T.C.
SAKARYA UNIVERSITY
SOCIAL SCIENCES INSTITUTE
DEPARTMENT OF ISLAMIC ECONOMICS AND FINANCE

THE IMPACTS OF COUNTRY-BASED AND GLOBAL FINANCIAL FACTORS ON CONVENTIONAL AS WELL AS ISLAMIC STOCK MARKET RETURNS OF BRIC AND G7 COUNTRIES: MMQR APPROACH

Irfana SADAT

DOCTORAL DISSERTATION

Thesis Supervisor: Prof. Dr. Şakir GÖRMÜŞ

NOVEMBER - 2023

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"This thesis was defended online on 16/11/2023 and was unanimously accepted by the jury members whose names are listed below."

JURY MEMBER	APPROVAL
Prof. Dr. Seyit KÖSE	Successful
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• Clinical studies on humans,

• Research on animals,

• Retrospective studies in accordance with the personal data protection law.)

Irfana SADAT
16/11/2023

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I am also grateful to my Father and Mother in-law who constantly prayed for me to be succeed. I want to give my deepest appreciation to my husband Md. Abdul Karim, without his love and emotional support, I would not have dared to dream so big, who motivated me every steps of the way. Moreover, I would like to express thanks to my little fairy daughter Unaisa Karim Ariba who has been with me in my difficult time, even when I was depressed, her magical face would motivate me to do something new. Lots of love to my little mommy!

Finally, I have a great expectation that my study will be beneficial and useful for anyone who is interested in reading this thesis.

Irfana SADAT
16/11/2023

TABLE OF CONTENTS

ABBREVIATION

CDS   : Credit Default Swap

VIX   : CBOE Volatility Index

MSCI   : Morgan Stanley Capital International

E/R   : Exchange Rate

SMR   : Stock Market Return

MMQR   : Method of Moment Qantile Regression

S&P 500   : Standard and Poor's 500

QRM   : Quantile Regression method

BRIC   : Brazil, Russia, India, China

G7   : Group of Seven

VECM   : Vector Error Correction Model

OPEC   : Organization of the Petroleum Exporting Countries

GII   : Government Investment Issue.

ETF   : Exchange Traded Fund

IFIs   : Islamic financial institutions

LIST OF TABLES

LIST OF FIGURES

ABSTRACT	
Title of Thesis: The Impacts of Country-Based and Global Financial Factors on Conventional as well as Islamic Stock Market Returns of BRIC and G7: MMQR Approach	
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Supervisor: Prof. Dr. Şakir GÖRMÜŞ	
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In this thesis the impacts of country-based and global financial factors on conventional and Islamic stock market return of the emerging (BRIC) and developed (G7) countries is investigated. We apply a novel method of moment quantile regression (MMQR) using daily data from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. The first essay investigates the impacts of country-based and global factors on conventional stock returns in BRIC and G7 countries using the method of moment quantile approach. The study reveals that country-based and global factors have significant impact on conventional stock market return in BRIC and G7 in different market circumstances such as bear, normal and bull. The findings also indicate that stock market returns are asymmetrically affected by country-based and global financial factors. The second essay evaluates the impacts of country-based and global factors effect on Islamic stock returns in BRIC and G7 countries using MMQR approach. The findings suggest that there are diversification benefits between the country groups in different market phases. The consequences of our findings have important implications for international investors, market players, policymakers, and monetary authorities, specially who are in charge of maintaining the stability of the domestic as well as international economies and financial markets.

Keywords: BRIC, G7, Conventional and Islamic Stock Market Return, Country-Based Financial Factors, Global Financial Factors

ÖZET
Başlık: Lokal ve Küresel Finansal Faktörlerin BRIC ve G7 Ülkelerinin Geleneksel ve İslami Hisse Senedi Piyasası Getirileri Üzerine Etkileri: MMQR Yöntemi
Yazar: Irfana SADAT
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Kabul Tarihi: 16/11/2023 **Sayfa Sayısı:** vii (ön kısım) + 86 (ana kısım)

Tez çalışmasında lokal ve küresel finansal faktörlerin gelişmekte olan (BRIC) ve gelişmiş (G7) ülkelerinin geleneksel ve İslami borsa getirileri üzerindeki etkileri araştırılmaktadır. BRIC ülkeleri için 26 Mart 2015 - 31 Mart 2021, G7 ülkeleri için 27 Temmuz 2015 - 31 Mart 2021 arasındaki günlük verileri kullanarak moment kantil regresyon (MMQR) yöntemi ile analiz edilmiştir. İlk makalede, BRIC ve G7 ülkelerinde lokal ve küresel faktörlerin geleneksel hisse senedi getirileri üzerindeki etkilerini moment kantil yaklaşımı yöntemi kullanılarak araştırılmaktadır. Çalışma, lokal ve küresel faktörlerin, BRIC ve G7'de ayı, normal ve boğa gibi farklı piyasa koşullarında geleneksel borsa getirisi üzerinde önemli etkiye sahip olduğunu ortaya koymaktadır. Bulgular ayrıca hisse senedi piyasası getirilerinin lokal ve küresel finansal faktörlerden asimetrik olarak etkilendiğini göstermektedir. İkinci makalede, BRIC ve G7 ülkelerinde lokal ve küresel faktörlerin İslami hisse senedi getirileri üzerindeki etkilerini MMQR yaklaşımını kullanarak değerlendirmektedir. Bulgular, farklı pazar aşamalarında ülke grupları arasında çeşitlendirmenin faydalarının olduğunu göstermektedir. Bulguların sonuçları, uluslararası yatırımcılar, piyasa oyuncuları, politika yapıcılar ve parasal otoriteler için önemli çıkarımlara sahiptir.

Anahtar Kelimeler: BRIC, G7, Geleneksel ve İslami Borsa Getirisi, Lokal Finansal Faktörler, Küresel Finansal Faktörler

INTRODUCTION

Stock market reflects the financial stability of an economy. It reveals the attitude of investors in a country. Consequently, the expansion of the stock market is a crucial component of growth. Most people look to a country's stock market performance as it is the best gauge of how well the economy is performing. All economic sectors and industries are represented by stock markets. As a result, they act as a gauge for the economic cycle along with the aspirations and concerns of the people who drive development and growth. So, in order to evaluate financial stability, it is crucial to comprehend the impacts of country-based and global financial factors and stock market return (SMR). More specifically, this is crucial for market discipline, supervision, and guidance as well as for professionals and academics.

In this study we pick G7 and BRIC countries because credit risk and economic stability vary in advanced and emerging nations depending on the nature of macroeconomic instabilities. Moreover, the G7 is the group consisting of the world's seven largest industrialized economies, whereas the countries in BRIC are the world's four dominant developing economies, which are the top global consumers of commodities and major receivers of international investment flows.

Brazil, Russia, India, and China which is known as BRIC countries, are expected to be the future dominating exporters of processed products, services and raw materials due to the low labor and production cost. While India and China are predicted to be one of the world's top suppliers of manufactured goods and services, Russia and Brazil may exceed the United States as the world's leading raw materials supplier. Over forty percent of the world's population, over a quarter of its land area, and nearly 15% of its GDP are accounted for by those countries (Mensi et al., 2014). According to Goldman Sachs, the aggregate nominal GDP of the BRIC nations is anticipated to exceed 128 trillion dollars in 2050.

The existing and anticipated growth of the BRIC nations has a substantial impact on the valuation of their share markets, also to their monetary reliance on foreign equity markets. By 2030, the BRIC countries are predicted to account for 41% of global stock market value, with China predicted to surpass the US in terms of equity market value. Though

the countries in BRIC have shared some common challenges, they differ in terms of their economic strategies, structural traits, and geopolitical impacts (Tripathy 2015).

The mainstream of the people in China and India reside in rural areas, and their capital markets are generally closed and tightly managed. In contrast, Brazil and Russia's economies are predominantly resource-based, and capital markets are significantly more transparent and less government-controlled. These nations have distinct political cultures. Politics in China and Russia are autocracies; India and Brazil are democracies. Russia and India hold states-dominated capitalism, but free market capitalism is more prevalent in Brazil and India. One of the biggest qualities of these nations has been their invention of modern technologies for collaboration and innovation. Nowadays, cultural variations are one of the significant aspects impacting foreign investments.

Soon after the 1973 OPEC oil crisis, the G7 was established as a platform for the richest countries to discuss crises impacting the global economy. The G7 nations such as Japan, Italy, Germany, France, the United Kingdom, Canada, the United States as the seven greatest advanced economies in the world. The members of the G7 have strong political, diplomatic, economic, and military relations with one another. These nations account for over half of global net wealth ($280 trillion) and over 46% of the nominal global GDP[1]. The G7 countries represent 10% (770 million) of the world's population.

Statement of the Problem

The first two empirical chapters of this thesis efforts to examine whether the global and country-based financial factors influence conventional stock index return and Islamic stock index return of BRIC and G7 countries. Many previous studies investigate the relationship between financial and macroeconomic factors and stock market index return (Tokmakçıoğlu et al. 2018; Güngör & Taştan 2021; Yang et al. 2018; Sarwar 2012; Mensi et al. 2014; Chkili & Nguyen 2014; Mishra 2016; Sui & Sun 2016; Kim & In 2007; Habibi & Lee 2019).

Though some studies that shows the effects of financial factors on stock index which is previously published by some researcher but most studies have been conducted using the

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[1] World Atlas 2018, https://www.worldatlas.com/articles/group-of-seven-g7-countries.html. A.D. 07/09/2022

data of US and European countries, there is not much study on BRIC and G7 countries on this issue (Chandra & Thenmozhi 2015; Chia-Lin et al. 2017; Hatipoğlu & Tekin 2017; Cheuathonghua et al. 2019; Iskenderoglu & Akdag 2020).

Similarly, there are very few articles published where researchers tried to explore the link among financial elements and conventional stock market (Ertugrul & Ozturk, 2013; Musa Gün, 2018; Tokmakçıoğlu et al., 2018; Mensi et al., 2014; Mishra, 2016), it can be rarely found the research related to the link among financial variables and Islamic stock index (Aloui et al., 2015; Naifar, 2016: Hammoudeh et al., 2014; Kumar & Sahu, 2017; Shahzad et al., 2017)). Therefore, we try to investigate is there any significant different between "relationship of financial factors and conventional stock index" and "relationship of financial factors and Islamic stock index"?

The first empirical essay of this thesis examines how country-based and global financial factors affects conventional stock index of BRIC and G7, including exchange rate, sovereign CDS, MSCI world index, and VIX index covering the period from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. To overcome this question, the study applies the MMQR technique and able to examine the impacts of country-based and global financial factors on conventional stock index over different time horizons in developing (BRIC) and developed (G7). The outcomes from the investigations show that exchange rates positive and significantly affect stock market returns in BRIC countries while having a significantly negative effect in G7 countries across all quantiles. Furthermore, credit default swaps (CDS) significant and negatively impacts the stock market return in BRIC (except 0.9) and G7 (in bear and normal periods). In addition, global factors comprise MSCI world index and VIX. MSCI world index has significantly positive effects in both country groups. Finally, VIX has significantly negative influence on stock market returns in G7 only.

Consequently, in the second empirical study of this thesis, we try to examine the impacts of country-based and global financial factors and Islamic stock indices of BRIC and G7 countries. After that we examine whether the relationship is similar to the conventional one. We use panel data of exchange rate, sovereign CDS, MSCI world index, and VIX index covering the period from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries.

The essay uses the MMQR to study the influence of country-based and global financial factors on Islamic stock index return over various time horizons in emerging (BRIC) and developed countries (G7). The result indicates that the link among exchange rate and stock market returns are significantly positive while the link among credit default swaps (CDS) and Islamic stock market return significantly negative in G7 (during lower and normal quantile). Moreover, the link between the MSCI world index and Islamic market return is significantly positive in both country groups. Finally, VIX has significantly negative effects on Islamic stock market returns in BRIC (during higher quantile) and G7 countries.

Subject of the Study

With the insights discussed above in consideration, the study aims to examine the effects of country-based and global factors on the returns of the conventional and Islamic stock markets in the BRIC and G7 nations. With regard to conventional stock returns in the G7 and BRIC, the study intends to evaluate the impact of country-based and global financial factors in bullish, normal, and bearish market conditions. Moreover, the study will investigate the influence of country- based and global factors on the Islamic stock returns in the G7 and BRIC country group. After that, it will compare the effects of financial factors on conventional and Islamic stock market returns in the G7 and BRIC nations. To accomplish this, the MMQR will be applied to show how financial issues affect the stock market during the different market phases, which will provide information to international and domestic investors with chances for portfolio diversification.

Objectives of the Study

Aiming to study the influence of country-based and global financial factors on the returns of both Islamic and conventional stock markets in the BRIC and G7 countries, the study has analyzed the above-noted observations. The key aim of the study is to evaluate how country-based and global financial variables affect conventional stock return in the BRIC and G7 during the bull, normal, and bear market phases. Additionally, the study will look into how country-based and global financial factors affect the returns on Islamic stocks in the BRIC and G7 country groups. The MMQR will be applied to show how financial issues affect the stock market during the different market phases, which will provide

information to international and domestic investors with chances for portfolio diversification. This study aims to fulfill two primary objectives and three secondary objectives.

The primary objective of the study is:

1. To investigate the impacts of country-based and global financial factors on the return of conventional stock in developing (BRIC) and developed (G7) country groups during bull, normal, and bear market circumstances by applying the MMQR approach.

2. To assess the influence of country-based and global factors on Islamic stock returns in developing (BRIC) and developed (G7) country groups across bull, normal, and bear market circumstances by applying the MMQR approach.

The secondary objective of the study is:

1. To compare the effects of financial factors on conventional and Islamic stock market returns in the G7 and BRIC nations.

2. To know the possible portfolio diversification for both domestic and international investors.

3. To identify asymmetrical effects of financial variables on conventional and Islamic stock return of BRIC and G7 country group.

Research Questions

The research question of this study is clarified as follows:

1. How do country-based and global factors affect the conventional stock returns in BRIC and G7 during various market phases?

2. How do Islamic stock market returns react to country-based and global financial factors in BRIC and G7 during various market phase?

3. How do the effects differ across conventional and Islamic stock return in BRIC and G7?

Methodology of the Study

In both the first and second essays, we implement the method of moment quantile regression (Machado & Santos Silva, 2019) for nine quantiles of the BRIC and G7. Among the nine quantiles, 0.1, 0.2, and 0.3 indicate the bearish market; 0.4, 0.5, and 0.6 denote the normal market; and 0.7, 0.8, and 0.9 represent the bullish market. We also display the figures of the estimated coefficients of each variable for nine quantiles in BRIC and G7. The MMQR technique is appropriate for panel data and to evaluate regression quantiles containing individual effects. The benefits of the method include being fairly simple to use even for very complex issues and allowing individual effects to have a greater influence on the distribution than simple location shifters.

Machado & Santos Silva (2019) provide suggestions for influence of the independent variables on entire conditional distribution and allow a reliable estimation of conditional means by differentiating out the individual effects in panel models. Machado & Santos Silva (2019) also alleviate the common incidental parameter problem in quantile regressions with individual effects by allowing the individual effects to impact the whole distribution with this approach.

Significance of the Study

To evaluate financial stability of a specific country, knowing the impacts of country-based and global financial factors on stock market return of that country is must. More specifically, this is crucial for market discipline, supervision, and guidance as well as for professionals and academics.

This study has some significant contributions to the existing empirical literature in various ways.

Firstly, this research aims to provide crucial information and knowledge by investigating the impacts of financial factors on conventional stock market as well as Islamic stock market return in both developed (G7) and developing (BRIC) countries. The empirical result of this thesis has great implication for investors who desire to invest in local as well as foreign countries. Stock market investors can have a strategy to buy or sell stocks according to the predicted response to the stock return by following the financial factors that has an impact on stock market performance.

Secondly, it will investigate the asymmetric effect on conventional and Islamic stock market return across bull, bear, and normal market states. Which will help local and global investors and policy makers to diversify their portfolios among the country groups across the different market phase. Investors should pay attention to local and global financial factors to make an investment decision. Hence, they can modify the arrangement of portfolios whenever they see any changes in factors that affect the stock market's return.

Thirdly, this study will compare how financial factors effects conventional stock market return and Islamic stock market return in BRIC and G7 which provide useful information for investors and decision-makers to take advantage of portfolio diversification opportunities. Policy makers and fund managers need to understand the factors affecting stock market returns and the linkage among the stock markets while making financial decisions on risk management. For example, investing in several stock markets would not result in the necessary portfolio diversity if the stock markets of various nations moved together (Lim, 2007).

Brief Chapter Overview

The full thesis will be separated into four chapters.

Chapter 1

A background for the study have been stated, the research objective and questions have been provided, and the significance of the study defined in chapter one.

Chapter 2

How country-based and global financial factors affect conventional stock market return of BRIC and country group will be examined using the MMQR approach.

Chapter 3

How Islamic stock market return reacts to country-based and global financial factors in BRIC and G7 countries will be investigated using the MMQR approach.

Chapter 4

How do the effects of financial factors differ across conventional and Islamic stock index return in BRIC and G7?

Chapter 5

A general conclusion of this thesis will be provided. Moreover, it will give limitations of the study and potential suggestions for further research.

CHAPTER 1: I MPACTS OF COUNTRY-BASED AND GLOBAL FINANCIAL FACTORS ON CONVENTIONAL STOCK MARKET RETURN OF G7 AND BRIC

1.1. Introduction

The chapter investigates the impacts of country-based and global financial factors on stock market return of the emerging (BRIC) and developed (G7) countries. We apply a novel method of moment quantile regression (MMQR) using data from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. The findings show that the link among exchange rates and conventional SMRs significantly positive in BRIC countries while having a significantly negative effect in G7 countries across all quantiles. Furthermore, the link between credit default swaps (CDS) and conventional stock market return is significantly negative in BRIC (except 0.9) and G7 (in bear and normal periods). In addition, our global factor includes the MSCI world index and VIX. We find that the MSCI world index has significantly positive effects in both country groups. Finally, VIX has significantly negative effects the conventional stock market in G7 only. The findings indicate that stock market returns are asymmetrically affected by country-based and global financial factors.

Over the last several decades, economic and financial integration have increased rapidly. Therefore, global factors such as the VIX, MSCI world index became more important as much as country-based factors such as exchange rate, CDS which is related to international trade and finance. There is numerous research that inspect the effect of global factors on stock market return (SMRs) in developed and developing countries. (Chandra & Thenmozhi 2015; Chia-Lin et al. 2017; Hatipoğlu & Tekin 2017; Cheuathonghua et al. 2019; Iskenderoglu & Akdag 2020).

At present, only a few studies focus on G7 and BRIC countries, but there are no studies available that compare the effect of global and country-based financial variables on the SMRs of both country groups. (Tokmakçıoğlu et al. 2018; Güngör & Taştan 2021; Yang et al. 2018; Sarwar 2012; Mensi et al. 2014; Chkili & Nguyen 2014; Mishra 2016; Sui & Sun 2016; Kim & In 2007; Habibi & Lee 2019). Therefore, our studies aim to examine whether global and country-based financial factors influence the stock market returns of

G7 (France, Germany, Canada, Italy, Japan, United States and the United Kingdom) and BRIC (Brazil, Russia, India, China) countries.

While many authors have examined the effect of global and country-based factors on stock market return, very few studies focus on asymmetric impacts using the VECM model, the quantile regression approach, etc. (Aman 2019; Mensi et al. 2014; Tsai 2012; Mishra 2016; Benigno 2016). It is proved that the effect of financial variables on stock market return will depend on market states such as bearish, bullish, and normal markets (Chulia et al. 2010). More importantly, no paper investigates the effects of financial variables on stock returns using the method of moment quantile regression. Therefore, we use the method of moment quantile regression to investigate the asymmetric impact of financial variables on stock market return across bull, bear, and normal market states.

Generally, a CDS is a financial derivative or agreement that the supplier of the CDS will repay the purchaser in the event of an obligation default or other credit event occurring. Most of the studies investigated the relationship between corporate credit risk and stock markets and most of them are based on the Mertons theoretical model. Merton (1974) recognized the first structural credit risk model which offers the fundamental theoretical framework to find the main factors affecting changes in CDS spreads.

The model established the link between a rise in stock price of a company and a decrease in its bond yield. Whenever a company's debt ratio rises, this relation becomes stronger (default risk). By using the model one can establish a clear connection among credit spreads and several financial and macroeconomic indicators such as spot interest rates, stock prices, and stock volatility. After that, Black & Cox (1976), Longstaff & Schwartz (1995) discovered structural models and provided the establishment of the theory.

Most of the existing empirical investigations have assessed the influence of CDS on country-based financial markets. One group of scholars thinks the relationship between CDS and financial markets are negative. (Lau and Sook Kim, 2004; Ammer & Cai, 2007; Chan, Fung and Zang, 2009; Ertugrul & Ozturk, 2013; Gün, 2018; Tokmakçıoğlu et al., 2018; Anton et al., 2020; Coronado et al., 2012; Lenciauskaitė. 2012; Yang et al. 2018) while others provide evidence of having a positive relationship. (Naifar 2012; Güngör & Taştan, 2021).

Aside from these, there are relatively few studies available on the relationship between volatility indices (VIX) and stock market indices. Hatipoğlu & Tekin (2017), Mensi et al. (2014), and Chandra & Thenmozhi (2015) have primarily focused on quantile regression methodology and reported a significantly negative relationship among them.

Exchange rate volatility has risen considerably since the establishment of the exchange rate policy in the early 1970s, the link among international stock markets and foreign exchange markets has become more ambiguous (Mechri et al., 2019). However, there have been some dispute concerning the literature about how the SMRs and exchange rate are interlinked. Some suggests that the exchange rate and the stock market are positively related (Mechri et al. 2019; Mohapatra & Rath 2015; Barakat et al. 2016; Chandrashekar 2018) while others suggested a negative correlation (Tsai 2012; Mishra 2016; Boako et al. 2016; Chkili & Nguyen 2014; Ali et al. 2020; Alam & Rashid 2014; Khan and khan 2018; Chellaswamy et al. 2020).

The primary aim of this study is to check the impact of country-based and global financial factors on major stock index returns of BRIC and G7 countries using a novel method of moment quantile regression that was developed by Machado and Silva in 2019.The following are the most notable additions of this research to previous kinds of literature.

First, the investigations on the impact of country-based and global financial factors on the BRIC and G7 stock markets is presented for the first time. We attempt to investigate the impact of global factors on the stock market because foreign investors are particularly interested in how stock markets move in tandem with global factors.

Second, we pick G7 and BRIC countries because credit risk and economic stability vary in developed and developing countries depending on the nature of macroeconomic instabilities. Moreover, the G7 is the group consisting of the world's seven largest industrialized economies, whereas the countries in BRIC are the world's four dominant developing economies, which are the top global consumers of commodities and major receivers of international investment flows.

Third, we use the method of moment quantile regression (Machado and Silva, 2019) to evaluate the effect of financial factors on the stock market return under different market conditions, including bearish, normal, and bullish markets. Many previous studies

examine the effect of financial variables on the SMRs, but no study presented both global and country-based factors together by using the method of moment quantile regression.

So, it is noteworthy to compare between the G7 and BRIC country groups to know the impact of country-based and global financial factors on the stock market return, which can be useful for investors as well as policymakers, especially when it comes to the analysis of financial market integration and diversification strategies for international portfolios.

The paper is separated into the six sections. Second section describes a review of previous literature. Section three explains the data and variables. The fourth section of this study illustrates the method of moment quantile regression. The empirical findings and discussion are presented in section five. Lastly, Section six gives conclusion and recommendations.

1.2. Literature Review

The link between various financial variables and SMRs has been the subject of various empirical research. We explore the literature that examines the link between conventional stock market indices and financial variables as well as the link between Islamic stock market indices and financial variables. Regulators, investors, and the public are always interested in the correlation among financial factors and SMRs.

1.2.1. Effect of Exchange Rate on Stock Market Return

Since stock markets do respond to economic fundamentals, it seemed crucial to use country-based macroeconomic variables in this analysis. The exchange rate is important to deal with the local economic environment. While exchange rate fluctuations adversely affect some industries, they may be beneficial for others (Gokmenoglu et al., 2021). For example, if the export-oriented firms dominate the stock market, a depreciation of currency will increase stock prices. Alternatively, if the import-oriented firms dominate the stock market, currency depreciation will cause a decrease in stock prices. So, according to the country's economic structures, exchange rate movements may affect the stock market differently.

There have been some dispute concerning the literature about how the SMRs and E/Rs are interlinked. Empirically several studies show positive link (Mechri et al., 2019; Mohapatra & Rath, 2015; Barakat et al., 2016; Chandrashekar, 2018) while others find a negative link among the SMRs and E/Rs (Tsai, 2012; Mishra, 2016; Boako et al., 2016; Chkili & Nguyen, 2014; Ali et al., 2020; Alam & Rashid, 2014; Khan and khan, 2018; Chellaswamy et al., 2020).

Tsai (2012) examines the association relating to stock index and exchange rate by evaluating the quantile regression model utilizing monthly data for Malaysia, Thailand, Singapore, the Philippines, Taiwan, and South Korea from Jan 1992 to Dec 2009. The findings demonstrate that when stock market indexes are at exceptionally high and low quantiles, exchange rates become strongly negative.

Chkili & Nguyen (2014) examines the dynamic relationships among the SMRs and E/Rs for the BRICS nations focusing on weekly data for the period from March 1997 to February 2013. Result from the MS-VAR model demonstrates that exchange rate fluctuations have no impact on the BRICS countries' stock market returns. On the other in the cases of Brazil, China, India, and Russia, the impacts of SMRs on exchange rate changes are significant, whereas this is negligible for South Africa.

Mishra (2016) presents an analysis of interaction between SMRs and E/Rs changes in the emerging economies of BRIC countries by employing the quantile regression approach using data from January 1998 to June 2015. For Brazil, Russia and India the coefficients are significantly negative, but the coefficients of quantile regression were not significantly negative in case of China.

Boako et al. (2016) investigate the linkage among SMRs and E/Rs in Ghana using daily frequency of stock markets and six exchange rates (cedi–pound, cedi–dollar, cedi–naira, cedi–yen, cedi–euro and cedi–CFA from 4th January 2011 to 31st July, 2014. By employing Bayesian quantile regression technique, the study suggests that the foreign exchange market has great influences on Ghanaian equity market.

Benigno (2016) investigates the connection among changes in 10-year govt. bond yields and SMRs by using weekly data for fourteen developed nations over the period 1999-2015. Applying the quantile-on-quantile approach result asserts for Australia, Netherlands, Germany, the US and the UK the weakest interest rate-stock market

connection is detected and in contrast, the strongest connection has negative sign and is found for Ireland, Spain, Greece, Italy and Portugal.

Sui & Sun (2016) examines the dynamic relationships among country-based stock returns, interest rate, foreign exchange rates, and U.S S&P 500 returns through VECM technique based on daily data of BRICS countries from March 1993 to August 2014. The outcome demonstrates considerable short-term spillover effects of foreign exchange rates on stock returns and U.S. S&P 500 returns, as well as U.S. S&P 500 has an influence on stock markets in China, Brazil, and South Africa.

Shahzad (2019) explore the links between 10-year bond yield and stock market returns for fourteen developed countries using the quantile-on- quantile method by measuring daily data from January 2001 to March 2016. Result indicates that the interest rate and stock market association is primarily positive in the majority of countries.

Mechri et al. (2019) analyze how exchange rate fluctuation affects stock market prices of Tunisia and Turkey utilizing data on stock market price returns, gold prices, inflation rates, interest rates, and exchange rates between January 2002 and January 2017. Results from the GARCH model show that for both countries, exchange rate movements have a significant positive impact on the SMRs.

Ali et al. (2020) investigate link between stock market volatility with the gold prices and exchange rate of Pakistan by conducting GARCH and quantile regression model based on both daily and monthly data covering from 2001-2018. They divided their sample into two different periods, the first sample outcome shows there is insignificantly negative link of among exchange rate and stock market return (in both daily and monthly cases). However, in second sample outcome demonstrates that there has a negative significant link among exchange rate and the stock return in case of daily data and negatively insignificant in case of monthly data.

Chellaswamy et al. (2020) evaluate the impact of Chinese and Indian macroeconomic factors (CPI, E/R, interest rate) on stock index returns applying monthly data from Jan 1998 to Dec 2018. From Quantile regression approach the results prove that in case of China in lower quantiles CPI has a significant and negative impact on the SMRs and impact is not present for the middle and higher quantiles. Moreover, IR does not affect SSE returns and ER has an impact on the SSE returns at the extreme dataset only. In case

of India IR does not affect stock index return. Also, there is an insignificant impact of ER on the stock index return across the quantiles.

Gokmenoglu et al. (2021) examine the impact of the E/R on the stock index for the selected developing market economies (Mexico, India, China, Brazil, Turkey, Thailand, South Africa, and Malaysia) by using data from January 1994–March 2019. Applying Quantile-on-Quantile approach result indicates that significant E/R shocks are presented in some circumstances such as in case of bearish phase E/R shocks influence the stock market index return, alternatively, in case of bullish phase exchange rates are weak in most inspected countries.

Lou & Luo (2017) investigates the link between the stock price indics and exchange rates for G7 countires with daily data from 4th January 1999 to 30th June 2015. By employing Granger causality test in quantiles they finds that there is a bidirectional link among the exchange rate and stock price index and in Canada, U.S.A and Italy, on the other hand the link is unidirectional in case of France, Japan, Germany and U.K.

Habibi & Lee (2019) examines the influences of exchange rates on stock market return in G7 using monthly data from December 31, 1997 to October 31, 2016. After utilizing ARDL model finds that the exchange rate changes in all G7 countries have short-run asymmetric effects on stock return.

Mohapatra & Rath (2015) analyze the short- and long-term link among stock prices and specific macroeconomic indicators applying monthly data of Brazil, China, India from January 2000 to December 2012. From DOLS test, they find that exchange rate positively affects stock market.

Barakat et al. (2016) evaluate the linkage between the macroeconomic variable and stock market in two developing countries such as Egypt and Tunisia by using VAR and Granger causality test using data from January 1998 to January 2014. The outcome demonstrates that there is a positive link among E/R and SMRs and E/R has a bigger impact on the stock index than the other variables in both markets.

Chandrashekar (2018) examines the association between the macroeconomic variable and stock prices of India and Brazil utilizing Fisher-type co-integration test panel econometric techniques using periodic data from Jan 2000 to Aug 2016. The findings indicate relationship among stocks prices and the exchange rate is significantly positive.

Khan & Khan (2018) examine the effect of macroeconomic factors on SMRs of Pakistan by analyzing the monthly data from May 2000 to August 2016. Deploying ARDL approach result suggests that exchange rate have negative relationship with equity market.

Gadasandula (2019) investigates the influences of macroeconomic factors on SMRs of India from March 2000 to December 2017. The results of Geweke causality analysis show that there are bidirectional causal relationships between exchange rate and NIFTY Index.

1.2.2. Effect of CDS on Stock Market Return

Generally, the rise in CDS rates shows that the debt or economy is becoming riskier. The more the risk of debt, the more the CDS spread is. As CDS provide the opportunity to realize a general scenario of a country's credit risk, both foreign and domestic investors look at the country's CDS first while they are taking a decision of investment in a particular country. Domestic and foreign investor transactions drive stock markets, thus factors affecting those transactions must be taken into consideration. So, in this case CDS premium can be one of the indicators to assess sovereign credit risk. A considerable strand of literature evaluates the impact of CDS on country-based financial markets. Some of them show a negative link (Lau and Sook Kim, 2004; Ammer & Cai, 2007; Chan, Fung and Zang, 2009; Ertugrul & Ozturk, 2013; Gün, 2018; Tokmakçıoğlu et al., 2018; Anton et al., 2020; Coronado et al., 2012; Lenciauskait, 2012; Yang et al. 2018) and some studies also show a positive link (Naifar, 2012; Güngör & Taştan, 2021). However, none of them use country-based and global factors together to investigate the effect on the SMRs by using MMQR.

Chan-Lau and Sook Kim (2004) examines the equilibrium price discovery and price relationships in the equity markets, bond, and CDS estimating the VECM model for the eight developing countries: Brazil, Colombia, Bulgaria, Russia, Mexico, the Philippines, Turkey, and Venezuela by applying data from March 19, 2001 through May 29, 2003. The results indicate that there is a strong link among bond and CDS spreads in Brazil, Colombia, Russia, Bulgaria, and Venezuela. Furthermore, the CDS market was the most significant basis of price discovery in Colombia and Russia but in Brazil and Bulgaria, the CDS and bond markets were equally significant for price discovery.

Ammer & Cai (2007) investigates the link among bond yield spreads and CDS premiums for nine developing countries (Colombia, Brazil, Mexico, China, Russia, the Philippines, Turkey, Venezuela and Uruguay) sovereign borrowers through analyzing daily data during February 26, 2001 to March 31, 2005. Applying vector error correction model (VECM) they discover a statistically significant adverse correlation across sovereign borrowers among the expected long-run slope and the discounted bond price.

Chan, Fung and Zang (2009) analyze the dynamic connection among stock index and sovereign CDS spreads for seven Asian nations by putting on monthly data from January 2001 to February 2007. Applying VECM model they discover that the relationship between the CDS spread and the SMRs is negative for most Asian nations.

Coronado et al. (2012) investigate linkage among CDS spreads and market prices as well as CDS spreads and return volatilities by analyzing daily data from January 2007 to July 2010 of eight different European states namely Greece, France, Ireland, Germany, Portugal, Italy, UK and Spain. Evaluating the VAR model, they find a negative connection and a strong interdependency among both markets, moreover they find the leading role mainly taken by the stock exchange market. This is the first research which scrutinizes the association among sovereign CDS and stock markets by using European sovereign data.

Giedre Lenciauskaitė (2012) scrutinizes the sovereign CDS spreads and stock indexes of 10 European Union (Germany, Ireland, France, Greece, Austria, Netherlands, Portugal, Belgium, Italy, Spain) countries since January 2007 to June 2012 and the whole period was separated into 3 non-overlapping sub-periods: pre-crisis (January 2007 – August 2008), financial crisis (September 2008 – December 2009) and European debt crisis (January 2010 – June 2012) periods. Utilizing VAR and Granger causality test the findings disclosed the changing patterns: during pre-crisis period sovereign CDS market tend to lead the stock market, the relationship became mixed during financial crisis period and stock market took a leading role during European debt crisis period.

Ertugrul & Ozturk (2013) examines among financial market indicators and credit default swap (CDS) belonging to foreign exchange markets, equity, and bond for certain emerging market nations by employing the regime switching autoregressive conditional heteroscedasticity (SWARCH) model. By using weekly data from 2nd January 2003, to

1st March, 2012 that encompasses six emerging countries such as Bulgaria, Brazil, Russia, Mexico, Turkey. The result shows that the CDS spread is negatively connected to the CDS market uncertainties and this relationship specifies low liquidity in the high uncertainty, which declines CDS prices.

Kang & Yoon (2018) examines the co-movement of CDS and stocks to inspect the role of CDS as safe havens or hedges in Thailand, Korea, Malaysia and China using data from 3rd January 2002 to 9th October 2014. By applying DCC-GARCH model result suggests that CDS plays a significant role as hedges and safe havens during extreme stock market volatility and during financial crisis.

Tokmakçıoğlu et al. (2018) scrutinizes the causality effects of CDS on stock return in four emerging (BRIC) countries using monthly data from February 2010 to march, 2018. They employ the Granger and Hatemi-J tests and find that rises or declines in CDS will not be the reason of any fluctuations in stock indices in Russia, India and China but the decline in CDS negatively affects Brazilian stock markets.

Musa Gün (2018) investigates the relationship among CDS spreads and major stock market indices by analyzing weekly data ranges from 2010 to 2017 for nine emergent countries including Chile, Brazil, Colombia, Mexico, Czech Republic, Peru, Poland, Russia, and Turkey. They investigate the lead-lag relationship through the VAR and detect an adverse relation between the CDS spreads and SMRs for most developing economies. They also resolve that there is a significant unidirectional causal link in the midst of changes in the CDS spread and SMRs.

Anton et al. (2020) investigate causal relationship among the SMRs and credit default swap using daily data from January 2008 to April 2018 of CEE countries. By deploying a Vector Autoregressive model finds that compared to the CDS the stock markets incorporated faster the modifications in default risk and hence led the price discovery. Additionally, discover the existence of bidirectional feedback among stock markets and CDS in Czech Republic, Croatia, Hungary, Poland, Lithuania and Slovenia.

Naifar (2012) examines the link among jump risk, equity return volatility and default risk premium in the equity market by using daily data from 23rd March 2005 to 18th August 2010 for Japan and Australia. After using Archimedean copula models result suggests that there was a positive link among default risk and equity return volatility.

Yang et al. (2018) analyze dependence structures between G7 and BRICS countries' CDS spread by utilizing data from 1st January 2009 to 2nd December 2017. By employing the copula approach and wavelet analysis find that global stock markets have a negative impact on CDS, whereas global bond prices and crude oil prices have a significant positive impact.

Güngör & Taştan (2021) investigate co-movements among the stock market returns of BRICS-T and G7 from 2nd January, 2002 to 19th September, 2018. By using DCC-MIDAS method, result finds that CDS risk premium among country pairs are positively related stock market returns.

1.2.3. Effect of VIX on Stock Market Return

The CDS measures the risk associated with long-term debt management, whereas the VIX measures the potential short-term financial stability of equities markets. VIX is a popular measure of the SMRs which is based on S&P 500 options for the following 30 days. VIX is generally mentioned to as investors fear index. When the VIX reading is low investors remain positive and comfortable in the market instead of frightened, implying that they see low potential risk. In contrast, a high VIX reading indicates that investors anticipate massive risk and expect the market to change rapidly in either direction.

There is very limited research that examine on the link among stock market returns and VIX. Among them Mensi et al. (2014), Chandra & Thenmozhi (2015), Hatipoğlu & Tekin (2017) use quantile regression methodology to investigate the interlink among the stock market returns and VIX, show a significantly negative relationship among them.

Sarwar (2012) explores the connections of stock market returns and VIX in BRIC by using data from 2nd January 1993, to 31st December 2007. By employing method of moments estimator, report negative and significant relationships between VIX and stock returns for China, India, and Brazil.

Mensi et al., (2014) investigate whether global factors (S&P 500, Oil, Gold, VIX, EPUI) have any impact on BRICS stock markets utilizing daily data from Sept 1997 to Sept 2013. Deploying the quantile regression model the outcomes show that in a bearish market the VIX is found to have negative significance effect on stock index returns for Brazil, South Africa, Russia but in a bullish market this relationship is insignificant for

all country.

Chandra & Thenmozhi, (2015) examine the asymmetric link among SMRs and India VIX by using daily data from 1st March, 2009 to 30th November, 2012. Using quantile regression methodology and regression estimations approach, outcome shows that the SMRs are negatively connected to the VIX, but in case of bearish period the returns are be likely to move freely and whenever the market takes a strong downward move, the association is not significant for higher quantiles.

Chia-Lin et al. (2017) investigate whether daily VIX returns affect exchange traded funds returns utilizing data from 1990 to 2014. Result from VAR model shows that VIX returns have significant negative effects on European exchange traded fund returns in the short run.

Hatipoğlu & Tekin, (2017) investigate the effect of US Dollar rate, VIX and oil price on Istanbul stock market (Borsa Istanbul) by utilizing QRM method based on daily data from 7th February 2002 to 29th December 2016. The results show that BIST index is negatively and significantly affected by VIX in all levels of quantile. Alternatively, the dollar effects the stock index only in high quantiles and indicate that there is no asymmetric correlation between stock market index and oil prices.

Cheuathonghua et al., (2019) analyze the effect of VIX on market events in 42 international equity markets during 1st January, 1998 to 31st December, 2014. Utilizing the VAR and MVMQ models, the outcome shows that VIX has positive effects on stock market volatility, but it negatively affects stock market returns. Moreover, indicate that the influence of VIX on stock markets is more prominent in bearish market.

Iskenderoglu & Akdag (2020) examine the association between the VIX and stock exchange index returns of G20 countries utilizing the daily data between March 2011 and December 2017. estimated Granger causality test demonstrate that there is no link between the stock index returns and VIX in both advanced and emerging countries.

1.2.4. Effect of MSCI on Stock Market Return

MSCI World Index is a market capitalization-weighted stock market index that tracks 1,546 global companies and is maintained by Morgan Stanley Capital International. Furthermore, the MSCI world index and stock market returns are always positively

related. Hence, a rise in the MSCI world stock market index indicates a strong global economy, which has a optimistic impact on market economies and stock returns. When MSCI increases the local stock market index will also increase, there is always a positive relationship among them.

Very few studies investigate and find a positive link between the conventional stock returns and MSCI world index and (Abugri, 2008; Faisal & Khan, 2007; Harvey, 1991; Ferson & Harvey, 1997)

In this regard, Faisal & Khan (2007) investigates the effects of macroeconomic variables and global factors on stock returns in Pakistan from July 2000 to Jun 2005. Applying multivariate EGARCH and Vector Auto Regressive models result demonstrates that exchange rate has a significantly negative impact on MSCI World Index has significantly positive impact on the Pakistan stock return.

Abugri (2008) examines the link between SMRs and macroeconomic factors in Latin American markets from Jan 1986 to Aug 2001. Applying vector autoregressive (VAR) model result shows that MSCI world index is significant and positively effects stock market return in Argentina, Brazil, Chile, Mexico respectively.

Joyo & Lefen (2019) examine the relation among the stock markets of Malaysia, Pakistan. United Kingdom, Indonesia, , China, the United States by applying DCC-GARCH model and using daily data from 1st January 2005 to 30th October 2018. The findings show that Pakistan's MSCI index returns have very low association with those of any other market and Pakistan having the lowest correlation with the US and highest correlation with Malaysia.

1.2.5. A Summary of Literature Review

A summary table of literature review is given below.

Table 1: A Summary Table of Literature Review

Paper	Area of research	Methodology	Period	Variable	Result
CDS					
Chan-Lau and Sook Kim (2004)	Emerging country Brazil, Bulgaria, Colombia, Mexico, Venezuela, Russia, , the Philippines, and Turkey	Granger Causality Tests, VECM	March 19, 2001- May 29, 2003	CDS, bond, and equity data	Negatively correlated.
Ammer & Cai (2007)	Brazil, China, Colombia, the Philippines, Mexico, Turkey, Russia, Venezuela and Uruguay	VECM	February 26, 2001- March 31, 2005	CDS premiums and bond yield spreads	Negative correlation.
Chan, Fung and Zang (2009)	Asian countries such as Korea, China, Thailand Indonesia, Japan, Malaysia, and Philippines	VECM	January 2001 - February 2007	CDS spread and Stock index	Negative correlation.
Coronado et al., (2012)	France, Greece, Germany, Ireland, Spain Italy, UK and Portugal.	VECM and a Panel data model	Daily prices from 2007 to 2010	CDS spreads and market prices, and CDS spreads and return volatilities	Negatively correlated.

Giedre Lenciauskaitė (2012)	Austria, Germany, Netherlands, France, Ireland, Belgium, Portugal, Spain Italy, Greece,	VAR and Granger causality test	January 2007 - June 2012	CDS spreads, country stock indexes and sectoral stock indexes	Negative relationship
Ertugrul & Ozturk (2013)	Emerging country South Africa, Brazil, Bulgaria, Mexico, Russia and Turkey	SWARCH model	January 2, 2003- March 1, 2012		Negative relationship
Aman (2019)	10 U.S. industrial sectors	Quantile regression framework/ OLS	December 2007 - August 2018	CDS premia, the OVX index and the SP 500 index	Negative relationship
Shahzad et al (2018)	US	Quantile on Quantile approach	December 14, 2007 to September 30, 2015	CDS, Sector wise stock index of US	Negative relationship
Musa Gün (2018)	Nine emerging countries including Turkey, Colombia, Czech Republic, Brazil, Poland, Chile, Mexico, Peru and Russia.	VAR	Weekly data from 2010 to of 2017	CDS spreads and stock market return	Negative relationship

Kang & Yoon (2018)	Asian country---China, Korea, Malaysia, and Thailand	Dynamic conditional correlation- DCC-GARCH model	January 3, 2002-October 9, 2014	Stock index, CDS prices	CDSs plays a significant role as hedges and safe havens
Tokmakçıoğlu et al. (2018)	BRIC countries	VAR, VEC or ARDL Model	Monthly data from February 2010-March 2018	CDS, Stock index	Negative direction.
Anton et al. (2020)	Nine emerging such as Czech Republic, Slovakia, Hungary, Poland, Latvia, Lithuania, Croatia, Romania, and Slovenia	VAR Model	January 2008-April 2018	CDS spread, Stock market index	Bidirectional feedback among sovereign CDS and stock markets
Naifar (2012) .	Japan and Australia	Archimedean copula models	March 23, 2005-August 18, 2010	CDS, equity return volatility	Positive dependence structure
Yang et al. (2018)	G7 and BRICS countries	Wavelet analysis and the copula approach	January 1, 2009-December 2, 2017	CDS spread, stock index	Negative impact on CDS.
Güngör & Taştan (2021)	G7 and BRICS-T	DCC-MIDAS method	January 2, 2002-September 19, 2018	CDS spread, Stock market index	Positively related

Feng et al. (2023)	G7 and BRICS countries	D-Vine-Copula model	October 9, 2008-June 24, 2021	CDS, E/R, Oil, Gold, Stock return	Asymmetric behavior of conditional sovereign CDS has been found.
Bratis et al. (2023)	Germany, France and Portugal, Italy, Ireland, Spain, Greece	VAR	2009–2014	CDS, equity and stock markets index	Found directional interconnectedness among core CDS equity and volatility market.
VIX					
Sarwar (2012)	BRIC Countries	Method of moments	January 2, 1993-December 31, 2007	VIX and S&P 500 index, Stock market indexes	Negative relationships
Mensi et al., (2014)	BRICS	Quantile regression model	Daily data September 1997-September 2013	S&P 500, Oil, Gold, VIX, EPUI	Negative significant effect
Chandra & Thenmozhi, (2015)	India	Quantile regression methodology	March 1, 2009-November 30, 2012	Indian VIX, Stock index	Negatively connected
Chia-Lin et al. (2017)	USA and Europe	VAR Model, BEKK model	Daily data from 1990 to 2014	Stock index and VIX	Significant negative effects.

Hatipoğlu & Tekin, (2017)	Turkey	Quantile regression approach	July 2, 2002 to December 29, 2016	VIX Score, BIST 100 Index, Oil Price and E/R	Negative significantly.
Cheuathonghua et al., (2019)	42 international equity markets from Asia Pacific (12), Europe (22) Latin America (7),	VAR, MVMQ Model	January 1, 1998 to December 31, 2014	Stock market index, US dollar, VIX data.	Negative impacts
Iskenderoglu & Akdag (2020)	G20 countries	Granger causality test	March 2011 and December 2017	VIX data, Stock index	No causal relationship
Exchange Rate					
Tsai (2012) The	Singapore, Malaysia, Thailand, Philippines, Taiwan and South Korea.	Quantile regression model	January 1992 to December 2009	Stock price and Exchange rate	Significantly negative.
Chkili & Nguyen (2014)	BRICS	MS-VAR model	Weekly data from March 1997 to February 2013	US dollar E/R and Stock prices	Negative in Brazil and India.
Mishra (2016)	BRIC countries	Quantile regression approach	January 1998 to June 2015	Stock returns and E/R	Negatively correlated.

Boako et al. (2016)	Ghana	Bayesian quantile regression technique	January 4, 2011 to July 31, 2014	Stock index and exchange rates	Negatively correlated.
Benigno (2016)	Fourteen developed nations	Quantile-on-quantile approach	Weekly data from 1999 to 2015	10-year government BY and stock returns	Negative relationship.
Sui & Sun (2016)	BRICS countries	VECM	March 1993-August 2014	Stock prices, exchange rates, S&P 500 index of U.S., 3-month interest rates,	Foreign exchange rates have significant impact on SMRs.
Shahzad (2019)	Fourteen developed countries	Quantile-on- quantile method	January 2001-March 2016	10-year bond yield and stock market returns	Positive.
MECHRI et al. (2019)	Tunisia and Turkey	GARCH model	January 2002-January 2017	Exchange rates, stock market prices returns, interest rates, inflation rates, petrol prices	Positive significant

				index, and gold prices.	
Ali et al. (2020)	Pakistan	GARCH and Quantile regression model	Both daily and monthly data from 2001-2018.	Stock market volatility, gold prices and the exchange rate	Negative relationship
Chellaswamy et al., (2020)	China and India	Quantile regression approach	January 1998-December 2018	CPI, E/R, interest rate, stock price index SSE	Negative sign.
Gokmenoglu et al. (2021)	India, China, Mexico, Brazil, Turkey, South Africa, Thailand and Malaysia	Quantile-on-Quantile approach	January 1994-March 2019	E/R, stock index	In case of bearish market E/R shocks influence the stock market index return.
Feng et al. (2023)	21 countries	LASSO-VAR model	January 1, 2010 to December 31, 2020	E/R, CDS, Stock return	The stock market has obvious net spillovers on the foreign exchange and sovereign CDS markets.

Huang & Liu. (2023)	G20 countries	Diebold-Yilmaz Connectedness Index (DYCI) method	January 1, 2009 to May 31, 2022.	CDS, Exchange rate, stock	The role of SCDS from a country-level perspective.

Source: Prepared by the author

1.3. Data Description

We adopt two country-based factors of BRIC and G7 that are linked to international trade and finance: exchange rates of the country to the U.S. dollar (E/R) and credit default swaps (CDS). Beyond examining the country-based factors, we also consider the CBOE Volatility Index (VIX) and Morgan Stanley Capital International (MSCIW) world index as global factors. We obtain country-level 5-year CDS spreads from DataStream. Also, E/R, MSCIW and VIX are obtained from investing.com. For empirical analysis, we consider the first difference in the natural logarithmic series of each variable.

The data set have been collected on daily frequency for the sample period covers from the 26th March 2015 to the 31st March 2021 for BRIC countries and 27th July 2015 to 31st March 2021 for G7 countries without covering the observations on weekend (Saturday and Sunday).

The daily major stock market indices data for both BRIC and G7 countries are obtained from investing.com: Bovespa Brazil 50 (Brazil), MOEX Russia index (Russia), BSE Sensex 30 index (India), and Hang Seng China Enterprise index (China) are the stock indices for BRIC countries, and S&P/TSX Composite (Canada), CAC 40 (France), UK 100 (U.K.), Italy 40 (Italy), Euro Stoxx 50 (Germany), JASDAQ (Japan), and Dow Jones Composite Average (U.S.) are the stock indices for G7 countries, respectively. We also adopt two country-based factors that are linked to international trade and finance: credit default swaps (CDS) and exchange rates of the country to the U.S. dollar (E/R). We use U.S. dollar index to proxy U.S. exchange rate. Beyond examining the country-based factors, we also consider the CBOE Volatility Index (VIX) and the Morgan Stanley Capital International (MSCIW) world index as global factors.

The daily major conventional stock market indices data for both G7 and BRICS countries are obtained from investing.com.

The list of conventional stock indices of BRIC and G7 that are utilized in this study is given in the table 2 and table 3.

Table 2: Conventional Stock Index of BRIC

Name of country	Conventional Stock index
Brazil	Bovespa Brazil 50 (Brazil)
Russia	MOEX Russia index (Russia)
India	BSE Sensex 30 index
China	Hang Seng China Enterprise index (China)

Source: Prepared by the author

Table 3: Conventional Stock Index of G7

Name of country	Conventional Stock index
Canada	S&P/TSX Composite
France	CAC 40
United Kingdom	UK 100
Italy	Italy 40
Germany	Euro Stoxx 50
Japan	JASDAQ
United State	Dow Jones Composite Average

Source: Prepared by the author

We present the descriptive statistics, cross-Section dependence test, panel unit root tests and unit root tests of all variables for BRIC and G7 in Table 4, Table 5, Table 6, and Table 7 respectively.

Table 4: Descriptive Statistics for BRIC and G7

	STOCK_RET	E/R	CDS	MSCIW	VIX
BRIC					
Mean	0.000279	0.000171	-0.000627	0.000324	-3.93E-05
Median	0.000520	0.000000	0.000000	0.000565	-0.007590
Maximum	0.571433	0.557249	0.627842	0.120837	0.846974
Minimum	-0.568048	-0.550492	-0.820322	-0.140208	-0.859046
Std. Dev.	0.060949	0.036993	0.034890	0.010841	0.122591
Skewness	-0.007627	-0.002651	-2.163607	-1.597261	0.479370
Kurtosis	34.08418	105.0358	133.7816	45.61918	12.49120
Jarque-Bera	251863.1***	2713882.1***	4463281.1***	476133.5***	23721.20***
G7					
Mean	0.000171	1.45E-05	-0.000288	0.000325	0.000157
Median	0.000599	0.000000	0.000000	0.000592	-0.007508
Maximum	0.370630	0.037722	0.835000	0.120837	0.840761
Minimum	-0.424200	-0.084016	-0.725370	-0.140208	-0.852833
Std. Dev.	0.034138	0.004962	0.058011	0.011099	0.124001
Skewness	-0.137850	-0.381221	0.499788	-1.624347	0.473749
Kurtosis	43.18307	14.37346	44.57478	44.18470	12.45893
Jarque-Bera	697708.7***	56143.59***	747271.3***	737451.2***	39047.01***

Source: Prepared by the author

Note: *** shows 1% level of significance.

Table 4 indicates that the mean of all variables is positive in both country groups except for CDS and VIX in BRIC with CDS in G7. The Jarque-Bera test statistics of both country groups in this table illustrate that we reject the null hypothesis of normal distribution for all variables. Therefore, the method of moment quantile regression is accurate for investigating the determinants of stock return in BRIC and G7.

Before we estimate our model, we test the non-stationarity of all variables for both country groups. To determine the appropriate panel unit root test, we investigate the cross-section dependence across the BRIC and G7 countries.

Table 5: Cross-Section Dependence Test Results for BRIC and G7

Variable		Breusch and Pagan LM	P- Value
BRIC	STOCK_RET	55.42408***	0.0000
	E/R	1790.025***	0.0000
	CDS	310.3790***	0.0000
G7	STOCK_RET	5785.861***	0.0000
	E/R	12230.37***	0.0000
	CDS	402.8871***	0.0000

Source: Prepared by the author

Note: Under the null hypothesis of cross-section independence. *** $p < 0.01$.

We illustrate the cross-section dependence test results in Table 5. Breusch and Pagan LM Statistics in Table 5 denote that there exists the cross-section dependence among BRIC and G7 countries. Hence, we apply second-generation panel unit test and provide the panel unit root tests results for BRIC and G7 in Table 6.

Table 6: Panel Unit Root Tests Results for BRIC and G7

		CIPS	
	Variable	Intercept	Intercept and Trend
BRIC	STOCK_RET	-31.64000***	-31.63190***
	E/R	-28.71818***	-28.71686***
	CDS	-33.70047***	-33.68961***
G7	STOCK_RET	-22.59116***	-22.60207***
	E/R	-25.26124***	-25.28316***
	CDS	-22.18830***	-22.19569***

Source: Prepared by the author

Note: *** shows 1% level of significance.

The CIPS statistics in Table 6 show that STOCK_RET, E/R and CDS of BRIC and G7 are stationary.

Table 7: Unit Root Test for BRIC and G7

	Philips-Perron Test	
Variable	Intercept	Intercept& Trend
MSCI	-43.93665***	-43.94617***
VIX	-65.10643***	-65.07868***

Source: Prepared by the author

Note: *** shows 1% level of significance.

We test the non-stationarity of cross-sectionally invariant variables (MSCI and VIX) and illustrate the results in Table 7. Philips-Perron Test statistics in Table 7 indicate that MSCI and VIX are stationary. Therefore, all of the five variables for both country groups are stationary. Thus, we estimate our model, implementing method of moment quantile regression.

1.4. Methodology

In this study, following the studies of Sarwar (2012), Mensi et al. (2014), Mishra (2016) we test the effect of E/R, CDS, MSCIW and VIX on STOCK_RET in BRIC and G7 countries within panel data framework (Baltagi, 2013) as follow:

$$STOCK\_RET_{it} = \beta_0 + \beta_1 E/R_{it} + \beta_2 CDS_{it} + \beta_3 MSCIW_{it} + \beta_4 VIX_{it} + \varepsilon_{it} \qquad (1)$$

In this model, subscript i and subscript t indicate country and day. β_0 is intercept and β_1, β_2, β_3, β_4 are the coefficients of E/R, CDS, MSCIW and VIX, respectively. ε_{it} denotes disturbance.

We firstly test the cross-section dependence across the BRIC and G7 countries using the Breusch and Pagan LM test (Breusch & Pagan, 1980) under the null hypothesis of no cross-section dependence because of the large T in the dataset. Then, we analyze the stationarity of the cross-sectionally variant variables (STOCK_RET, E/R, and CDS) employing the panel unit root test (Pesaran, 2007), allowing for cross-section dependence among the BRIC and G7 countries under the null hypothesis of unit root. Moreover, we utilize the Philips-Perron unit root test (Phillips & Perron, 1988) to analyze the stationarity of cross-sectionally invariant variables (MSCI and VIX).

To estimate the impact of E/R, CDS, MSCIW, and VIX on the stock returns of the BRIC and G7, we apply ordinary least squares regression (OLS). But the OLS estimator is sensitive to outliers in data, and financial indicators, like stock return, have a higher chance of including outlying observations. That is, extreme values impact the OLS estimation results (Greene, 2020). To abstain from misleading OLS results, we implement the method of moment quantile regression (Machado & Santos Silva, 2019) for nine quantiles of the BRIC and G7. Among the nine quantiles, 0.1, 0.2, and 0.3 indicate the bearish market; 0.4, 0.5, and 0.6 denote the normal market; and 0.7, 0.8, and 0.9 represent

the bullish market. We also display the figures of the estimated coefficients of each variable for nine quantiles in BRIC and G7.

Machado & Santos Silva (2019) provide evidence for the impact of the independent variables on entire conditional distribution and allow a reliable estimation of conditional means by differentiating out the individual effects in panel models. Machado & Santos Silva (2019) also alleviate the common incidental parameter problem in quantile regressions with individual effects by allowing the individual effects to impact the whole distribution with this approach.

Finally, we employ the Driscoll-Kraay estimator (Driscoll & Kraay, 1998) as a robustness test since the Driscoll-Kraay estimator can be implemented in fixed effects or random effects models in order to have a consistent estimate of variances and covariance of the parameters of the panel data model.

1.5. Results

In this section, we determine the empirical findings and our results, as mentioned above, are thoroughly discussed. The present study explains how country-based and global financial factors (exchange rate, CDS, MSCI world index, and VIX) affect the stock market return of BRIC and G7 countries using the MMQR.

To enable a fair comparison between the BRIC and G7 countries, the tables for each country group are presented below in Table 8 and Table 9.

Table 8: Effects of the Financial Variables on Stock Returns of BRIC Countries: Method of Moment Quantile Regressions

Dep. Var: STOCK_RET	Location	Scale	Quantile level									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	OLS
E/R	.535***	0.006	.529***	.532***	.533***	.534***	.535***	.536***	.537***	.538***	.540***	.535***
	[28.99]	[0.32]	[19.52]	[24.19]	[26.64]	[28.12]	[29.05]	[29.61]	[29.71]	[28.85]	[25.12]	[27.30]
	(0.000)	(0.746)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CDS	-0.051**	0.012	-0.063**	-.057**	-.055**	-.053**	-.051**	-.050**	-.048**	-.045**	-0.040	-.051**
	[-2.37]	[0.61]	[-1.98]	[-2.23]	[-2.33]	[-2.37]	[-2.37]	[-2.33]	[-2.25]	[-2.06]	[-1.59]	[-2.41]
	(0.018)	(0.541)	(0.048)	(0.026)	(0.020)	(0.018)	(0.018)	(0.020)	(0.024)	(0.039)	(0.112)	(0.016)
MSCIW	.756***	.140	.890***	.827***	.795***	.773***	.754***	.737***	.715***	.685***	.628***	.756***
	[8.12]	[-1.62]	[6.51]	[7.47]	[7.90]	[8.09]	[8.15]	[8.09]	[7.87]	[7.30]	[5.80]	[10.12]
	(0.000)	(0.105)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	-.004	0.004	-.007	-.006	-.005	-.004	-.004	-.003	-.003	-.002	-0.001	-.003
	[-0.54]	[0.59]	[-0.72]	[-0.68]	[-0.64]	[-0.59]	[-0.53]	[-0.47]	[-0.39]	[-0.26]	[-0.04]	[-0.58]
	(0.591)	(0.558)	(0.472)	(0.495)	(0.525)	(0.558)	(0.594)	(0.638)	(0.698)	(0.795)	(0.971)	(0.563)
C	-0.001	.021***	-.020***	-.011***	-.006***	-.003***	0.001	.003***	.006***	.011***	.019***	-0.001
	[-0.12]	[29.61]	[-28.08]	[-34.15]	[-24.66]	[-12.23]	[0.65]	[14.63]	[25.25]	[35.15]	[31.61]	[-0.12]
	(0.907)	(0.000)	(0.000)	(0.000)	(0.0000	(0.000)	(0.513)	(0.000)	(0.000)	(0.000)	(0.000)	(0.901)

Source: Prepared by the author

*, **, *** indicates 10%, 5%, and 1% level of significance, respectively. Brackets and parentheses denote z values and p values, respectively.

Table 9: Effects of the Financial Variables on Stock Returns of G7 Countries: Method of Moment Quantile Regressions

Dep. Var: STOCK_RET	Location	Scale	Quantile level										
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	OLS
E/R	-.171**	.001	-.170**	-.170**	-.170***	-.171**	-.171**	-.171***	-.171***	-.171**	-.171**	-.171***
	[-2.56]	[-0.01]	[-1.91]	[-2.32]	[-2.49]	[-2.55]	[-2.56]	[-2.53]	[-2.45]	[-2.28]	[-1.85]	[-2.63]
	(0.010)	(0.993)	(0.057)	(0.020)	(0.013)	(0.011)	(0.010)	(0.011)	(0.014)	(0.023)	(0.064)	(0.009)
CDS	-.013**	.010*	-.023***	-.018***	-.016*	-.014**	-.013**	-.011**	-.010	-.007	-.002	-.013**
	[-2.23]	[1.87]	[-2.96]	[-2.87]	[-2.67]	[-2.46]	[-2.23]	[-1.97]	[-1.65]	[-1.71]	[-0.35]	[-2.30]
	(0.026)	(0.062)	(0.003)	(0.004)	(0.008)	(0.014)	(0.026)	(0.048)	(0.100)	(0.241)	(0.727)	(0.022)
MSCIW	.800***	-.042	.842***	.823***	.812***	.806***	.800***	.794***	.788***	.777***	.758***	..800***
	[22.75]	[-1.29]	[17.87]	[21.21]	[22.50]	[22.86]	[22.78]	[22.35]	[21.46]	[19.67]	[15.52]	[25.06]
	(0.000)	(0.198)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VIX	-.012***	.003	-.015***	-.014***	-.013***	-.012***	-.012***	-.011***	-.011***	-.011***	-.009**	-.012***
	[-4.22]	[1.10]	[-3.91]	[-4.32]	[-4.40]	[-4.34]	[-4.22]	[-4.03]	[-3.75]	[-3.27]	[-2.30]	[-4.24]
	(0.000)	(0.271)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.022)	(0.000)
C	-.000	.011***	-.011***	-.006***	-.003***	-.002***	-.001	.001***	.003***	.006***	.011***	-.000
	[-0.28]	[33.74]	[-38.09]	[-41.59]	[-30.98]	[-19.07]	[-0.84]	[17.28]	[30.67]	[39.79]	[39.69]	[-0.28]
	(0.780)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.402)	(0.000)	(0.000)	(0.000)	(0.000)	(0.783)

Source: Prepared by the author

*, **, *** indicates 10%, 5%, and 1% level of significance, respectively. Brackets and parentheses denote z values and p values, respectively.

The OLS estimation result shows that E/R has significantly positive impact on BRIC stock market returns, which is consistent with Chandrashekar (2018) findings. On the other side, it has a significant negative link to SMRs of G7 countries which is in line with the studies of Boako et al. (2016), Kasman et al. (2011), Ali et al. (2020), and Lee & Cho (2017). Moreover, CDS has a significant and negative effect on the SMRs of BRIC and G7. These findings are in line with those of Sovbetov & Saka (2018) and Aman (2019).

When it comes to global factors, the MSCI world index has a significantly positive impact on SMRs in both country groups, while the VIX has a significantly negative impact on SMRs only in G7 countries. These negative findings are in line with the study of Dhanaiah et al. (2012). Overall, the OLS result indicates that country-based and global financial factors influence the stock market returns of BRIC (except VIX) and G7.

Considering the coefficients from the method of moment quantile regression results, we can observe that the exchange rate indicates a significantly positive link with stock market return for BRIC countries. These results are in line with the findings of Mechri et al. (2019); Chandrasheka. (2018); Barakat et al. (2016); Mohapatra & Rath. (2015). The correlation is significantly negative in the case of G7 countries at all quantile levels which is in line with Tsai. (2012); Chellaswamy et al. (2020); Mishra. (2016); Boako et al. (2016); Ali et al. (2020); Lee & Cho. (2017). Since BRIC countries are mostly export-dominant, currency depreciation tends to have a positive impact on their domestic stock markets. On the other hand, there are relatively more import-oriented firms in G7. Hence, currency depreciation causes a negative impact on their domestic stock market. Additionally, the coefficients are positive in case of BRIC and negative in case of G7, suggesting that fluctuations in the value of the US dollar have a positive impact on the stock markets returns of the BRIC nations while it has negative impact on the stock markets returns of the G7 nations. Besides empirical findings reveal that the returns of the BRIC and G7 stock market index are significantly impacted by changes in currency rates. Furthermore, in case of BRIC nations the exchange rate coefficient's positive sign suggests that the value of the BRIC stock return rises when local currency values fall against the US dollar, on the contrary, in case of G7 nations the exchange rate coefficient's negative sign indicates that the value of the G7 stock return rises when local currency values rises against the US dollar.

We can also observe that in both country groups, the magnitude of the coefficient is increasing consistently from the lowest to the highest quantile level. Thus, the effect of the exchange rate is stronger during the bullish market. This result indicates there is a slightly asymmetric dependence between those variables.

Concerning the impact of CDS, our results are congruent with the theoretical connotations. In BRIC countries, results show a significantly negative relationship with stock market return across all quantiles (except Q9). Furthermore, CDS have a significant negative impact on the stock market in G7 countries in both bearish and normal markets. Moreover, in contrast to G7, CDS have a strong significant impact on BRIC stock market return. These results are aligned with several studies that demonstrate the significantly negative impact of CDS on stock market returns (Shahzad et al., 2018; Aman., 2019; Chan, Ertugrul & Ozturk., 2013; Gün., 2018; Tokmakçıoğlu et al., 2018; Anton et al., 2020; Coronado et al., 2012; Lenciauskait.,2012; Yang et al.,2018). However, during bullish market conditions in the G7 stock market, results suggest that there is an insignificant association between CDS and stock market returns. We can also observe that the negative effects of CDS decrease as quantile increase. The relationship between CDS and stock market return of relevant country-groups display an asymmetric structure, implying that the effect of changes in CDS are more pronounced during bearish market than normal and bullish market states.

The study's findings indicate that, political decision-makers ought to respond to stock exchange fluctuations in order to regulate the sovereign CDS spreads of the relevant country-group. In order to maintain the country's financial stability during recessions period, governments should prioritize responsible public debt management; during bear market circumstances, they should work to maintain the stability of the business environment in order to minimize CDS country risk. Furthermore, to predict the changes in country risk and implement the proper strategies, other players in the financial markets, including institutional investors, hedgers, and speculators, need to take consideration of the relationship between the CDS and the stock market.

As mentioned above, our global factor includes the MSCI world index and VIX. We find that MSCI world index have significantly positive effects on the stock market return in the case of both country group in all quantile levels since the coefficients are considerably

positive at the 1% significance level. In both developed and developing nations, the local stock market is greatly impacted by the global stock market. Overall, the results support previous research (Faisal & Khan, 2007; Abugri, 2008; Ferson & Harvey, 1997; Harvey, 1991) showing that local stock markets are always greatly impacted by the volatility of global stock markets.

The findings of the study suggest that a boost up (drop down) in MSCI world stock market index indicates a strong global economy which has a positive (negative) impact on market economies and local stock returns. However, the magnitude of its coefficient decreases as quantile increases in both country groups. The result implies that when the stock market is in bullish period the positive effect of MSCI world index weakens and is not as high as those of the lower quantiles. This is a clear indication of asymmetric relationship between MSCI and stock market return of BRIC and G7.

While VIX has significantly negative effects on the stock market of G7 in all quantiles, it is insignificant in the case of BRIC. So, VIX is not a useful criterion for making decisions in BRIC stock market. Based on the analysis results, developed nations are more frequently affected. The robust form efficiency of capital markets in developed nations explains the rationale for this outcome. These outcomes are supported by Iskenderoglu and Akdag (2020) who investigate the effects of VIX on the stock exchange indexes of developed and developing countries and discovered that developed countries are more likely to have the causal link than developing ones.

The findings of this study are also partially consistent to a number of studies including Mensi et al. (2014), Chandra & Thenmozhi (2015), Hatipoğlu & Tekin (2017) who detected a negative relationship between VIX and local stock market.

In addition, from the result we can detect that the magnitude of coefficient is decreasing from lower quantile to upper quantile. Therefore, VIX has asymmetric effects on stock market return of G7, implying that the effects are stronger in bearish market than any other markets.

Moreover, the method of moment quantile regression magnitude of every variable across different quantiles for BRIC and G7 is also shown in Figures 1 and 2.
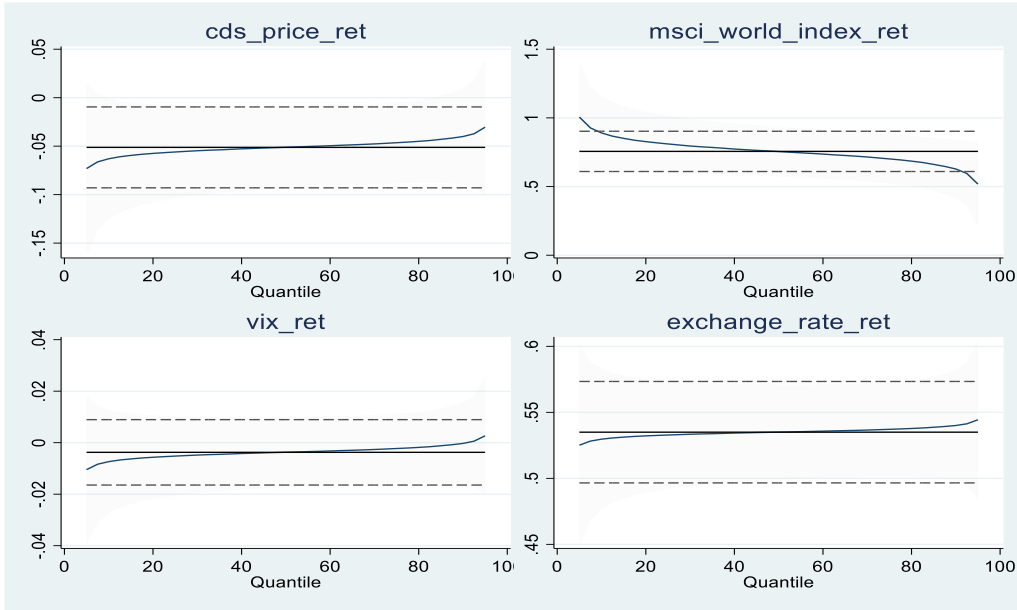
Figure 1: Coefficients of Method of Moment Quantile Regression for BRIC

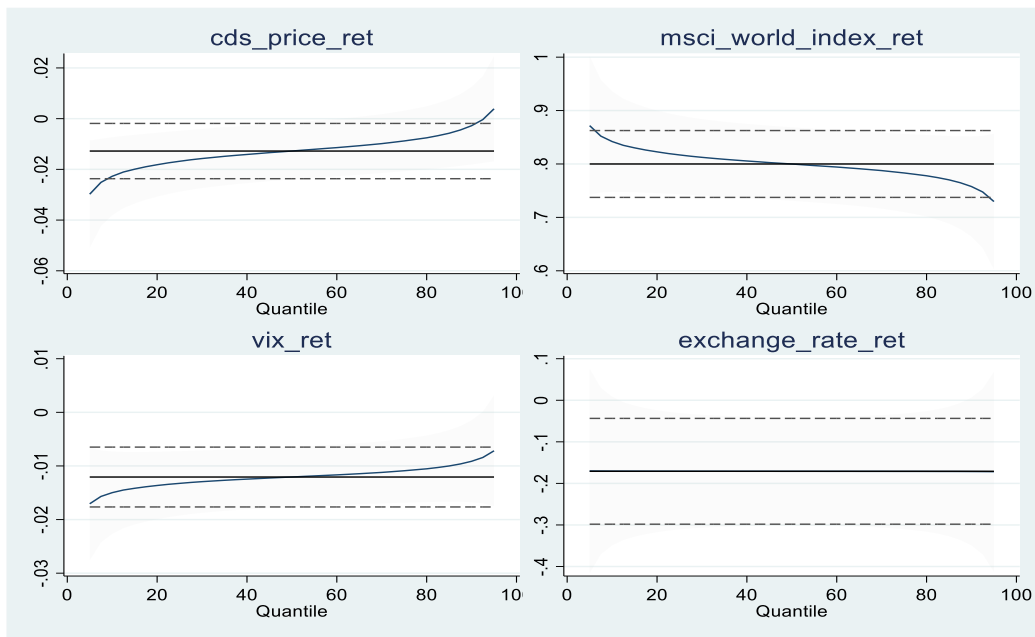**Figure 2:** Coefficients of Method of Moment Quantile Regression for G7

As shown in the graphs, CDS and VIX have a negative link with BRIC and G7 stock market returns. The E/R has a positive link in BRIC countries but a negative link in G7

countries. Additionally, MSCI displays a positive link with the SMRs in the case of both country groups.

1.5.1. Robustness test

Table 10: Driscoll-Kraay Test Results for BRIC and G7

Country Groups	Variable	Coefficient	t-statistics	p-value
BRIC	E/R	.5349799***	10.93	0.000
	CDS	-.0512588*	-1.80	0.072
	MSCIW	.7562277***	11.58	0.000
	VIX	-.0037474	-0.37	0.708
	C	-.0000897	-0.25	0.800
G7	E/R	-.1709057*	-1.81	0.070
	CDS	-.0127803*	-1.80	0.072
	MSCIW	.8000231***	12.80	0.000
	VIX	-.0120638	-1.16	0.246
	C	-.0000888	-0.46	0.647

Source: Prepared by the author
Notes: *, **, *** show 10%, 5%, %1 level of significance.

Moreover, we use the Driscoll-Kraay (DK) test, which examines the robustness of the standard errors, considering cross-sectional and temporal dependence in case of the long-time dimension. The DK is implemented to obtain the long-run coefficients and thus the reliability of the findings can be checked. In this context, Table 10 shows that in the case of BRIC, the coefficient of exchange rate and MSCI world index are significantly positive, CDS is significantly negative, while VIX's coefficient is insignificant. In the case of G7, the exchange rate and CDS are significantly negative, MSCI world index is significantly positive while VIX's coefficient is insignificant. Therefore, all coefficients are in line with the estimation given in the previous tables except the coefficient of VIX in the G7.

1.6. Conclusion and Policy Implications

This study intends to examine how country-based and global financial factors impact the SMRs of the G7 and BRIC countries. In this regard, the current study employs the MMQR to investigate the country-based and global financial factors that affect stock market returns, including exchange rate, sovereign CDS, MSCI world index, and VIX index.

Stock market investors can have a strategy to buy or sell stocks according to the predicted response to the stock return by following the exchange rate. For example, the analysis shows that E/R has a positive and significant impact on SMRs in BRIC countries (export-dominant); thus, if the exchanges rate is depreciating (appreciating), investors can predict that the stock price will increase (decrease). Alternatively, the E/R has a significantly negative impact on SMRs in G7 countries (import-dominant), so if the exchange rate is depreciating (appreciating), investors can expect the stock price to decrease (increase). Hence, this result suggests that there is a diversification opportunity for investors among the BRIC and G7. Besides that, CDS has a significantly negative link with the stock market return across all quantiles in the case of BRIC (except 0.9), and this result also implies for the G7 stock market return in the bearish and normal periods. The result indicates that when the market is at its bullish phase, investors do not pay attention to CDS. Therefore, investors have a chance to diversify their portfolios among the country groups during the bullish market phase.

Furthermore, we find that the MSCI world index is significant and positively link to the stock market returns of both groups across all quantile levels. This implies that, in terms of MSCI, there is no diversification opportunity for investors among the country groups. There is evidence of VIX's strong predicting power of stock market return in developing countries, as VIX has a significantly negative influence on G7 stock market returns across all quantiles. It might be stated that the effect is more prevalent in advanced countries because of the high efficiency of capital markets.

But in the case of BRIC, the link between VIX and stock market return is insignificant. The absence of the VIX effect on the BRIC stock market suggests that country-based investors are more concerned with regional and country-based stock market uncertainties than with US market uncertainties. Moreover, one plausible reason could be the limited capacity of investors in BRIC to collect and evaluate the data concerning the volatility of the S&P 500.

This study intends to examine how local and global financial factors impact the stock market returns of the G7 and BRIC countries. In this regard, the current study employs the novel method of moment quantile regression (MMQR) to investigate the local and

global financial factors that affect stock market returns, including exchange rate, sovereign CDS, MSCI world index, and VIX index.

Stock market investors can have a strategy to buy or sell stocks according to the predicted response to the stock return by following the exchange rate. For example, the analysis shows that exchange rate has a positive and significant impact on stock market return in BRIC countries (export-dominant); thus, if the exchanges rate is depreciating (appreciating), investors can predict that the stock price will increase (decrease). Alternatively, the exchange rate has a significantly negative impact on stock market return in G7 countries (import-dominant), so if the exchange rate is depreciating (appreciating), investors can expect the stock price to decrease (increase). Hence, this result suggests that there is a diversification opportunity for investors among the BRIC and G7.

Besides that, CDS has a significantly negative link with the stock market return across all quantiles in the case of BRIC (except Q9), and this result also implies for the G7 stock market return in the bearish and normal periods. The result indicates that when the market is at its bullish phase, investors do not pay attention to CDS. Therefore, investors have a chance to diversify their portfolios among the country groups during the bullish market phase.

Furthermore, we find that the MSCI world index has a significantly positive impacts on the stock market returns of both groups across all quantile levels. This implies that, in terms of MSCI, there is no diversification opportunity for investors among the country groups.

There is evidence of VIX's strong predicting power of stock market return in developed countries, as VIX has a significantly negative influence on G7 stock market returns across all quantiles. It can be said that the effect is more common in developed countries because of the high efficiency of capital markets. But in the case of BRIC, the link between VIX and stock market return is insignificant. The absence of the VIX effect on the BRIC stock market suggests that local investors are more concerned with regional and local stock market uncertainties than with US market uncertainties. Moreover, one plausible reason could be the limited capacity of investors in BRIC to gather and analyze the data regarding the volatility of the S&P 500.

The consequences of our findings have important implications for international investors, market players, policymakers, and monetary authorities, specially who are in charge of maintaining the stability of the domestic as well as international economies and financial markets. Knowing that the influence of local (E/R, CDS) and global (VIX, MSCIW) financial factors varies during bear market phases and bull market phases would help policymakers who attempt to design a strategy to intervene differently. Regarding investors or market participants, their decision to stay in the market or leave will be influenced by their understanding of how local and global financial variables affect stock market returns. Investors may pay attention to local and global factors at the time of making investment decisions. Hence, they can alter the structure of their portfolios whenever they see any changes in factors that affect the stock market's return. Furthermore, foreign investors would find our results valuable. International investors should diversify their assets and lower their risks by making investments in markets that are poorly or negatively linked with each other, with the aid of information about the relationship between financial factors and stock market returns. Predicting market returns in reaction to specific types of shocks might also be beneficial for foreign investors.

Therefore, from a policy standpoint, the following steps might be taken into consideration.

First, the effects of all factors in both country groups drop as the quantile increases, except for the exchange rate. Here we observed that the coefficient of exchange rate is going in the opposite direction in both country groups, which provides valuable information for investors and policymakers to make plans and decisions.

Second, during the bullish period in G7, the link between the CDS and stock market is not significant. Therefore, when the market is in good shape, following the CDS to predict stock market performance is not a wise strategy.

Third, as a global factor, VIX displays significant negative reactions to the G7 stock market and insignificant reactions to the BRIC stock market. So, investors in developed countries should closely monitor the VIX more to predict the stock market return than investors who wish to finance in emerging countries.

Therefore, our study suggests that investors should pay attention to country-based and global factors at the time of making investment decisions. Hence, they can modify the

structure of their portfolios whenever they see any changes in factors that affect the stock market's return.

CHAPTER 2: HOW DO ISLAMIC STOCK MARKETS REACT TO COUNTRY-BASED AND GLOBAL FINANCIAL FACTORS IN BRIC AND G7?

2.1. Introduction

The study examines how country-based and global financial factors influence Islamic stock market return of BRIC and G7countries. This study adopts method of moment quantile regression (MMQR). We use daily data from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. The estimation outcome demonstrates that exchange rates have a significant and positive link to stock market returns while credit default swaps (CDS) have a significant negative impact on Islamic stock market return in G7 (during lower and normal quantile). Moreover, there has a significant positive link among the MSCI world index and Islamic market return in both country groups. Finally, VIX has significantly negative effects on Islamic stock market returns in BRIC (during higher quantile) and G7 countries. Islamic finance is not only a sector that is expanding quickly; it has also received formal acceptance into the financial markets. The primary feature of Islamic finance is the outlawing of receiving and paying interest (riba). Islamic investors frequently strive to make only sharia-compliant investments based on moral principles. The development of Islamic stock market indexes is one aspect of Islamic finance that attracts a lot of investors. According to Bhatti & Bhatti (2010), Islamic finance is the activity of managing funds in conformity with the tenets of Islamic principles and law.

However, it is a well-established idea in the financial economics literature that financial considerations have an impact on stock market behavior. Over the past 20 years, a lot of research has gone into developing an empirical measurement of these financial ramifications. The conventional developing (Musa Gün, 2018; Mishra, 2016; Mensi et al., 2014; Ertugrul & Ozturk, 2013; Tokmakçıoğlu et al., 2018) and advanced (Lou & Luo, 2017; Habibi & Lee, 2019; Shahzad, 2019; Aman, 2019; Benigno, 2016) countries are the subject of several studies.

Investigations on the Islamic stock market get less attention than studies on the traditional stock market (Shahzad et al., 2017; Naifar, 2016; Aloui et al., 2015; Kumar & Sahu, 2017;

Hammoudeh et al., 2014). The goal of this study is to investigate if regional and global financial conditions have an impact on the returns for Islamic stocks in developed (G7) and emerging (BRIC) economies.

There are various ways in which Islamic stock markets appear to differ from traditional stock markets. Comparing shariah compliant equities to their conventional counterparts, it is believed that they are less risky and market responsive (Abbes, 2012).

In developing and developed countries like the BRIC and G7, there hasn't been any research on the impact of country-based and global financial variables on the return on the Islamic stock market using the method of moment quantile regression approach (Machado and Silva, 2019). The goal of the present study is to close this gap by examining how country-based and global financial factors affect the Islamic stock market index.

Additionally, we use the method of moment quantile regression to discover the asymmetry impact on the return on the Islamic stock market under bullish (higher quantile), bearish (lower quantile), and normal (middle quantile) market conditions.

There are three significant additions that our study provides to the existing empirical studies.

First, no earlier research has looked into how the country-based and global financial factors affect the Islamic stock markets in the BRIC and G7 countries. As foreign investors are primarily interested in how stock markets move with global variables, we attempt to examine the impact of global financial factors on the stock market in addition to country-based financial factors.

Second, we choose the BRIC and G7 countries because the BRIC nations are the four largest developing nations whilst G7 is the seven largest advanced economies in the world. Additionally, risk and returns differ across developing and advanced nations depending on the type of political factors, economic uncertainty. Consequently, the G7 is starting to face direct competition from the BRIC nations[2].

Third, in order to scrutinize the effect of financial variables on the return on the Islamic stock market under bull, bear and normal market conditions, we apply the moment

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[2] https://gulfnews.com/opinion/op-eds/g7-vs-brics-the-economic-alliances-that-will-shape-the-future-of-humanity-1.89091796. A.D. 07/04/2023

quantile regression approach (Machado and Silva, 2019). There are numerous studies examining the impact of financial factors on the traditional stock market index, but none have used the method of moment quantile regression to examine how financial factors effects the Islamic stock market index.

The remaining sections of the essay are included below: A review of earlier material is presented in Section 2. Data and variables are covered in Section 3. Section 4 described methodology. The estimation results and discussion are explained in Section 5. Conclusion is covered in section 6.

2.2. An Overview of Islamic Stock Market

The earliest stock market was established in France in the 1300s. On the other hand, the Islamic idea of mudrabah, which has some similarities to the modern stock market notion, was introduced in the sixth century, at the time of the Prophet Muhammad (PBUH).

Contractual agreements for profit and loss sharing investments in business transactions were first introduced by Muslims, that gives the concept of stock markets; however, current traditional stock markets violate various Shariah or Islamic law requirements. For that reason, Muslims are unable to fully participate in trading on conventional stock markets. Furthermore, Islamic stock market indices are still in the initial stages of development.

According to conventional Efficient Market Hypothesis (EMH) theory, no corporation may make an extraordinary profit by abusing any kind of private or public information, but the concept is not universal. The Islamic principles and value-based banking system can now be recommended as a good substitute for the traditional capital market system because the world is able to see the benefits and advantages of these systems, especially during the financial crisis.

2.2.1. Early stages of Islamic stock market

For Muslim investor, Islamic capital market is required to have access to financial and investment areas that are in line with shariah compliance. Islamic scholars try to screen the activities of a particular investment to be ensured that they obey the shariah rules. Therefore, the evolution of the Islamic financial sector has enabled the establishment of

a unique Islamic capital market where financing and investment activities are organized according to Shariah standards.

Several countries, such as Malaysia, Bahrain, Iran, Kuwait and Sudan tried to introduce Islamic bond in order to enable the management of assets through Islamic financial institutions. Though the governments of Jordan and Pakistan had previously made efforts to inaugurate a legal framework for the issue of Islamic bonds, the Malaysian government started the first successful issue of Islamic bonds in 1983 with the issuance of the GII (Government Investment Issue).

Later, to facilitate trading on the secondary market, the core concept of GII was altered to bai al-Inah. The Islamic capital markets (ICM) played a minor role in the early development of Malaysia's Islamic financial system. The Islamic capital market saw major transformations during the mid-1990s, and its provisions for the further development of the Islamic financial system grew ever clearer. In 1983, Bank Islam Malaysia Bhd in Malaysia started the first initiatives to provide a list of Shariah-compliant stocks that follow specific Islamic rules. A list of shariah-compliant stocks was released by the Securities Commission of Malaysia in 1997. After that, two Islamic unit trust funds were created in Malaysia in 1993 (MIFC, 2011).

The development of Asia's first Islamic Exchange Traded Fund (ETF) and the world's first Islamic Real Estate Trusts (REITs) are two other examples of Malaysia's innovative leadership in establishing Islamic capital market structured products. Moreover, in the issuing of sukuk and the provision of liquidity management services to IFIs (Islamic financial institutions), Malaysia has established itself as the market pioneer. Recently, Islamic derivative instruments that could provide effective risk management tools have been developed (Muzahid 2016). The Islamic Equity Capital Market has developed to the stages that Muslim investors can now use the numerous Islamic Unit Trust Funds and Asset Management Companies to let professionals manage their money.

Several indices have been devised to measure the performance of the Islamic stock market, such as the RHB Islamic stock index (developed in 1996) and the KLSE Syariah Index (developed in 1999).

2.2.2 . Characteristics of Islamic Stock Index

There are some specific characteristics of the company in Islamic stock market (Khatkhatay & Nisar, 2007).

Firstly, the main operation of a firm must adhere to Islamic standards and be recognized as "halal." Some companies sell, manufacture, haram meat like pork, or they engage in immoral activities including pornography, prostitution, gambling, discos, nightclubs, and pubs. It is forbidden for Muslims to invest in industries whose principal source of income is generated from haram practices.

Secondly, buying stock in companies that are directly or indirectly interconnected to financial interest, which is prohibited in Islam, also applies to businesses that offer financial services based on interest, like finance, insurance companies, banks, leasing businesses, etc. However, in today's world, commerce is so intertwined in so many ways that it is frequently impossible for local and global businessmen to avoid riba-based transactions entirely (Jamal et al., 2010).

Thirdly, the Islamic jurists from the four main schools of Islamic thought—Hanafi, Maliki, Shafi, and Hanbali—agreed that investing in such businesses is appropriate under certain circumstances in cases of mixed types of businesses, where multi-sectoral firms are engaged in both haram and halal actions. Justice Mufti Muhammad Taqi Usmani asserts that shareholders should speak out against this practice at the company's annual general meeting if the firm's primary actions is halal, but it borrows cash at interest or keeps its cash in riba-based accounts (Usmani, 2010).

Muslim shareholders are required to determine the percentage of dividends that come from riba-based actions and give them as charity. Moreover, investing in stocks of companies whose revenue is less than five percent of their total earnings from riba-based activities has been approved by shariah scholars. Butt (2014) states that a company's revenue from non-shariah-compliant investments shouldn't be higher than 5% of its gross income, including income from interest.

2.2.3. Islamic Finance in BRIC and G7

Islamic finance is also starting to gain acceptance in countries that do not have a Majority-Muslim population such as China, Brazil, India, Russia, UK, USA, Japan, etc. Particularly

after the worldwide recession, Islamic finance has emerged as one of the most profitable segments of the global financial system.

Many direct and indirect investments made by Shariah compliant funds have been directed at Brazil, one of the most established trading partners in the Islamic market, a prominent exporter of Halal meat with over two million tons annually, and one of the most prominent suppliers of Halal chicken.

The IFSB forecasts that by 2020, the value of Islamic assets might reach US$6.5 trillion due to the constantly expanding interest of both Islamic and non-Islamic investors in Shariah-compliant assets. Currently, a few Brazilian banks are including Shariah-compliant assets in their investment portfolios. The largest bank in Latin America (Banco do Brasil) has introduced a Shariah-compliant equity fund that focuses on businesses involved in gas, mining, and oil as well as other energy-related industries that transact on the Sao Paulo Stock Exchange (B3)[3].

Russia has long been a crossroads of cultures and a trading hub. Several estimates place the number of native Muslims in Russia between 15 and 25 million (10–17% of the overall population). Many scholars say the idea of an Islamic bank was initially developed by Russian Muslim intellectuals during the middle of the twentieth century. In 2017, a variety of organizations began operating in different Russian provinces, modeling their operations after those of the early entrants in the provision of Islamic financing services, particularly in the republics of the North Caucasus (Kalimullina, 2020). In India, Islamic financing is not a brand-new idea. A comprehensive financial system is implemented in India that is governed by a variety of financial regulations in order to successfully deliver financial services to its population of approximately 1.21 billion people. (Mohammed et al. 2016). Scholars believe that the growth of Islamic finance in China will present good opportunities for Islamic finance. The first Chinese region to support an Islamic finance platform was Hong Kong. The HKSAR Government's policy declaration pushed for promoting Islamic finance and developing an Islamic financial center in Asia, with Hong Kong being one of the four principal global financial hubs. In 2017, the HKSAR provided US$3 billion in sukuk under the Government Bond Development Program. According to

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[3] https://www.mondaq.com/brazil/islamic-finance/677096/shariah-compliant-investments-blooming-in-brazil. A.D. 03/04/2023

Hong Kong financial officials, these commercialization initiatives make Hong Kong's sukuk platform more appealing (He et al., 2022).

There are currently over 1.2 million Muslims in Canada, making it one of the country's fastest growing religious communities. The country's growing Muslim community, which wishes to avoid riba and other immoral financial practices, has raised the necessity for Islamic banking and finance in Canada. Muslims began receiving loans from the Toronto-based banking institution UM Financial in 2005. The Ontario Superior Court ordered UM Financial to enter receivership on October 7, 2011. In collaboration with financial institutions, UM has created investing and deposit solutions for the Canadian market. To finance residential and commercial real estate, a $100 million subscription investment fund was created. Investors can access Canadian securities through the TSX, which features the S&P/TSX 60 Shariah index.

Finance House-LARIBA, which started selling Sharia-compliant home financing solutions in 1987, is credited with launching Islamic finance in the United States of America. Recently, there are 25 Islamic financial institutions functioning in the United States. Additionally, over the past few years, the Islamic finance sector in the United States has grown slowly but steadily, geographically broadened their markets, which focuses primarily on home financing, looked for sources of funding, and built up their clientele (Victoria Lynn Zyp 2009).

The United Kingdom has made major contributions to the advancement of Islamic finance for more than thirty years. Islamic finance initially started its journey in UK With the implementation of Murabaha operations in the 1980s. Al Baraka International opened its doors in 1982 which is the former Islamic bank in the UK. It has created an environment for Islamic finance that promotes the growth of all schools of thought. To ensure that Islamic Banks operating in the UK may develop on a correct base, the UK's Central Bank has committed to providing Sharia-compliant liquidity services. Islamic funds' net assets in the UK total nearly $600 million.

In recent years, the worldwide Islamic finance industry has seen an upturn in the movement of Japanese financial institutions. In the markets, particularly in the Middle East and Asia some Japanese financial institutions are said to have successfully set up Islamic product and services facilities. They are expected to gain expertise in providing

Islamic finance products and services, will be better able to support foreign and Japanese market participants who are fascinated in Islamic finance. In 2010, additional measures were being considered to make it easier for Japanese domestic firms to issue sukuk under Japanese law.

2.3 . Literature Review

The literature on Islamic finance is fairly sparse and primarily comprises of theoretical rather than practical evidence because studies on the Islamic stock market index relatively rare. Therefore, we examine the studies that has been written about the link among financial factors and Islamic stock market return in the context of this study.

2.3.1. Effect of CDS on Islamic Stock Market Return

One of the credit derivative instruments that forms the foundation of stock markets is credit default swaps. It may be called as an insurance agreement done to protect the creditor's receivables. A high CDS shows that the economy's default risk is rising.

A rise in the CDS is expected to have a negative link to the Islamic SMRs (Coronado et al., 2012). The CDS reacts to new information on credit risk more quickly than any other credit derivative instrument since it is the most liquid instrument in the credit derivatives market. Numerous studies have been taken on the relationship between CDS and traditional stock market return (Yang et al., 2018; Aman, 2019; Kang & Yoon, 2018; Chan-Lau and Sook Kim, 2004; Shahzad et al., 2018;) but studies on relationship among Islamic stock index and CDS relatively very limited.

Conventional emerging stock market indices and the Dow Jones Islamic were examined by Hachicha et al. (2022) to determine the best hedging tool among seven alternative assets from January 2000 to April 2019. The dynamic conditional correlations in the four CDS indices and EMERGC index and, as well as those in the CDS indices and the EMERGI index, are discovered to be relatively high and positive using a rolling-window approach.

Moreover, Aloui et al. (2015) look at the volatility repercussions between sharia-compliant stocks and macroeconomic variables in the Gulf Cooperation Council countries using daily data during 10th july 2008 to 13th July, 2013. By using a DCCX-MGARCH

model, it can be seen that USCDS has a favorable impact on the Islamic stock index as a global macroeconomic factor.

2.3.2 .Effect of VIX on Islamic Stock Market Return

The Chicago Board Options Exchange's Market Volatility Index (VIX), which displays the implied volatility of the S&P 500 index for the coming thirty days, is a well-known indicator of impending short-term volatility in the U.S. stock markets. The VIX is mentioned to as the "investor fear index" since it has been linked to extremely unstable markets in the United States (Whaley,2000).

There is a lot investigation on the relationship between conventional stock market return and VIX (Mensi et al. 2014; Cheuathonghua et al., 2019; Chandra & Thenmozhi 2015; Hatipoğlu & Tekin 2017) and the link between the Islamic stock and market return VIX has only been the subject of a few research. (Hammoudeh et al. 2014; Karim and Naeem 2022; Kumar & Sahu 2017; Naifar 2016).

Naifar (2016) examines the relationship between DJIMI return and global risk and macroeconomic parameters using monthly data from January 2003 to October 2014.Utilizing the quantile regression method they found that USCDS has significantly positive effects and VIX has significantly negative effects on DJIMI returns.

Hammoudeh et al. (2014) examine the dissimilarities among conventional stock market and Islamic stock markets systems, in terms of principles and financial products using daily data from 4th January1999, to 22nd July 2013. Applying a copula approach outcomes indicate The DJIM and VIX have a negative average relationship.

Kumar & Sahu (2017) look into how macroeconomic factors and Dow Jones Islamic Market India interacted using monthly data from January 2006 to July 2015. The results of the VECM technique demonstrate a negative correlation between E/R and Islamic SMRs.

Karim & Naeem (2022) analyzes the effects of global factors on Islamic stock markets, such as Dow Jones Global Sukuk and Dow Jones Islamic World utilizing monthly data from December 2008 to May 2021. The result of using the time-varying parameter vector auto regressions (TVP-VAR) technique reveals that VIX and Islamic markets have an impressive relationship during times of crisis.

S. J. H. Shahzad et al. (2017) investigates the effects of volatility spillovers on the conventional stock markets (US, Japan and UK) and global Islamic stock market, and a number of financial factors using monthly data over July 1996 and June 2016. Utilizing the vector analysis regression model shows that in terms of return and volatility, as well as a few critical risk criteria, there is significant risk transfer between conventional and Islamic SMRs.

Hammoudeh et al. (2014) examine dissimilarities between Islamic equity markets and conventional equity market and the link with global risk variables using monthly data over 4 January 1999 to 22 July 2013. They find a negative association between Dow jones Islamic market index and VIX using a copula technique.

Wahyudi & Sani (2014) analyze the link among the Jakarta Islamic Index (JII) return and macroeconomic factors using from January 2002 to December 2011. The outcomes of the VAR Toda Yamamoto causality test demonstrate that the VIX index and the E/R have an impact on the Indonesian Islamic stock markets.

2.3.3. Effect of MSCI World Index on Islamic Stock Market Return

The MSCI World index, which is maintained by Morgan Stanley Capital International (MSCI), is a market capitalization-weighted stock market index with 1,508 global members. The index, according to Morgan Stanley Capital International, includes a collection of stocks from every developed market in the world. The link among the stock market and MSCI world index is always positive. As a result, a rising MSCI international stock market indicates a robust global economy, which in turn boosts market economies and stock returns.

Few studies examine this topic and discover a favorable correlation among conventional SMRs and the MSCI world index (Faisal & Khan, 2007; Abugri, 2008; Harvey, 1991; Ferson & Harvey,1997), but no research has been done to scrutinize the connection among Islamic SMRs and the MSCI world index.

In this regard, Faisal & Khan (2007) examine the impact of country-based and global factors on stock returns in Pakistan using monthly data between July 2000 to June 2005. They utilize Vector Auto Regressive models and multivariate EGARCH, the results reveal that the E/R has a significantly negative impact on Pakistan stock return whereas

the MSCI World Index has a significantly positive impact.

Abugri (2008) investigates the link among stock returns and macroeconomic risk factors in Latin American markets using the monthly data cover from January 1986 to August 2001. Utilizing VAR model result illustrates that the MSCI world index positively effects the stock market returns in in Brazil, Argentina, Chile and Mexico.

2.3.4. Effect of Exchange rate on Islamic Stock Market Return

When analyzing how exchange rates impact a country's economy, international commerce and trade balance are crucial considerations. Furthermore, whether a company specializes in exports or imports determines how the exchange rate affects the stock market. When a country's currency weakens, stock valuations fall, forcing investors to shift funds from domestic to international assets.

In spite of the fact that there is a lot of investigations that highlights how exchange rates affect conventional stock returns (Chellaswamy et al., 2020; Ali et al., 2020; Mohapatra & Rath, 2015; Mechri et al., 2019; Khan and khan, 2018; Alam & Rashid, 2014), few empirical research has examined how exchange rates affect the returns on Islamic stocks. (Vejzagiv & Zarafat, 2021; Majid & Yusof, 2009; Karim et al., 2012; Kumar & Sahu, 2017).

In this context, Majid and Yusof (2009) examine at the correlation between Malaysian macroeconomic indicators and Islamic stock return using monthly data between May 1999 and February 2006. Results from the use of the ARDL model reveal a negative correlation between the Islamic stock index and exchange rate.

Kumar & Sahu (2017) examine the link among the Dow Jones Islamic Market India and macroeconomic variables with monthly data during January 2006 to July 2015. The VAR model's output demonstrates that there are opposite relationships between exchange rate and stock returns.

Vejzagiv & Zarafat (2021) analyze the relationship between Malaysian stock market performance and macroeconomic factors using monthly data from Sept 2006 to Sept 2012. The results of the VECM model demonstrate that the exchange rate negatively effects the FTSE Bursa Malaysia Hijrah Shariah Index.

Karim et al. (2012) examine the effects of macroeconomic factors on Islamic stock market

and Islamic banking using yearly data from 2000 to 2011. Applying the VAR model result, it can be seen that the real exchange rate is only found to affect Islamic financing during times of crisis.

2.3.5. The Summary of Literature Review

The summary table of the literature review is given below:

Table 11: The Summary Table of The Literature Review

Paper	Area of research	Methodology	Period	Variable	Result
Hachicha et al. (2022)	Emerging countries	Rolling-window procedure	January 2000 to April 2019	Dow Jones Islamic CDS, conventional emerging stock market indices.	Positive relationship.
Aloui et al (2015)	GCC countries	DCCX-MGARCH model	July 10, 2008, to July 13, 2013	USCDS, Sharia-compliant stocks	Positive relationship.
Naifar (2016)	DJIM	Quantile regression approach	January 2003 to October 2014	DJIMI returns, USCDS, VIX	Negative relationship with VIX. Positive relationship with USCDS.
Hammoudeh et al. (2014)	DJIM	Copula approach	January 4, 1999, to July 22	VIX, DJIMI returns	Negative relationship.
Karim & Naeem (2022)		TVP-VAR technique	December 2008 to May 2021	Dow Jones Global Sukuk, Dow Jones Islamic World Sukuk, VIX	VIX has a remarkable link with the Islamic markets.

J. H. Shahzad et al. (2017)	US, UK, Japan	VAR model	July 1996 to June 2016	Islamic stock index, conventional stock index, VIX	Significant risk in terms of return and volatility.
Wahyudi & Sani (2014)	Indonesia	VAR Toda Yamamoto causality test	January 2002 to December 2011	Jakarta Islamic Index (JII), VIX, Exchange rate.	Exchange rate and VIX index significantly affect the Islamic stock markets.
Faisal & Khan (2007)	Pakistan	Multivariate EGARCH	July 2000 to June 2005	MSCI World Index, Stock return	Positive relationship.
Abugri (2008)	Latin American	Vector autoregressive (VAR) model	January 1986 to August 2001	MSCI world index, stock market return	Positive relationship.
Majid & Yusof (2009)	Malaysia	ARDL model	May 1999 to February 2006	Islamic stock returns, macroeconomic variables	Negative relationship.
Kumar & Sahu (2017)	India	VAR model	January 2006 to July 2015	Exchange rate, Islamic stock return	Negative relationship.
Vejzagiv & Zarafat (2021)	Malaysia	Vector error correction model	September 2006 to September 2012	Exchange rate, FTSE Bursa Malaysia Hijrah Shariah Index	Negative relationship.

| Karim et al. (2012) | Malaysia | VAR model | 2000 to 2011 | Exchange rate, Islamic stock return | Exchange rate is found to have an influence on Islamic finance. |

Source: Prepared by the author

2.4. Data Description and Preliminary Statistics

Our dataset consists of daily Islamic stock indices, the exchange rate, regional CDS, Morgan Stanley Capital International (MSCI) world index and the CBOE Volatility Index for BRIC and G7 country group.

We use daily data from 26th March 2015 to 31st March 2021 for BRIC countries and 27th July 2015 to 31st March 2021 for G7 countries without taking weekend observations into account (Saturday and Sunday). This generates a total of 6,280 observations for BRIC and 10,381 for G7 respectively. For empirical analysis, we consider the first difference in the natural logarithmic series of each variable.

Furthermore, we consider two regional factors: credit default swaps (CDS) and exchange rates of the country to the U.S. dollar (E/R). To represent the U.S. exchange rate, we use the dollar index as a proxy.

In addition to regional factors, we also examine global factors like the CBOE Volatility Index (VIX) and the world index from Morgan Stanley Capital International (MSCIW). We extract country-level 5-year CDS spreads from DataStream and exchange rate, MSCI world index and VIX are taken from investing.com.

The daily Islamic stock market indices (ISLAMIC_RET) for both BRIC and G7 countries are obtained from investing.com. Islamic stock indices for BRIC countries are SP BMI Brazil Shariah Index (Brazil), MSCI Russia Islamic Index (Russia), Dow Jones Islamic Market India (India), and Dow Jones Islamic Market Great China Index (China).

Islamic stock indices for G7 countries are S&P/TSX 60 Shariah-GSPTXSI (Canada), Dow Jones Islamic Market UK-DJIUK (UK), Dow Jones Islamic Market Japan-DJIJP (Japan), and Dow Jones Islamic Market US-IMUS (U.S.), Dow Jones Islamic Market Europe-DJIEU (We use DJIEU as a proxy for France, Italy, and Germany because the Islamic stock index is still unavailable for those countries).

The list of Islamic stock indices that are utilized in this study is given in the table 12 and table 13.

Table 12: Islamic Stock Index of BRIC

Name of country	Islamic Stock index
Brazil	SP BMI Brazil Shariah Index
Russia	MSCI Russia Islamic Index
India	Dow Jones Islamic Market India
China	Dow Jones Islamic Market Great China Index

Source: Prepared by the author

Table 13: Islamic Stock Index of G7

Name of country	Islamic Stock index
Canada	S&P/TSX 60 Shariah-GSPTXSI
United Kingdom	Dow Jones Islamic Market UK-DJIUK
Japan	Dow Jones Islamic Market Japan-DJIJP
United State	Dow Jones Islamic Market US-IMUS
France, Italy, Germany	Dow Jones Islamic Market Europe-DJIEU

Source: Prepared by the author

We present the descriptive statistics, cross-Section dependence test, panel unit root tests and unit root tests of all variables for BRIC and G7 in the tables below.

Table 14: Descriptive Statistics (BRIC)

| | ISLAMIC_RE | | | | |
	T	E/R	CDS	MSCIW	VIX
Mean	0.001374	0.000667	-0.000627	0.000324	-3.93E-05
Median	0.000610	0.000000	0.000000	0.000565	-0.007590
Maximum	0.709114	0.557249	0.627842	0.120837	0.846974
Minimum	-0.668627	-0.491806	-0.820322	-0.140208	-0.859046
Std. Dev.	0.049841	0.034492	0.034890	0.010841	0.122591
Skewness	1.968219	2.165502	-2.163607	-1.597261	0.479370
Kurtosis	103.2622	112.3971	133.7816	45.61918	12.49120
Jarque-Bera	2105891.***	2507171.***	4463281.1***	476133.5***	23721.20***

Source: Prepared by the author
Note: *** shows 1% level of significance.

Table 15: Descriptive Statistics (G7)

| | ISLAMIC_RE | | | | |
	T	E/R	CDS	MSCIW	VIX
Mean	0.000289	3.67E-05	-0.008935	0.000325	0.000157
Median	0.000656	0.000000	0.000000	0.000592	-0.007508
Maximum	0.494188	0.037722	0.835000	0.120837	0.840761
Minimum	-0.438085	-0.084016	-0.725370	-0.140208	-0.852833
Std. Dev.	0.029186	0.005557	0.058011	0.011099	0.124001
Skewness	0.363055	-0.364818	0.499788	-1.624347	0.473749
Kurtosis	101.9601	11.29805	44.57478	44.18470	12.45893
Jarque-Bera	3386149.***	23991.62***	747271.3***	737451.2***	39047.01***

Source: Prepared by the author
Note: *** shows 1% level of significance.

Table 14 and Table 15 provides the summary statistics of the variables for BRIC and the G7. The average of all variables is positive in both country groups apart from CDS and VIX in BRIC with CDS in G7. The skewness and kurtosis normality tests indicate that all series are not normally distributed for both country groups. Moreover, the Jarque-Bera test statistics of country groups in this table demonstrate that the null hypothesis of normality is rejected at the 1% level of significance.

Table 16: Cross-Section Dependence Test (BRIC)

	Variable	Breusch and Pagan LM	P- Value
BRIC	ISLAMIC_RET	227.775***	0.0000
	E/R	1432.778***	0.0000
	CDS	310.3790***	0.0000

Source: Prepared by the author
Note: Under the null hypothesis of cross-section independence. *** p < 0.01

Table 17: Cross-Section Dependence Test (G7)

	Variable	Breusch and Pagan LM	P- Value
G7	ISLAMIC_RET	8304.764***	0.0000
	E/R	8239.731***	0.0000
	CDS	3651.614***	0.0000

Source: Prepared by the author
Note: Under the null hypothesis of cross-section independence. *** p < 0.01

Using first- or second-generation panel unit root tests depends on the results of a cross-sectional dependence test. Therefore, the Breusch-Pagan Lagrange Multiplier (LM) test is used to determine appropriate panel unit root test. Evidence from Table 16 and Table 17 suggests the existence of cross-section dependence among BRIC and G7 countries at 1% level of significance. So, cross-section dependence test supporting the relevance of the second-generation panel unit root tests for this study. Hence, Table 18 and Table 19 illustrates second-generation panel unit test results for BRIC and G7 respectively.

Table 18: Panel Unit Root Tests (BRIC)

	CIPS	
Variable	**Intercept**	**Intercept and Trend**
ISLAMIC_RET	-35.85***	-35.83***
E/R	-35.16***	-35.08***
CDS	-30.93***	-30.92***

Source: Prepared by the author
Note: *** shows 1% level of significance.

Table 19: Panel Unit Root Tests (G7)

Variable	CIPS	
	Intercept	**Intercept and Trend**
ISLAMIC_RET	-49.80***	-49.57***
E/R	-33.01***	-33.01***
CDS	-21.49***	-21.52***

Source: Prepared by the author
Note: *** shows 1% level of significance.

In Table 18 and Table 19, CIPS statistics show that all the variables (STOCK_RET, E/R and CDS) of BRIC and G7 are stationary.

Table 20: Unit Root Test (BRIC and G7)

Variable	Philips-Perron Test	
	Intercept	**Intercept& Trend**
MSCI	-27.93***	-27.94***
VIX	-41.14***	-41.16***

Source: Prepared by the author
Note: *** shows 1% level of significance.

Table 20 presents the findings for the non-stationarity of the cross-sectionally invariant variables MSCI and VIX. We employ Philips-Perron Test in Table 20, showing MSCI and VIX are stationary. So, all variables of BRIC and G7 are stationary. Hence, we apply the MMQR approach to estimate our model.

2.5. Methodology

In the empirical analysis, we follow the studies such as Hammoudeh et al. (2014), Naifar (2016), S. J. H. Shahzad et al. (2017) to test the effect of E/R, CDS , MSCIW and VIX on ISLAMIC_RET in BRIC and G7 countries within panel data framework using MMQR approach. The functional relationships among the variables are given as follows:

$$ISLAMIC\_RET_{it} = \beta_0 + \beta_1 E/R_{it} + \beta_2 CDS_{it} + \beta_3 MSCIW_{it} + \beta_4 VIX_{it} + \varepsilon_{it} \quad \text{……..} (1)$$

Where, *ISLAMIC_RET* is the Islamic stock return at time *t* of country *i and E/R, CDS, MACIW, VIX* is the exchange rate return, credit default swap return, MSCI world index

return, and CBOE volatility index return at time t of country i, respectively. ε_{it} denotes error term.

We use the Breusch and Pagan LM test (Breusch & Pagan, 1980) to examine the cross-section dependence among the BRIC and G7 countries under the null hypothesis of no cross-section dependence due to the huge T in the dataset. Moreover, stationarity of cross-sectionally variant (STOCK_RET, E/R, and CDS) and invariant (MSCIW, VIX) variable has been analyzed. We apply panel unit root test (Pesaran, 2007) for variant and Philips-Perron unit root test (Phillips & Perron, 1988) for invariant variables. Under the null hypothesis of unit root, there is cross-sectional dependence between the BRIC and G7 country groups.

We apply ordinary least square (OLS) method to analyze the impact of regional (E/R, and CDS) and global (MSCIW and VIX) factors on Islamic stock return of BRIC and G7. But OLS frequently encounters heteroscedasticity and is sensitive to extreme outliers, which can dramatically influence the results. So, we deploy the method of moment quantile regression (Machado & Santos Silva, 2019) to avoid misleading OLS results.

The method of moment quantile regression is an appropriate statistical approach to examine the effects of heterogeneity at different market phases (bearish, normal, and bullish) for nine quantiles, where 0.1, 0.2, and 0.3 specify the bearish market; 0.4, 0.5, and 0.6 represent the normal market; and 0.7, 0.8, and 0.9 denote the bullish market. We also provide graphs of the MMQR magnitudes of all explanatory variables for nine quantiles in BRIC and G7 countries. The advantage of MMQR over other quantile regression methods is that it employs fixed effects that have an impact on the entire distribution and can detect the impacts on the conditional distribution without relocating the position of the independent variables.

2.6.   Results and Discussion

In this section, we use methods of moment quantile regression approach to explain the impacts of regional and global financial factors on Islamic stock return in BRIC and G7 across quantiles.

Table 21: Impacts of the Country-based and Global Financial Variables on Islamic Stock Returns of BRIC Countries

Dep. Var: ISLAMIC _RET	Location	Scale	Quantile level									OLS
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	OLS
E/R	-0.019	0.014	-0.037	-0.029	-0.025	-0.022	-0.019	-0.017	-0.013	-0.008	-0.001	-0.018
	-0.68	0.57	-0.84	-0.85	-0.82	-0.76	-0.7	-0.6	-0.45	-0.24	0.00	-0.87
	0.495	0.571	0.399	0.395	0.414	0.444	0.486	0.545	0.654	0.807	0.998	0.383
CDS	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000**
	-1.19	0.8	-1.33	-1.38	-1.36	-1.30	-1.21	-1.08	-0.85	-0.54	-0.16	-2.25
	0.236	0.426	0.184	0.168	0.175	0.195	0.228	0.281	0.396	0.59	0.876	0.025
MSCIW	0.586***	-0.036	0.631***	0.612***	0.601***	0.593***	0.587***	0.580***	0.570***	0.558***	0.537***	0.586***
	9.1	-0.63	6.23	7.68	8.51	8.93	9.1	9.03	8.52	7.4	5.59	7.53
	0.000	0.531	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
VIX	-0.009	-0.006	-0.000	-0.004	-0.006	-0.008	-0.009	-0.009*	-0.012*	-0.014**	-0.017**	-0.0089
	-1.49	-1.19	-0.09	-0.58	-0.95	-1.23	-1.46	-1.67	-1.88	-1.99	-1.96	-1.28
	0.135	0.232	0.932	0.564	0.342	0.219	0.145	0.096	0.061	0.047	0.050	0.201
C	0.001*	-0.014***	-0.016***	-0.009***	-0.004***	-0.002***	0.001***	0.003***	0.007***	0.012***	0.019***	0.001
	1.82	27.17	-26.76	-24.38	-17.92	-8.59	2.67	12.27	21.44	28.43	31.22	1.48
	0.069	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.138

Source: Prepared by the author

*, **, *** indicates 10%, 5%, and 1% level of significance, respectively. Brackets and parentheses denote z values and p values, respectively.

Table 22: Impacts of the Country-based and Global Financial Variables on Islamic Stock Returns of G7 Countries

Dep. Var: ISLAMIC_RET	Location	Scale	Quantile level									OLS
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	OLS
E/R	0.306***	-0.113	0.438**	0.380**	0.346***	0.322***	0.301***	0.282***	0.259***	0.228***	0.178**	0.306***
	3.85	-1.43	3.00	3.38	3.64	3.8	3.89	3.88	3.71	3.18	2.06	5.48
	0.000	0.151	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.04	0.000
CDS	-0.001*	0.001	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001	-0.001	-0.000	-0.001***
	-1.79	1.22	-1.74	-1.82	-1.85	-1.83	-1.78	-1.68	-1.46	-1.06	-0.39	-2.95
	0.074	0.224	0.082	0.069	0.065	0.067	0.075	0.093	0.143	0.290	0.696	0.003
MSCIW	0.601***	0.140*	0.436**	0.509***	0.551***	0.581***	0.606***	0.629***	0.658***	0.697***	0.759***	0.601***
	8.03	1.9	3.2	4.83	6.18	3.8	8.35	9.24	10.06	10.37	9.35	17.61
	0.000	0.058	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
VIX	-0.016***	0.005	-0.022**	-0.019***	-0.018***	-0.017***	-0.016***	-0.015***	-0.014***	-0.013***	-0.011**	-0.016***
	-3.37	1.03	-2.47	-2.84	-3.1	-3.29	-3.4	-3.44	-3.34	-2.94	-2.03	-5.3
	0.001	0.305	0.013	0.004	0.002	0.001	0.001	0.001	0.001	0.003	0.042	0.000
C	-0.000	0.009***	-0.010***	-0.006***	-0.003***	-0.001***	0.001*	0.002***	0.003***	0.006***	0.020***	-0.001
	-0.33	19.63	-42.61	-36.17	-27.15	-13.38	1.86	17.17	30.18	40.68	49.29	-0.48
	0.738	0.000	0.000	0.000	0.000	0.000	0.063	0.000	0.000	0.000	0.000	0.6300

Source: Prepared by the author

*, **, *** indicates 10%, 5%, and 1% level of significance, respectively. Brackets and parentheses denote z values and p values, respectively.

From Table 21 and Table 22 the OLS estimation result shows that E/R have positive significant effect on G7 Islamic stock return and CDS has a significant negative impact on both BRIC and G7 Islamic stock returns, which is consistent with the study of Aloui et al. (2015).

Regarding global factors, the MSCI world index has a significantly positive impact on Islamic SMRs in both country groups, while the VIX has a significantly negative impact on Islamic SMRs only in G7 countries. These negative findings are in line with the study of Naifar (2016); Hammoudeh et al. (2014). Overall, the OLS result indicates that regional and global financial factors influence the Islamic stock returns of G7 and BRIC (except VIX & E/R for BRIC).

From the method of moment quantile regression results, we can notice that the exchange rate indicates a significantly positive link with Islamic stock return for G7 countries. We can also detect that the degree of the coefficient is decreasing constantly from the bearish to the bullish market level. Thus, the effect of the exchange rate is stronger during the bearish market. This result indicates there is a slightly asymmetric dependence between those variables.

Regarding the impact of CDS, our results are congruent with the theoretical connotations in case of G7 countries, CDS have a significant negative impact on the Islamic SMRs in G7 countries in both bearish and normal markets. However, during bullish market conditions in the G7 stock market, outcomes suggest that there is an insignificant link among CDS and Islamic SMRs.

On the contrary, we observe that the link between CDS and Islamic stock returns are negative but statistically insignificant in the case of BRIC.

As mentioned above, our global factor includes the MSCI world index and VIX. We find that the estimated coefficients of MSCI world index has significant and positive effects on the Islamic SMRs in the case of both BRIC and G7 countries in all quantile levels which is in line with Abugri (2008) and Faisal & Khan (2007). A rise in MSCI world stock market index implies a healthy global economy which has a positive influence on market economies and stock returns.

However, the magnitude of its coefficient decreases as quantile increases in BRIC, but the coefficient increases as quantile increases in case of G7. The result implies that in

BRIC countries when the Islamic stock market is in bullish period, positive effect of MSCI world index weakens and is not as high as those of the bearish period. But in case of G7 the scenario is exactly opposite. This is a clear sign of asymmetric link between MSCI and Islamic stock return of BRIC and G7.

VIX has significantly negative effects on the Islamic stock return of G7 in all quantiles. Conversely, it has significantly negative impacts only in transition (Q6) and bullish period in the case of BRIC. While the level of coefficient is increasing from lower quantile to upper quantile in BRIC countries, it's decreasing from lower quantile to upper quantile in G7 countries. Therefore, VIX has asymmetric effects on Islamic stock return of both BRIC and G7, implying that the effects are stronger in bullish phase in BRIC and in bearish phase of G7 Islamic stock return. The negative link between VIX and stock market are in accordance with the studies of Hammoudeh et al. (2014) and Naifar (2016).
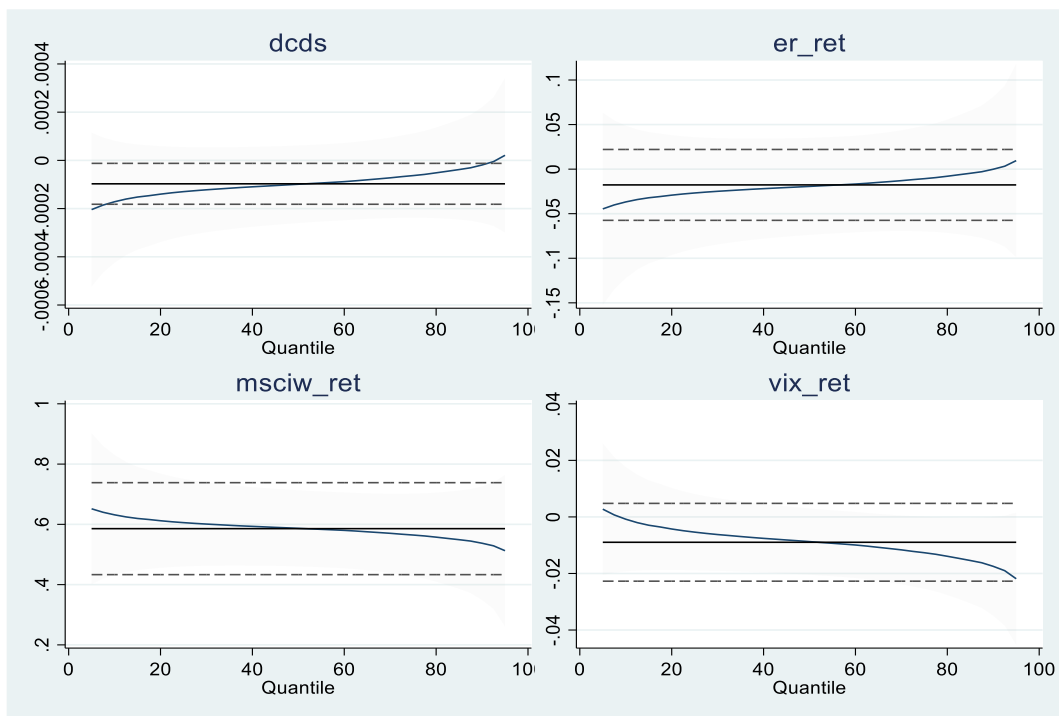

Figure 3: Magnitudes of Method of Moment Quantile Regression for BRIC
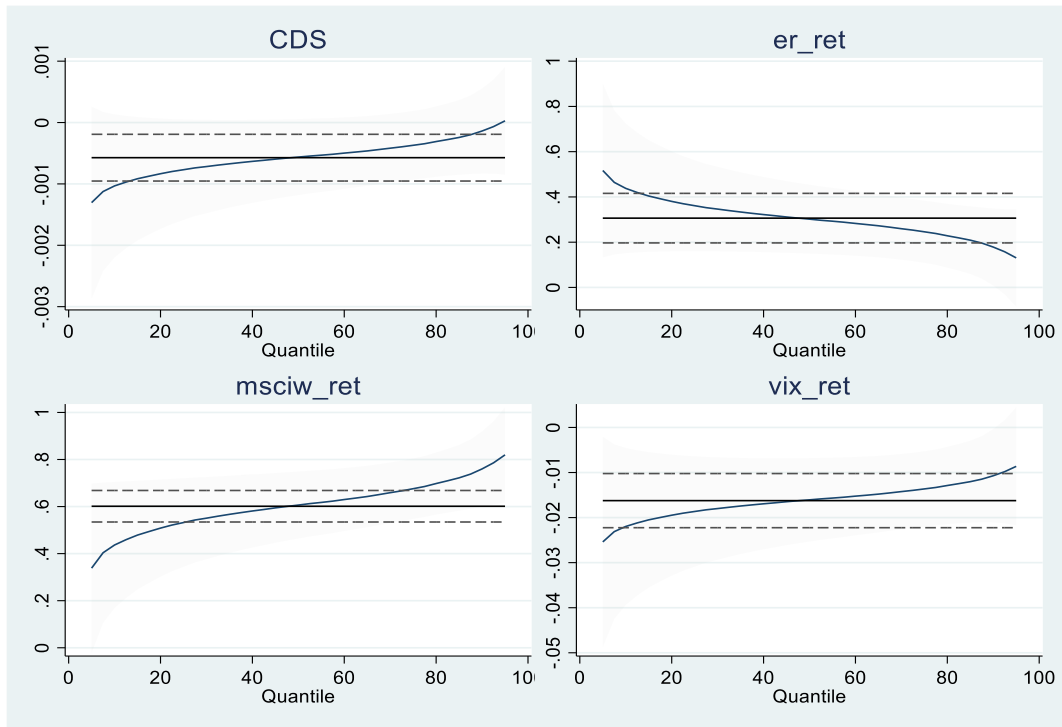
Source: Prepared by the author

Figure 4: Magnitudes of Method of Moment Quantile Regression for G7

Source: Prepared by the author

2.7. Conclusion

Using daily data of exchange rate, CDS, MSCI world index, VIX and Islamic stock index in BRIC and G7, this study uses the novel MMQR approach in order to explore the link between Islamic stock return and financial factors.

The empirical results of this chapter demonstrate that country-based financial factors such as E/R have a significant positive impact on Islamic stock market returns in G7 countries, whereas CDS has a significant negative impact (in both bearish and normal periods). But both country-based factors (exchange rate and CDS) have a negative sign but a statistically insignificant relationship with Islamic stock returns in BRIC countries.

The country-based financial factors in developing (BRIC) markets, such as exchange rates and CDS, have a lower predictive capability for Islamic stock returns compared to the situation in developed (G7) markets. One plausible explanation is that country-based financial factors are intertwined and controlled in emerging economies, making them less relevant in predicting Islamic stock volatility.

In terms of global factors, the MSCI world index has a significant positive relationship with BRIC and G7 Islamic stock returns, whereas the VIX has a significant negative relationship with BRIC (transition and bullish period) and G7 (all quantiles).

The outcomes of the research have valuable implications for the portfolio risk manager, international investors and policy makers through market busts and booms.

First, during the bullish period in G7 countries, the relationship between the CDS and the Islamic stock return is insignificant. This implies that during the market boom, investors don't pay attention to the CDS.

Second, the effect of the MSCI world index on Islamic stock returns is positive in both BRIC and G7 country groups. So, there is no diversification benefit between the country groups.

Third, the VIX has a significant negative impact on BRIC Islamic stock returns during transitions (Q6) and bullish periods, as well as on G7 stock returns across all quantiles, suggesting that there are diversification benefits between the country groups when the market is in a bearish phase.

CHAPTER 3: HOW DO THE EFFECTS OF FINANCIAL FACTORS DIFFER ACROSS ISLAMIC AND CONVENTIONAL MARKET RETURN IN BRIC AND G7

In our first and second essay we have explained the impact of country-based factors (CDS, Exchange rate) and global factors (MSCI world index, VIX) on conventional stock return as well as Islamic stock return of developing countries (BRIC) and developed countries (G7).

3.1. Impact of Exchange Rate

Using the novel MMQR approach the result finds that the exchange rate indicates a significantly positive link with conventional stock market return for BRIC countries. The correlation is significantly negative in the case of G7 countries at all quantile levels. We also detect that in both country groups, the magnitude of the coefficient is increasing consistently from the lowest to the highest quantile level. Thus, the effect of the exchange rate is stronger during the bullish market.

On the other hand, exchange rate indicates a significantly positive link with Islamic stock returns for G7 countries. Moreover, the degree of the coefficient is decreasing consistently from the bearish to the bullish market level. Therefore, the exchange rate has a stronger impact during a bear market. We can observe that, in the case of G7 countries, the E/R has a significant negative affect on conventional stock index returns but a positive impact on Islamic stock index returns.

3.2. Impact of Credit Default Swap (CDS)

In BRIC countries, CDS shows a significantly negative link with conventional SMRs across all quantiles (except 0.9). CDS also have a significant negative impact on the conventional stock market in G7 countries in both bearish and normal markets. Moreover, in contrast to G7, CDS have a strong significant impact on BRIC conventional stock market return. However, during bullish market conditions in the G7 stock market, results suggest that there is an insignificant association between CDS and stock market returns. We can also detect that the negative effects of CDS decrease as quantile increase.

In contrast, CDS has a significant negative impact on the Islamic stock market in G7 countries in both bearish and normal markets. However, during bullish market conditions in the G7 stock market, results suggest that there is an insignificant link between CDS and Islamic stock returns. On the contrary, we observe that the link between CDS and Islamic stock returns is negative but statistically insignificant in the case of BRIC.

From the outcomes, we can understand that CDS has the same effect (negative) on conventional and Islamic stock index returns in both country groups.

3.3. Impact of MSCI World Index

The estimated coefficients of MSCI world index have significantly positive effects on the SMRs in the case of both BRIC and G7 countries in all quantile levels. A boost up in MSCI world stock market index indicates a strong global economy which has a positive impact on market economies and stock returns. However, the magnitude of its coefficient decreases as quantile increases in both country groups. The result implies that when the stock market is in bullish period the positive effect of MSCI world index weakens and is not as high as those of the lower quantiles. This is a clear indication of asymmetric relationship between MSCI and stock market return of BRIC and G7.

On the contrary, the estimated coefficients of the MSCI world index have significant and positive effects on the Islamic SMRs the case of both BRIC and G7 countries at all quantile levels. Moreover, the magnitude of its coefficient decreases as the quantile increases in BRIC, but the coefficient increases as the quantile increases in G7. In the case of BRIC countries, when the Islamic stock market is in a bullish phase, the positive effect of the MSCI World Index weakens and is not as strong as when it is in a bearish phase. In the case of the G7, however, the situation is exactly the opposite.

Therefore, the global factor MSCI world index has positive impact on conventional and Islamic stock index returns in both BRIC and G7 country group.

3.4. Impact of CBOE Volatility Index (VIX)

While VIX has significantly negative effects on the conventional stock market of G7 in all quantiles, it is insignificant in the case of BRIC. In addition, the magnitude of coefficient is decreasing from lower quantile to upper quantile.

Moreover, VIX has a significant negative impact on the Islamic stock return of the G7. But it has significantly negative impacts only in transition (Q6) and a bullish period in the case of BRIC. While the level of the coefficient is increasing from the bearish to the bullish market level in BRIC countries, it's declining from the lower level to the upper level of quantile in G7 countries.

Therefore, in case of G7 VIX has significant negative effect on both conventional and Islamic SMRs. But in case BRIC, VIX has a negative impact on Islamic SMRs only.

CONCLUSION

Summary

This thesis is divided into two empirical essays, the first essay of this thesis explores whether country-based (exchange rate, sovereign CDS) and global financial factors (MSCI world index, and VIX index) have a significant relationship with conventional stock return of BRIC and G7 covering the period from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. The essay uses moment quantile regression (MMQR) to study the effects of country-based and global financial factors on conventional stock index over various time horizons in developing (BRIC) and developed countries (G7). According to the findings of the research, exchange rates positive and significantly affect stock market returns across all quantiles in BRIC countries while negative and significantly affecting SMRs across all quantiles in G7 countries.

Furthermore, credit default swaps (CDS) have a significant negative impact on SMRs in BRIC for all quantiles except 9th quantile and G7 in bear and normal periods only. Moreover, global factors include the CBOE Volatility Index (VIX) and the Morgan Stanley Capital International (MSCI) world index. MSCI world index has significantly positive effects on the SMRs of both country groups. On the contrary VIX is found to have significantly negative effects on SMRs in G7 only.

Accordingly, the second empirical chapter of this thesis investigates the impacts of country-based and global financial factors on the Islamic stock indices of BRIC and G7 countries. After that we examine whether the relationship is similar to the conventional one. We use panel data of exchange rate, sovereign CDS, MSCI world index, and VIX index covering the period from March 26, 2015 to March 31, 2021 for BRIC countries and July 27, 2015 to March 31, 2021 for G7 countries. The essay also uses the method of moment quantile regression (MMQR) to study the effects of country-based and global on Islamic stock index return over various time horizons in emerging (BRIC) and developed countries (G7). The result indicate that exchange rates have a significantly positive effect on conventional SMRs while credit default swaps (CDS) have a significant negative impact on Islamic SMRs in G7 during lower and normal quantile. Moreover, there has a significant positive relationship between the MSCI world index and Islamic market return

in both country groups. Finally, VIX has significantly negative effects on Islamic SMRs in BRIC only during higher quantile and G7 countries in all quantile levels. Important observations on the process of financial and monetary integration can be drawn from these empirical findings. In fact, authorities need to think the ways that global factors affect stock markets (Islamic and conventional).

Limitations

Every research has a limit, and these limits develop for specific reasons. The results of this study must be seen in the perspective of some limitations.

First, the lack of previous studies on the impact of financial factors on Islamic stock indices in BRIC and G7 nations is a constraint of our study. By providing comprehensive information about the subject of the study, it helps to save time and effort. The researcher can also view and discuss the suggestions given by earlier studies. However, there are no studies available related to the relationship among financial factors and the Islamic stock index in BRIC and G7. Since BRIC and G7 are consists of non-Muslim nations, there has been almost no research on the impact of financial factors on Islamic SMRs in those regions. Therefore, it was challenging to compare with other studies to find areas of agreement and disagreement.

Second, Islamic finance is progressing remarkably quickly, and total assets of Islamic finance are thought to be worth more than $250 billion and are increasing at a rate of about 15% annually. The number of IFIs has increased dramatically over the past three decades, from one in 1975 to over three-hundred now in more than seventy-five nations. Although they are mainly found in the Southeast Asia and Middle East, they are increasingly becoming more common in United States and Europe. Even though Sharia-compliant equities are growing in popularity among investors and have significantly fueled the extraordinary growth of the Islamic financial segment over the past ten years, many non-Muslim nations have yet to introduce Sharia-compliant stocks. Our study is based on non-Muslim countries like BRIC (Brazil, Russia, India, China) and the G7 (Canada, Japan, UK, US, Germany, Italy, France). Hence, it was difficult to find data on shariah-compliant stocks for some countries, including Germany, Italy, and France. We had to use the Dow Jones Islamic Market Europe (DJIEU) as a proxy for those three

countries. Inclusion of the proxy often has a considerable impact on factual competitive outcomes.

Finally, the methodology we have used in our study was recently developed by Machado and Silva (2019), so we encounter some difficulties when implementing MMQR. Due to the scarce resources, our ability to learn much about this methodology was severely constrained. When information and basic concepts regarding the methodology are provided by earlier investigations, it is possible to prevent repeating the same errors. Therefore, it was challenging to compare with other studies to find areas of agreement and disagreement as the research related to our study that was conducted using MMQR is not much available.

Perspectives and Future Research Opportunities

There are several ways the current research might be extended.

Firstly, the results of our research should be assessed in light of the sample selection, which is limited to conventional and Islamic stock investments. Furthermore, our research only examines the effects of country-based and international financial factors on the returns of conventional and Islamic stock indices in the G7 and BRIC country groups, which represent developed and emerging financial markets. Yet, the study didn't make a comparison among the results of the Islamic and conventional stock indices return. These drawbacks highlight the need for further research that compares the effects of financial factors on Islamic and conventional stock performance in emerging and developing nations.

Secondly, Future research can also look into the diversification and safe-haven characteristics of other types of Islamic assets, like, Sukuk bonds. Moreover, further investigation and experimentation can be carried out by investigating financial factors effect in conventional stock returns and Islamic stock returns of different sub-sectors, such as financial, industrial, consumption, real state, telecom.

Finally, in terms of data selection, the study's scope was limited. The outcomes of this research could not be generalized to other economies because it was limited to the specific economies such as BRIC and G7 country groups. It is advised that additional study be conducted in other economies to categorize various types of stock markets indices further.

Also, it is strongly recommended to conduct additional research by testing numerical simulation. So, we can better comprehend the entire effect of financial factors on stock market indices return.

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