237	ASEAN
Malaysia	8.68222	ASEAN
Singapore	26.53326	ASEAN
Brazil	7.375507	BRICS
China	55.22041	BRICS
India	31.77355	BRICS

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Table 1 (cont.). Country Trust Index

Russia	27.73641	BRICS
South Africa	21.98931	BRICS
Australia	47.60192	G12
Britain	29.52785	G12
Canada	38.90275	G12
France	18.65597	G12
Germany	35.33441	G12
Italy	28.25203	G12
Japan	38.50112	G12
Sweden	62.78856	G12
US America	37.21708	G12
Argentina[6]	20.05773	"Not Specific"
Chili	18.06438	"Not Specific"
Variance	200.8708	

Source: Author's own calculations with data from World Value Survey using excel program.

Table 1 above presents the calculated average trust indices for each country under our study. We notice that Scandinavian countries including Sweden have the highest average trust index while Brazil has the lowest score in our data sample. China also has a high trust index that is way above more developed economies like USA, Britain and Australia.

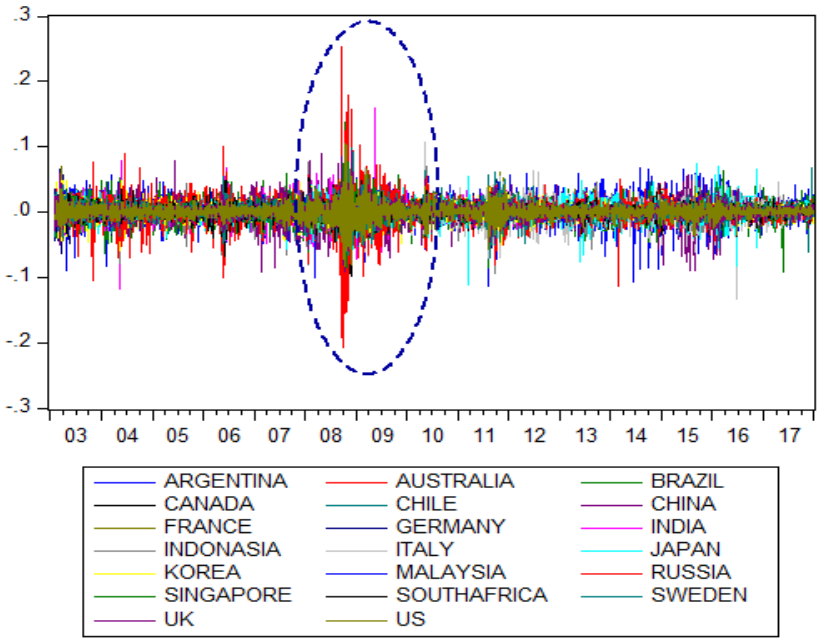

Figure 1. Daily returns volatility from 2002-2018

Source: The figure was charted by the author with daily returns of each country obtained from Datastream using Eviews 9 software.

In figure 1 above we show the volatility chart of the markets we are concerned with under the period under review. During the 2008 GFC the markets were highly volatile as the global financial crisis affected all corners of the world.

We also show the summary results of the daily stock returns of the countries concerned in Table 2. We can observe that most of the return means were near zero as a result of the global financial crisis.

Table 2. Country returns summary

Country	Mean	Median	Maximum	Minimum	Std.Dev.	Skewness	Kurtosis
ARGENTINA	0.0005	0.0011	0.0880	-0.1295	0.0200	-0.7776	7.0736
AUSTRALIA	0.0002	0.0009	0.0423	-0.0690	0.0099	-0.6858	6.8537
BRAZIL	0.0002	0.0008	0.0803	-0.1210	0.0165	-0.7259	7.5422
CANADA	0.0001	0.0008	0.0696	-0.0979	0.0098	-1.3047	14.1469

[6] Argentina and Chili are not part of any of the three blocks we are investigating however they were included because of "regional" control as they are important countries along with Brazil in South America.

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Table 2 (cont.). Country returns summary

CHILE	0.0005	0.0005	0.0667	-0.0717	0.0093	-0.5912	9.7330
CHINA	-0.0001	0.0003	0.0889	-0.0926	0.0159	-0.4360	7.9690
FRANCE	0.0001	0.0006	0.0883	-0.0706	0.0130	-0.3195	7.0923
GERMANY	0.0000	0.0007	0.0664	-0.0671	0.0129	-0.4562	6.1497
INDIA	0.0002	0.0009	0.0793	-0.1181	0.0137	-1.0258	11.9605
INDONESIA	0.0006	0.0012	0.0735	-0.1095	0.0126	-1.0411	10.8845
ITALY	-0.0001	0.0005	0.0941	-0.0702	0.0146	-0.3422	6.7174
JAPAN	0.0000	0.0005	0.0746	-0.1211	0.0147	-1.0459	11.5029
KOREA	0.0003	0.0008	0.0502	-0.1117	0.0125	-1.1393	11.5473
MALAYSIA	0.0002	0.0004	0.0277	-0.0475	0.0069	-0.6299	7.0762
RUSSIA	0.0000	0.0004	0.1296	-0.1549	0.0181	-1.3138	14.6075
SINGAPORE	-0.0001	0.0004	0.0547	-0.0870	0.0102	-0.9893	9.7839
SOUTHAFRICA	0.0004	0.0009	0.0650	-0.0724	0.0117	-0.3514	6.5563
SWEDEN	0.0003	0.0007	0.0603	-0.0635	0.0129	-0.3412	6.0481
UK/BRITAIN	0.0000	0.0004	0.0774	-0.0743	0.0110	-0.3888	9.3201
US	0.0000	0.0004	0.0457	-0.0820	0.0104	-1.0924	10.6358

Source: The author calculated the summary results using data from Datastream on Eviews 9 program.

As mentioned before table 2 above represents the summary returns for the nations under investigation. The mean retuns over the period under investigation averaged zero implying there was no significant change over the period under review mostly due to the financial crisis of 2008. Finally for our model we incorporate some control variables using major indicators that include country GDP size which we collected from the World bank website (WorldBank, 2021) on an annual basis spanning our period of interest. of this paper. The first variable is (NATIONAL_INC/CAP) which is the adjusted net national income per capita measured in annual percentage growth. Then we have (CURRENT_ACC) which is the current account balance as a percentage of the GDP. Next, we have the (EXPORT_VAL) being the export value index (2000 = 100).

We also have (EXPORT_GOODS&SERV) as exports of goods and services measured in annual percentage growth. Another control variable is the (GDP/CAP_GRWTH) being the GDP per capita annual percentage growth rate. (GNI/CAP_GRWTH) is the GNI per capita growth in annual percentage. Then (INFLATION) is the inflation of consumer prices in annual percentage. (PORTFOLIO) is the portfolio investment net in BoP, current US$. (TAX) is the tax revenue percentage of the GDP. Finally, we have (INTEREST) being the real interest rate percentage.

Table 3. Summary of Variables

	Mean	**Median**	**Maximum**	**Minimum**	**Std.Dev.**	**Skewness**	**Kurtosis**
CORR	0.357103	0.337876	0.967049	-0.2803	0.229656	0.36807	2.674365
TRUST_DIS[7]	2	0.884077	15.28647	0.000146	2.663925	2.30469	9.25107
NATIONAL_INC/CAP	13.50463	3.307551	659.2803	0.003003	64.73799	8.154409	72.62411
CURRENT_ACC	6.417411	4.720528	34.66446	0.001916	5.930813	1.570431	5.402809
EXPORT_GOODS&SERV	5.19134	3.796355	35.62463	0.000219	4.89444	1.86508	7.666599
EXPTORT_VAL	130.6122	76.32461	795.9102	0.136975	154.7105	2.049596	7.015635
GDP/CAP_GRWTH	3.02129	2.377109	16.68478	0.005091	2.532833	1.374227	5.240056
GNI/CAP_GRWTH	3.236642	2.530621	17.30787	0.000258	2.789798	1.541914	5.934251
INFLATION	3.599363	2.227722	25.21279	0.001276	3.903427	2.092631	8.519662
PORTFOLIO	1.09E+11	4.60E+10	1.09E+12	9264244	1.59E+11	2.671953	10.59484
INTEREST	6.851689	3.272186	55.01343	0.000315	9.824504	2.492809	8.676954
TAX	6.897158	5.261399	19.98762	0.001426	5.318214	0.41783	1.78119

Source: The author calculated the summary statistics of the data obtained from the world bank using eviews.

Table 3 above represents the summary results of the control variables and it is evident that the data was widely spread as it was raw data. Our third variables of interest are imports and exports for specific country trading partners measured in US dollar millions. We take the data from the International Monetary Fund named Direction of Trade Statistics (DOTS) in the IMF database (IMF, 2021). Imports are reported on a cost, insurance, and freight (CIF) basis, and exports are reported on a free on board (FOB) basis, except for a few countries for which imports are also available FOB. In table 4 below we show some of the summary statistics for the chosen countries.

[7] Trust distance is not a control variable in this table however it is the data description after transformation by equation (1.1) in the methodology.

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Table 4. Summary statistics for Exports and Imports in millions USD

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
EXPORTS	480788.4	335788	2258925	37992.33	472547	1.954909	6.613971
IMPORTS	499565	335771.9	2428282	47350.83	472989.7	1.947272	6.685044

Source: Author's own calculation using Eviews 9 with data from DOTS.

The table 4 above shows that the average exports and imports where almost similar for the period under review indicating a symmetric distribution. This is also evident when looking at the skewness and kurtosis.

Methodology: Also in our analysis, we adopt the procedure used by Liu (2019) and Lucey & Zhang (2009) to measure the trust distance between two country pairs. This is a classic approach first developed by Kogut & Singh (1988) and therefore we use it as it is the most commonly used method in the literature to measure cultural distance and it makes theoretical sense. Below we proceed to show how cultural distance or in our case trust is measured using the KS equation(1.1). Please note that the KS distance measures the trust distance between countries.

$$KS_{ij} = \Sigma_{c=1}\left[\left(I_{ci} - I_{cj}\right)^2 / V_c\right] / 4 \tag{1.1}$$

where;

KS_{ij}=trust distance between country *i* and *j*,

I_{ci}=trust index for country *i*,

I_{cj}=trust index for country *j*,

V_c=variance of the trust index for all the countries.

Another important measure we will utilize is the Pearson correlation to measure the return correlation between countries for each year using the daily stock market returns. We will then regress these results against the annual trust distance and control variables.

$$corr_{xy} = \frac{\sum(x_t - \bar{x})(y_t - \bar{y})}{\sqrt{\sum(x_t - \bar{x})^2 \sum(y_t - \bar{y})^2}} \tag{1.2}$$

where;

$corr_{xy}$=annual correlation between countries *x* and *y* using daily returns,

x_t= daily returns for country *x* at year *t*,

$\bar{x}$=average daily returns for country *x*,

y_t= daily returns for country *y* at year *t*,

$\bar{y}$= average daily returns for country *y*.

We then have the overall model for our linear regression between countries *i* and *j* as the equation below (1.3) in a simplified model,

$$corr_{ij,t} = \alpha + \lambda\, trustdis_{ij,t} + \beta \left|controls_{ij,t}\right| + e_t . \tag{1.3}$$

In the equation (1.3) above the model is the correlation between country i and j at year t with α as the constant. λ is the coefficient of the trust distance between country i and j also at time t while β is a vector coefficient of the absolute difference or distance of controls between the same two countries at time t. It must be noted that this model acts as a gravity model as it measures the closeness and or similarity of nations in terms of the indicators used even though we did not use geographic distance like some other researchers (Canh et al., 2018; Lucey & Zhang, 2009; Siegel et al., 2011; Zhang, 2016).

For robustness analysis, since the trust distance is strictly stationary we will carry out a quantile regression (QR). This approach was introduced by Koenker & Bassett (1978) and has lately been implemented to analyze various socioeconomic indicators against other factors (Alotaibi & Alajlan, 2021). This is a popular econometric approach for parameter estimation in the analysis of regression models compared to the OLS. We

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can let x be the independent variable while y is the dependent variable such that if we assume linearity in the conditional relation $y|x$ then we have the following equation:

$$y_q = x'_i \beta_q \tag{1.4}$$

where β_q is the coefficient of quantile q, that is $q \in [0,1]$. β_q will then be estimated by minimizing the following sum of absolute differences objective function:

$$\min_{\beta_q} \sum_{i \in \{y_i \geq x'_i \beta_q\}} q \,|\, y_i - x'_i \beta_q \,| + \sum_{i \in \{y_i < x'_i \beta_q\}} (1-q) \,|\, y_i - x'_i \beta_q \,|. \tag{1.5}$$

One method to estimate the parameters in the equation (1.5) is by using linear programming. Incremental variations of q are chosen from 0 to 1 while solving for β_q to plot a graph that explains how each explanatory variable is related to the dependent variable.

The third model will be the interaction model as a modification to the equation (1.3) by removing non-significant control variables and using more specific data for exports and imports.

Further, we use a proxy for exports between two countries i and j by taking the two values of exports to each other, adding them, and then dividing them by 2 as used by Johnson & Soenen (2003);

$$exports_{ij,t} = \left(exports_{i \to j,t} + exports_{j \to i,t} \right) / 2, \tag{1.6}$$

and we also treat imports the same way

$$imports_{ij,t} = \left(imports_{i \to j,t} + imports_{j \to i,t} \right) / 2. \tag{1.7}$$

In the above model (1.6) and (1.7) we have that;

$exports_{i \to j,t}$= exports from country i to country j, as a percentage of i's total exports at time t,

$exports_{j \to i,t}$=exports from country j to country i, as a percentage of j's total exports at time t,

$imports_{i \to j,t}$=imports from country i to country j, as a percentage of i's total imports at time t,

$imports_{j \to i,t}$=imports from country j to country i, as a percentage of j's total imports at time t.

Then finally our modified interaction regression model where we want to see the significance of both exports and imports will be the following;

$$\begin{aligned} corr_{ij,t} &= \beta_1 + \beta_2 trustdis_{ij,t} + \beta_3 exports_{ij,t} + \beta_4 imports_{ij} + \beta_5 trustdis_{ij,t} * exports_{ij,t} \\ &+ \beta_6 trustdis_{ij,t} * imports_{ij,t} + \beta_k \,|\, control_{ij,t} \,| + e_{ij} \end{aligned} \tag{1.8}$$

Results

Trust Distance and Stock Markets Comovements—OLS Baseline Results

Table 5 presents empirical results obtained using OLS regression, where trust distance is our main explanatory variable.

Table 5. Trust Distance and Stock Markets Comovements—OLS Baseline Results

Variable	model 1	model 2	model 3	model 4	model 5
TRUST_DIS	-0.0057***	-0.0044***	-0.004***	-0.005***	-0.0042***
	(0.0015)	(0.0014)	(0.0014)	(0.0010)	(0.0014)
NATIONAL_INC/CAP	0.0000	-0.0001	-0.0001	0.0000	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)
CURRENT_ACC	-0.0001	-0.0011*	-0.0007	-0.0010	-0.0009
	(0.0007)	(0.0006)	(0.0006)	(0.0010)	(0.0006)
EXPORT_GOODS&SERV		-0.009***	-0.0075***	-0.0070	-0.0078***
		(0.0008)	(0.0008)	(0.0010)	(0.0009)
EXPORT_VAL		-0.0002***	-0.0001***	0.000***	-0.0001***
		(0.0000)	(0.0000)	(0.0000)	(0.0000)
GDP/CAP_GRWTH			-0.0138***	-0.013***	-0.0134***
			(0.0031)	(0.0030)	(0.0031)
GNI/CAP_GRWTH			-0.0005***	0.0000	0.0001

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Table 5 (cont.). Trust Distance and Stock Markets Comovements—OLS Baseline Results

			(0.0028)	(0.0030)	(0.0028)
INFLATION				-0.004***	-0.0036***
				(0.0010)	(0.0010)
PORTFOLIO				0.0000	0.0000
				(0.0000)	(0.0000)
INTEREST					-0.0011***
					(0.0004)
TAX					0.0022***
					(0.0007)
(Intercept)	0.1987***	0.2766***	0.279***	0.298***	0.2869***
	(0.0156)	(0.0159)	(0.0158)	(0.0164)	(0.0173)
F-statistic	40.66792	52.64989	52.07902	48.7983	45.98708
Dummy Years	yes	yes	yes	yes	yes
No of Countries	20	20	20	20	20
No of Cross Sections	190	190	190	190	190
No of years	15	15	15	15	15
No of Observations	2850	2850	2850	2850	2850

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level. The numbers in the brackets are standard errors for the coefficients. Model 1 includes our variable interest i.e Trust distance and two other variables of interest, we continue like that from model 2 until model 3 where we subsequently add two variables until all the variables are included in model 5.

Source: Author's own calculation.

The results in table 5 above show a period fixed OLS estimation results with trust distance being significant and negatively associated with the stock market return correlations at a 1 percent level. This is true for all models 1,2,3,4 and 5. This means that mutual trust between countries leads to their stock markets moving together in the same direction. This is consistent with other results presented by Liu, (2019). Because the OLS is an averaging method we expect that during the period under review and also in the foreseeable future, average mutual trust between countries explains how stock markets co move together.

Considering all models we also notice that international trade is also significant in explaining the market's comovement at the 1 percent level. In our case, we used the similarity between nations in terms of exports of goods and services. This tells us that nations with a similar export capacity and size often tend to have their stock markets co-move together.

Some of the other indicators which are highly significant at the 1 percent level include the similarity in inflation between nations. Similar inflation between nations suggests that markets will move in tandem. Also, a similar GDP per capita growth size between countries will play a significant role in explaining stock market comovement. Considering our first hypothesis in this study we reject the theory that similarity in trust and/or social capital does not cause stock markets to co-move together in favor of the alternative.

Effects of Financial conditions—During, pre and post crises— Analysis

In table 6 we break down how the average trust distance can also explain if markets co-move together in turbulent times and also in normal times focusing on the 2008 global financial crisis.

Table 6. Analysis of Periods of Crisis

Variable	pre-crisis	crisis-period	after-crisis
TRUST_DIS	-0.0067***	-0.00442	-0.00124
	(0.0026)	(0.0033)	(0.0020)
NATIONAL_INC/CAP	-0.0001	0.00255	-0.00272
	(0.0001)	(0.0021)	(0.0032)
CURRENT_ACC	-0.0011	-0.00143	-0.00098
	(0.0010)	(0.0016)	(0.0010)
EXPORT_GOODS&SERV	-0.0057***	-0.00143***	-0.0092***
	(0.0014)	(0.0016)	(0.0020)
EXPORT_VAL	-0.0005***	-0.00012	-0.0001***
	(0.0002)	(0.0001)	(0.0000)
GDP/CAP_GRWTH	-0.0053	-0.02273***	-0.02185***
	(0.0047)	(0.0071)	(0.0062)
GNI/CAP_GRWTH	-0.0050	0.00679	0.00728
	(0.0038)	(0.0065)	(0.0064)

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Table 6 (cont.). Analysis of Periods of Crisis

INFLATION	-0.00605***	0.00181	-0.0033***
	(0.0022)	(0.0028)	(0.0012)
PORTFOLIO	0.0000***	0.00000	0.00000
	(0.0000)	(0.0000)	(0.0000)
INTEREST	-0.00121*	-0.00096	-0.00036
	(0.0006)	(0.0010)	(0.0006)
TAX	0.0018	0.00307	0.0020***
	(0.0013)	(0.0017)	(0.0010)
(Intercept)	0.6406***	0.58752***	0.27389***
	(0.0259)	(0.0302)	(0.0206)
F-statistic	23.76454	8.976095	32.55123
Dummy Years	yes	yes	yes
No of Countries	20	20	20
No of Cross Sections	190	190	190
No of years	5	3	7
No of Observations	950	570	1330

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level. The numbers in the brackets are standard errors for the coefficients.

Source:Author's own calculation.

Table 6 above shows that the average trust distance is only negatively significant during the period before the 2008 financial crisis at the 1 percent level. Even though trust distance is constant between countries over time (Beugelsdijk et al., 2015), it was only significant before the GFC. During and after the crisis it was no longer significant. Our theory is that the markets were highly turbulent during the crisis and volatility spread around the world creating information noise.

Exports of goods and services and the exports value index between countries play a significant role in determining the comovement of stock markets during all the three-segmented periods under review. This implies that similarity in trade between countries regardless of market conditions is an explanatory variable in stock market comovement at a 1 percent level. GDP growth was only relevant during and after the GFC at a 1 percent significant level. This we assume was caused by portfolio readjustments as investors looked to diversify. Inflation was also significant pre and post the financial at the 1 percent significant level while tax similarity was negatively correlated to stock market returns.

In fact, like previous results, there are cases where even if there is a lack of information trust can be a substitute for information asymmetry and flow (Beugelsdijk & Frijns, 2011; Drobetz et al., 2020) being the reason why the average trust distance mattered most before the global financial crisis of 2008. This makes our second null hypothesis fail as there is no evidence in its support and rather reject it for our alternative hypothesis.

Trust Distance and Stock Markets Comovements—Quantile Regression

Further to ensure that our models are not suffering from multicollinearity issues, we have performed vif test. The results in (appendix 1. b) prove the absence of multicollinearity. Apart from the multi-collinearity issue we also have to assume that the model might be suffering from the heteroscedasticity problem. The reason is that since the waves survey is conducted at various years and not annually, the averaging method of the individual trust indices means that the trust distances are strictly stationary. We employ the quantile regression which is more appropriate in this type of analysis, see (Alotaibi & Alajlan, 2021; Koenker & Bassett, 1978; Singh et al., 2017; Yang et al., 2018). The results are shown in table 7 below.

Table 7. Quantile regressions results

Variable	**q0.05**	**q0.25**	**q0.5**	**q0.75**	**q0.95**
TRUST_DIS	-0.0066***	-0.0079***	-0.0045**	-0.0004	0.0006
	(0.0020)	(0.0025)	(0.0021)	(0.0026)	(0.0021)
NATIONAL_INC/CAP	0.00007	-0.0001	-0.0001	0.0000	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)
CURRENT_ACC	0.00110	0.0017*	0.0013	-0.0013	-0.004*
	(0.0014)	(0.0009)	(0.0008)	(0.0011)	(0.0014)
EXPORT_GOODS&SERV	-0.00252	-0.0041***	-0.005***	-0.0082***	-0.0054
	(0.0019)	(0.0011)	(0.0009)	(0.0011)	(0.0033)
EXPORT_VAL	0.00001	0.0000	0.000***	0.000***	-0.000111
	(0.0000)	(0.0000)	(0.0000)	(0.0001)	0.000176

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Table 7 (cont.). Quantile regressions results

GDP/CAP_GRWTH	-0.0151***	-0.012***	-0.019***	-0.016***	-0.0130
	(0.0051)	(0.0034)	(0.0050)	(0.0039)	(0.0085)
GNI/CAP_GRWTH	0.00344	0.0010	0.009**	0.0068***	0.0099
	(0.0047)	(0.0035)	(0.0044)	(0.0026)	(0.0064)
INFLATION	-0.00071	-0.0013	-0.0013	-0.006***	-0.020***
	(0.0009)	(0.0013)	(0.0013)	(0.0019)	(0.0030)
PORTFOLIO	0.000***	0.0000	0.000***	0.000***	0.000**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
INTEREST	0.00049	-0.0005	-0.0015**	-0.0014**	-0.0009
	(0.0004)	(0.0005)	(0.0006)	(0.0008)	(0.0013)
TAX	0.0044***	0.0038***	0.003**	-0.0013	0.0005
	(0.0012)	(0.0010)	(0.0011)	(0.0012)	(0.0016)
(Intercept)	0.059***	0.239***	0.4029***	0.629***	0.891***
	(0.0226)	(0.0156)	(0.0166)	(0.0218)	(0.0258)
No of Countries	20	20	20	20	20
No of years	15	15	15	15	15
No of Observations	2850	2850	2850	2850	2850

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level. The numbers in the brackets are standard errors for the coefficients. In this quantile estimation, the options used for the coefficient covariance was the Huber Sandwich method while the sparsity estimation method was the Kernel (residual) and the bandwidth method was the Hall-Sheather. The quantile method that was used was the Rankit (Cleaveland) approach for the five quantiles we were investigating.

Source: Author's own calculation.

In the table 7 above we see that trust distance is significant at explaining the comovement of stock markets at the 1 percent level from the 5th percentile up to until the 60th percentile. This means that countries with similar trust within those quantiles will experience stock market comovements. Since the median of the trust distance in our analysis is 0.884, see table 3, it implies that any distance below 1 must be significant. If the distance is greater than approximately 1 then it is no longer meaningful.

Export of goods and services is significant between the 25th percentile and the 75th percentile at the 1 percent significant level in explaining the market return comovement. Anything outside those bounds is not significant and shows that trade at both extremities does not explain why market returns are similar for country pairs. The export value index is only relevant between the 50th and 75th percentile inclusive at the 1 percent significance level. A similarity in GDP per capita growth between the 5th and the 75th percentile is also significant at the 1 percent level. This shows that nations with the same economic size will tend to have their market returns integrated. A similar tax between nations also plays a role in explaining the comovement of stock market returns the 1 percent significance level for quantiles below the median. A graphical representation of the same results can also be seen in appendix 1.c.

Moderation Analysis: Across Trade Blocks— ASEAN, BRICS, and G12

Next, we analyze the three major trading and financial blocs being the ASEAN, BRICS, and G12 countries to see how trust affects the market returns in each of these groups. The results will also serve as a robustness check for the previous OLS and quantile regression models. We used the formula of the equation (1.6) and (1.7) to create a new measure for exports and imports between countries. Further, we wanted to see if trust distance has a moderating effect between these two measures. Finally, we also looked at different phases of the crisis to see whether there was a change or not before, during, and after the global financial crisis of 2008.

Table 8. ASEAN countries OLS interaction model over different phases

Variable	Whole Period	Pre-crisis	Crisis	Post Crisis
TRUST_DIS	-0.0297	-0.0435	1.2332	-0.0139
	(0.0268)	(0.1352)	(0.9125)	(0.0632)
EXPORTS	0.0351	0.0268	-0.5669	0.1150
	(0.0220)	(0.0998)	(0.4804)	(0.0511)
IMPORTS	-0.050**	-0.0451	0.7864	-0.1401
	(0.0233)	(0.0404)	(0.6132)	(0.0602)
TRUST*EXPORTS	-0.0074	-0.0018	0.3035	-0.0261
	(0.0095)	(0.0627)	(0.2404)	(0.0125)
TRUST*IMPORTS	0.0128*	0.0096	-0.4483	0.0307
	(0.0071)	(0.0185)	(0.3306)	(0.0139)

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Table 8 (cont.). ASEAN countries OLS interaction model over different phases

NATIONAL_INC/CAP	-0.0002	-0.0001	-0.0537	-0.0294
	(0.0001)	(0.0001)	(0.0418)	(0.0137)
CURRENT_ACC	0.0002	0.0049	-0.041285	-0.0089
	(0.0018)	(0.0037)	0.036592	(0.0053)
GDP/CAP_GRWTH	0.0047	-0.0396	-0.041285	0.0357
	(0.0102)	(0.0175)	0.036592	(0.0236)
GNI/CAP_GRWTH	0.0079	0.0225	0.1241	0.0221
	(0.0076)	(0.0138)	(0.1131)	(0.0192)
INFLATION	0.0123**	0.015**	-0.0924	0.0168
	(0.0051)	(0.0060)	(0.0780)	(0.0136)
PORTFOLIO	0.000**	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
INTEREST	0.0022	-0.0061	-0.1679	0.0181
	(0.0044)	(0.0074)	(0.1182)	(0.0100)
TAX	-0.0179	-0.0064	0.2655	-0.0466
	(0.0105)	(0.0157)	(0.2032)	(0.0187)
(Intercept)	0.311***	0.792**	-0.7819	0.3270
	(0.0723)	(0.2673)	(1.0792)	(0.1240)
Adjusted R-squared	0.748945	0.885503	0.5863	0.797766
F-statistic	0.748945	14.19303	2.6059	9.512411
Dummy Years	yes	yes	yes	yes
No of Countries	4	4	4	4
No of Cross Sections	6	6	6	6
No of years	15	5	3	7
No of Observations	90	30	18	42

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level.

The numbers in the brackets are standard errors for the coefficients.

Source:Author's own calculation.

The first group to analyze shown in table 8 above are the ASEAN countries, we only limited our scope to four countries. For example, we did not include countries like China and Japan as they belong to other alliances. We observe that for the bloc under analysis, trust distance was not of significance during the whole period under review. Also, for pre, during, and post the GFC trust distance cannot explain the stock market returns. Only a similarity in imports and inflation between the ASEAN countries can significantly account for the stock market returns albeit at the 5 percent level for the whole period under review. We also did not observe any interaction effect of trust distance and trade between the countries. One reason might be because of the difficult to understand policies which may hinder trust as most of the nations are monarchs. The other reason might be that the markets are still small and are not yet that active.

Next to analyse are the BRICS countries shown in table 9 below.

Table 9. BRICS countries OLS interaction model over different phases

Variable	Whole Period	Pre-crisis	Crisis	Post-Crisis
TRUST_DIS	-0.0368***	-0.0688***	-0.0726	-0.0794
	(0.0097)	(0.0235)	(0.0460)	(0.0245)
EXPORTS	-0.0412	-0.1265	-0.0284	-0.0763
	(0.0304)	(0.0786)	(0.0817)	(0.0585)
IMPORTS	0.0010	0.0239	-0.0116	0.0349
	(0.0171)	(0.0507)	(0.0446)	(0.0319)
TRUST*EXPORTS	0.0046	0.0388***	0.0035	0.0089
	(0.0041)	(0.0128)	(0.0115)	(0.0075)
TRUST*IMPORTS	0.0004	-0.0111	0.0044	-0.0007
	(0.0036)	(0.0073)	(0.0108)	(0.0064)
NATIONAL_INC/CAP	0.0073**	0.0027	0.0064	-0.0015
	(0.0035)	(0.0105)	(0.0059)	(0.0079)
CURRENT_ACC	0.0048	0.0051	0.0081	0.0164
	(0.0035)	(0.0071)	(0.0082)	(0.0071)
GDP/CAP_GRWTH	-0.0077	0.0233	-0.0088	-0.0218
	(0.0144)	(0.0263)	(0.0395)	(0.0216)
GNI/CAP_GRWTH	-0.0065	-0.0354	-0.0120	0.0303

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Table 9. (cont.). BRICS countries OLS interaction model over different phases

	(0.0151)	(0.0297)	(0.0447)	(0.0213)
INFLATION	-0.0027	-0.0068	-0.0059	-0.0081
	(0.0037)	(0.0056)	(0.0093)	(0.0074)
PORTFOLIO	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
INTEREST	0.0007	0.0003	0.0006	0.0033
	(0.0010)	(0.0014)	(0.0040)	(0.0020)
TAX	0.0043*	0.0067	0.0026	0.0034
	(0.0020)	(0.0055)	(0.0050)	(0.0025)
(Intercept)	0.2812***	0.5977***	0.6576***	0.1647
	(0.0611)	(0.1080)	(0.1308)	(0.0884)
Adjusted R-squared	0.67834	0.738437	0.706269	0.640987
F-statistic	12.63785	9.137356	5.648659	7.48386
Dummy Years	yes	yes	yes	yes
No of Countries	5	5	5	5
No of Cross Sections	10	10	10	10
No of years	15	5	3	7
No of Observations	150	50	30	70

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level. The numbers in the brackets are standard errors for the coefficients.

Source:Author's own calculation.

Table 9 above shows the results for BRICS countries; we observe that the trust distance can significantly explain the stock market return comovements at the 1 percent significant level for the whole period under review on average. Average net national income also slightly plays a role at the 5 percent significant level for the whole period.

Analyzing the segmented periods we see that trust distance is only significant at the 1 percent level before the crisis while during and after the 2008 GFC it no longer has any predictability power in explaining the returns. We believe again that volatility was a major disruptor, making markets more disintegrated for the BRICS nations. These are emerging economies and therefore the markets had been spared from the brunt of the economic downturn.

For the first time, we see that trust distance had a positive moderating effect on exports for BRICS countries before the 2008 crisis. This makes sense since the countries are major trading partners and indeed trust and trade will have a positive effect on the stock market's returns. During and after the crisis this was no longer the case, however.

We further note the marked difference between the ASEAN and BRICS markets in that for the former, trust does not affect stock market returns while for the latter trust distance is an important variable in explaining the returns. One of the reasons we posit is that since the BRICS markets are more active as compared to the thin trading ASEAN countries, there must be more information flow as a result of low trust distance or a higher similarity in trust.

Table 10. G-12 countries OLS interactive model over different phases

Variable	Whole Period	Pre-crisis	Crisis	Post Crisis
TRUST_DIS	-0.039***	-0.048***	-0.058***	-0.0158
	(0.0083)	(0.0143)	(0.0215)	(0.0117)
EXPORTS	0.0126*	0.022*	0.0258	0.0107
	(0.0070)	(0.0112)	(0.0181)	(0.0103)
IMPORTS	-0.0055	-0.0149	-0.0217	-0.0022
	(0.0093)	(0.0147)	(0.0242)	(0.0137)
TRUST*EXPORTS	0.0292***	0.0317***	0.030**	0.024***
	(0.0046)	(0.0074)	(0.0119)	(0.0068)
TRUST*IMPORTS	-0.0028	-0.0039	-0.0010	-0.0021
	(0.0042)	(0.0069)	(0.0111)	(0.0060)
NATIONAL_INC/CAP	-0.021***	0.0101	-0.028**	-0.0171
	(0.0069)	(0.0167)	(0.0134)	(0.0107)
CURRENT_ACC	0.0043	-0.008*	0.0085	0.010**
	(0.0028)	(0.0047)	(0.0071)	(0.0041)
GDP/CAP_GRWTH	0.035**	-0.0081	0.0322	0.056***

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Table 10 (cont.). G-12 countries OLS interactive model over different phases

	(0.0144)	(0.0254)	(0.0352)	(0.0216)
GNI/CAP_GRWTH	-0.0126	0.0057	-0.0195	-0.0197
	(0.0149)	(0.0252)	(0.0392)	(0.0218)
INFLATION	-0.088***	-0.072***	-0.0911***	-0.089***
	(0.0113)	(0.0182)	(0.0283)	(0.0174)
PORTFOLIO	0.000***	0.000***	0.0000*	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
INTEREST	0.0002	-0.0094	0.0162	0.0079
	(0.0064)	(0.0172)	(0.0155)	(0.0082)
TAX	0.0000	-0.0017	0.0020	0.0020
	(0.0015)	(0.0026)	(0.0035)	(0.0022)
(Intercept)	0.4134***	0.7140***	0.6025***	0.2703***
	(0.0425)	(0.0639)	(0.0836)	(0.0558)
F-statistic	18.89336	12.6543	6.454682	13.6657
Dummy Years	yes	yes	yes	yes
No of Countries	9	9	9	9
No of Cross Sections	36	36	36	36
No of years	15	5	3	7
No of Observations	540	180	108	252

Note: The *** are variables that are significant at the 1% level and ** are significant at the 5% level while * is significant at the 10% level.

The numbers in the brackets are standard errors for the coefficients.

Source:Author's own work

Finally, in table 10 above we present the results for the Group 12 economies of which are huge markets that are highly advanced and are actively trading. It can be seen that trust distance positively promotes the comovement of the stock returns at the 1 percent significant level for the whole period under review. Exports on their own also have a positive effect on the returns at a 10 percent weakly significance level. Like the BRICS markets we see also that trust distance has a positive moderating effect on exports at a 1 percent significance level meaning that both trust and exports together influence market returns. A similarity in adjusted net national income and inflation is also significantly important in explaining the returns at the 1 percent level.

We see that trust distance is consistently significant at the 1 percent level in explaining market comovement in all the three periods considered. This is different from other blocs in that trust distance is always important in explaining the returns regardless of the conditions of the market. Exports were also significant pre-crisis period at a 10 percent level but during and after exports were not that relevant. For the G12 countries, we also observe that trust also has a positive moderating effect on the comovement of stock returns, this is true for all three periods of the crisis. This tells us that trust and exports of these economies even during turbulent times promote the integration of their markets. We also theorize that since these are highly active trading markets a similarity in trust can reduce the information asymmetry problem. This means that the markets will often move in tandem regardless of market conditions. Therefore, to some extent from our third hypothesis, we observe that indeed since trust facilitates trade openness it has a positive moderating effect on business cycles and finally stock market comovement for the countries involved.

Conclusions

Financial markets play an ever-increasing important role in companies and overall economic growth. This is because they provide capital and liquidity to organizations and even governments in rare situations. Therefore, it cannot be stressed enough why portfolio managers and policymakers need to understand the inner workings of these markets and what drives them. At the core of this research, we aimed to understand if and how stock markets co-move together as a result of trust distance between pair countries. To achieve this we used the WVS trust indices for 20 countries to measure the trust distance between each one of them. We further calculated the absolute distance between the nations for certain control variables including GDP per capita growth, GNI per capita growth, current account balance, tax, interest rate portfolio flow, and also trade. Finally, we split trade into exports and imports and also examined the countries within their major trade blocs i.e. ASEAN, BRICS, and G12. We did this to test whether trust distance has a moderating effect on stock market comovement.

We found that our variable of interest i.e., trust distance has a significant effect on stock markets being integrated because it facilitates information flow. In our contribution to the literature, we however found out that this effect is only realized below the 60th quantile of the trust distance. Another result which is our contribution is that trust distance did not matter during and after the 2008 global financial crisis because of volatility and information noise. We theorize that after the GFC, market reforms probably rendered trust distance insignificant. Further robustness analysis carried out shows that when we look at ASEAN countries then trust distance is not significant in stock market comovement because the markets are not highly developed. However, for BRICS and G12 countries trust distance is significant. The final major contribution in our study is that trust distance has a positive moderating effect on exports for the stock market comovement. This is because trust between countries facilitates openness to trade and that in turn that leads to similar business cycles for the trading country partners. The implication of our study is for both investors and policymakers. First, investors need to understand that there are economic fundamentals that lead to stock markets being integrated, these include things like economic size and trade partners. Therefore, in their quest to diversify their portfolios not only should they look at those economic indicators but also at other aspects of culture like trust distance. The closer culture is, especially trust distance, then the fewer there are diversification opportunities. Therefore, an investor who has holdings in G12 countries can allocate some of his assets to ASEAN countries. On the other hand, policymakers like central banks and regulators also need to know that there are underlying dynamics like trust distance which leads to market destabilization. They must watch carefully what is happening to markets that are close to them in terms of trust distance. This will help curb contagion during market turmoil and promote market stability in their nations. Since central banks are custodians of their government, they must also diversify into markets that are not close to their trust index. Finally, regulators must also inform asset managers, insurance, and pension funds to diversify across a broad trust distance matrix to protect their assets from contagion during market crashes. Future research could focus on how trust distance affects financial inclusion in emerging markets and how it also affects banking profitability.

Kago, A. M., Muhammad, A.K.

Author Contributions

For this research article the contribution was as follows, conceptualization; methodology; software were conducted by Kago, A. M. While validation was by, Muhammad, Kago, A. M. Formal analysis; investigation; resources; data curation; writing-original draft preparation where by Kago, A. M. The following where also done by Muhammad, A.K., writing-review and editing visualization. There was no external funding for this project.

Table 11. Contributor Roles Taxonomy (CRediT)

Conceptualization	Ideas; formulation or evolution of overarching research goals and aims.
Data curation	Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.
Formal analysis	Application of statistical, mathematical, computational, or other formal techniques to analyse or synthesize study data.
Funding acquisition	Acquisition of the financial support for the project leading to this publication.
Investigation	Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.
Methodology	Development or design of methodology; creation of models.
Project administration	Management and coordination responsibility for the research activity planning and execution.
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.
Software	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.
Supervision	Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.
Validation	Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.
Visualization	Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.

Writing - original draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).
Writing - review & editing	Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.

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Appendix

Appendix 1.a

USA																			1.000	0.192
SWE																		1.000	0.527	0.548
SNG																	1.000	0.349	0.031	0.480
RUS																1.000	0.397	0.598	0.272	0.649
MAL															1.000	0.138	0.494	0.073	-0.035	0.171
KOR														1.000	0.362	0.384	0.610	0.263	0.105	0.469
JPN													1.000	0.748	0.355	0.260	0.643	0.256	0.069	0.363
ITL												1.000	0.178	0.223	0.118	0.510	0.265	0.832	0.540	0.518
INO											1.000	0.186	0.565	0.551	0.529	0.354	0.714	0.215	-0.104	0.491
IND										1.000	0.614	0.223	0.431	0.471	0.331	0.311	0.606	0.239	0.001	0.454
BRIT									1.000	0.293	0.247	0.876	0.256	0.263	0.142	0.612	0.376	0.837	0.489	0.579
FRA								1.000	0.897	0.320	0.276	0.915	0.308	0.343	0.151	0.558	0.389	0.850	0.516	0.551
GER							1.000	0.954	0.871	0.280	0.215	0.920	0.273	0.318	0.140	0.525	0.351	0.858	0.592	0.502
CHN						1.000	0.028	-0.014	0.052	-0.062	0.008	-0.011	0.051	0.102	0.039	0.085	0.166	-0.002	0.134	0.041
CHL					1.000	0.217	0.533	0.534	0.510	0.149	0.157	0.499	0.196	0.250	0.213	0.375	0.209	0.532	0.597	0.404
CAN				1.000	0.443	0.127	0.377	0.392	0.482	0.150	0.067	0.383	0.174	0.183	0.123	0.381	0.198	0.400	0.549	0.359
BRA			1.000	0.699	0.617	0.155	0.471	0.463	0.486	0.089	0.014	0.485	0.152	0.133	0.050	0.363	0.153	0.444	0.755	0.395
AUS		1.000	0.082	0.142	0.174	0.092	0.259	0.282	0.246	0.475	0.548	0.193	0.717	0.635	0.403	0.320	0.701	0.293	0.009	0.416
ARG	1.000	0.129	0.771	0.708	0.633	0.255	0.466	0.468	0.519	0.154	0.058	0.476	0.120	0.143	0.062	0.470	0.188	0.504	0.625	0.385
Corr	ARG	AUS	BRA	CAN	CHL	CHN	GER	FRA	BRIT	IND	INO	ITL	JPN	KOR	MAL	RUS	SNG	SWE	USA	SAF

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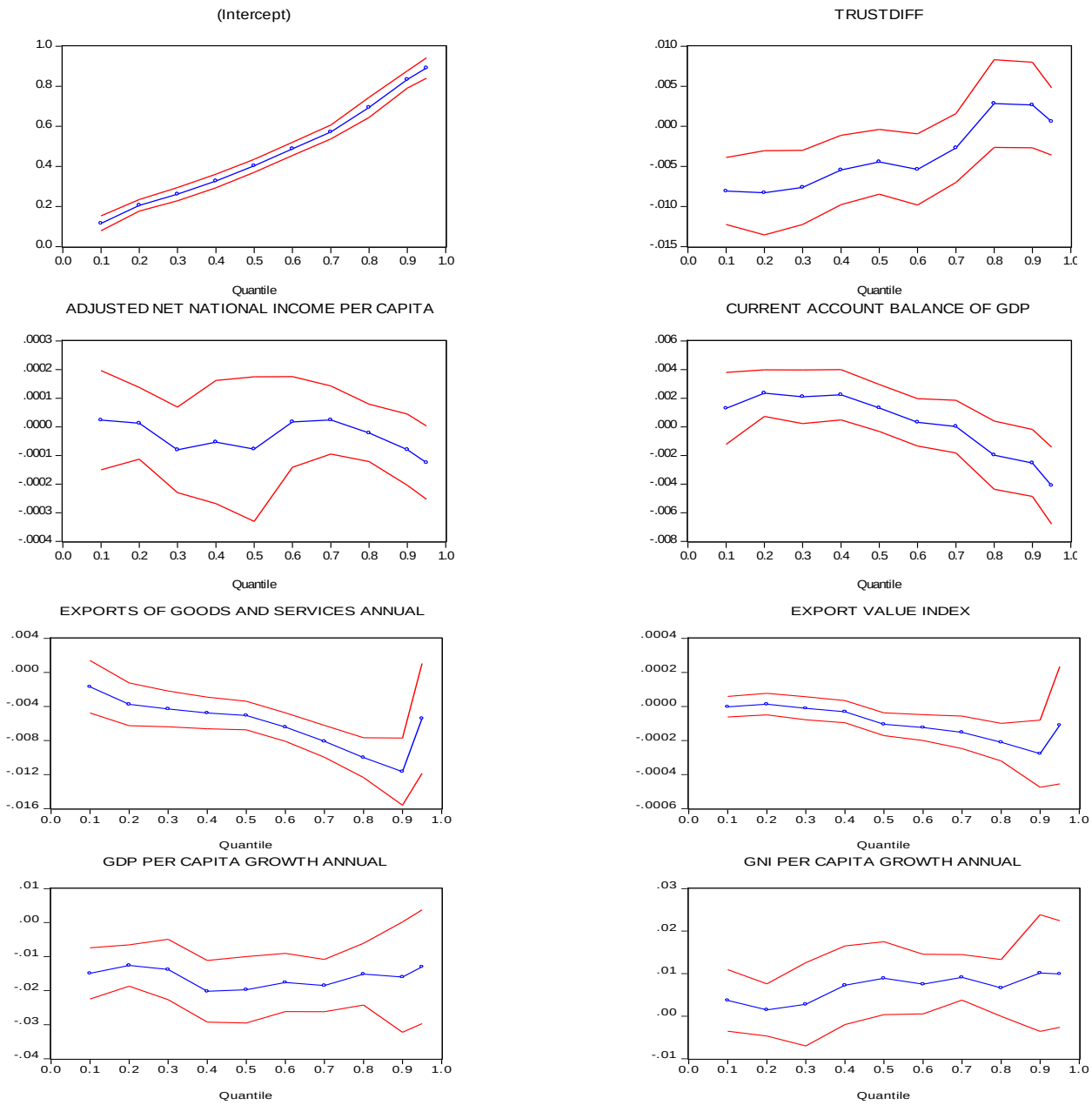
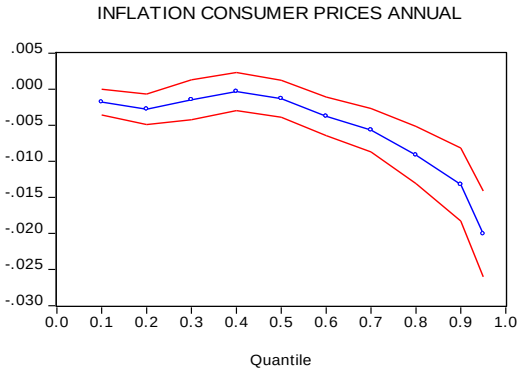
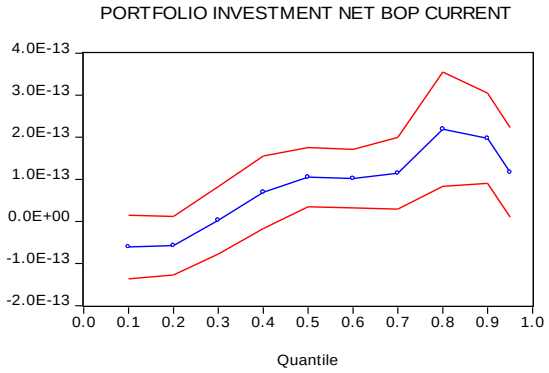
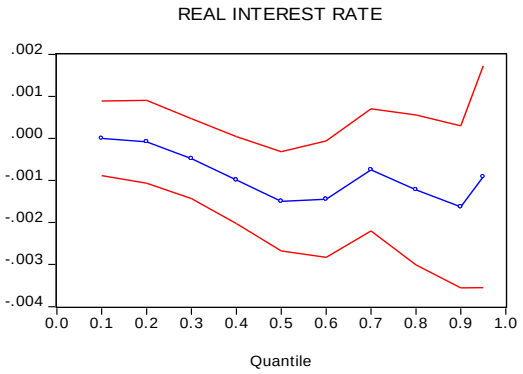
Appendix 1.b

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
(Intercept)	0.0002	9.228142	(NA)
TRUST_DIF	0.0000	1.735916	1.110023
NATIONAL_INC/CAP	0.0000	1.055434	1.011407
CURRENT_ACC	0.0000	2.311767	1.064725
EXPORT_GOODS&SERV	0.0000	2.386129	1.122675
EXPORT_VAL	0.0000	2.077032	1.212522
GDP/CAP_GRWTH	0.0000	10.61493	4.380196
GNI/CAP_GRWTH	0.0000	9.698051	4.133041
INFLATION	0.0000	2.006767	1.084403
PORTFOLIO	0.0000	1.539008	1.048041
INTEREST	0.0000	1.713937	1.152964
TAX	0.0000	2.841815	1.059381

Appendix 1.c

Quantile Process coefficients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