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The American University in Cairo
School of Business

Bilateral Investment Treaty and Stock Market Correlation: Africa & Middle East Case.

A Thesis Submitted to
Department of Management

in partial fulfillment of the requirements for
the degree of Master of Science in Finance

by

Nada Mohamed Asaad

under the supervision of Dr. Wael Abdallah and Dr. Mina Ayad
September/ 2020

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Abstract

This paper attempts to study the effects of bilateral investment treaties between countries on their stock market correlation. The study focuses on Africa and Middle East countries and how their bilateral investment treaties with other countries affect the stock market correlation of their indices. Some previous studies have ignored the effects of bilateral investment treaties on stock market correlation. Therefore, it is important to fill in this gap. The data examined are indices for Africa and Middle East countries who are involved in bilateral investment treaties with other countries to examine the effects of these bilateral investment treaties on the stock market correlation. Other macro economic variables are also examined to study their effects on stock market correlation. A fixed effect model is used to test 192 groups of African and Middle East countries with other countries having BIT and no BIT with them. The study shows that BIT has a positive effect on stock market correlation. While, it shows that openness to trade and membership of WTO have a negative impact on stock market correlation.

1. Introduction

1.1 Overview

Bilateral investment treaties have been increasing across the world in an attempt to protect and increase foreign direct investments between two countries where the first BIT was signed on 1959 between Germany and Pakistan. Since then, BIT has become the most commonly signed international agreement with almost 2200 signed and enforced BIT in 2002 (Salacuse&Sullivan,2005). Prior to BIT, there was the “Hull Rule”, which was named after the American Secretary of State Cordell Hull (Guzman,1997). This rule was intended to set guidelines for both home and host countries in order to protect investors against expropriations by the host country. However, this rule did not succeed, as investors were not fully protected because the host and home countries did not abide by the “Hull Rule” and that the customary international law did not fully protect foreign investors’ businesses and their money as there were no clear guidelines for the possibility of transferring foreign investors’ money from host to home country. Although in 1965, the International Centre for Settlement of Investment Disputes “ICSID” was formed, Foreign investors were not fully protected as any dispute occurring between the host and home country was not fully solved and compensations were not clearly stated (Salacuse&Sullivan,2005).

These problems made the BIT a favorable solution for the protection of foreign investments. Therefore, countries were willing to sign the BIT in an attempt to increase FDI and protect the rights of both host and home countries. The main aim of BIT is to increase the FDI and therefore, this should be reflected on their performance of the stock market for both countries enforcing the BIT. Accordingly, their stock market correlation might be positively or negatively affected from this treaty. Previous studies have focused their attention on the effects of BIT on the flow of FDIs such as studies done by (Haftel,2010; Buthe,et.al,2008; Tobin&Rose-Ackerman,2005).

Other studies done by (Aslaindis,et.al,2010; Berben,et.al,2005;Al Tamimi,et.al,2011), have focused on determinants of stock market correlation that include macroeconomic variables and how globalization and financial integration have positively affected the stock market correlation. However, no study has examined the effects of BIT on stock market correlation.

1.2 Purpose of the Study

The main aim is to study the effects of enforced BITs on stock market correlation in Africa and Middle East region, as they are ones who have the highest needs to import and the highest urge for FDIs. Moreover, they constitute a huge percentage of the world's economy. It is important to understand how BITs that these countries enforce with other developed countries affect their stock market indices correlation. This study can be of great importance for policy makers, regulators, governments, and investors, as it will immensely help them to assess and predict the stock market accurately and hence, they will make better decisions. It also aims of filling the gap of previous studies on stock market and BIT. Countries that have signed and enforced a treaty with other countries are more likely to be affected by the increase in its FDI and trade between both countries and therefore, this will affect their stock market correlation.

In order to achieve the accurate results of this study, daily data for stock market prices is compiled from Thomson Financials and transferred to returns of stock market. This daily data is used to calculate the weekly returns on stock indices taking into consideration the different trading days for each country and then calculate stock market correlation for these returns for Africa and Middle East countries. Also, the dates of enforced BIT and no BITs are compiled from UNCTAD. Respectively, one starts with the date of BIT enforcement, and Zero is used for countries having no BIT. Other variables taken from World Bank are annual GDP growth rate, trade openness, and membership of World Trade Organization.

The methodology used in this study is linear regression model and a control is made on a country pair fixed effect. Therefore, a fixed effect model is applied in order to study the effect of BIT on stock market correlation. The study shows that BIT has a significant and a positive effect on stock market correlation.

In conclusion, the results of this study show that when BIT is enforced, there is an increase in stock market correlation by 0.016 percent. This shows that BIT is a determinant of stock market correlation. This study reinforces the fact that BIT has an impact in determining stock market indices.

1.3 Paper Structure

The thesis is divided into an introduction in the first section. The second section includes literature review related to stock market correlation and BIT. The third section is dedicated to the model specifications, the fourth section is dedicated to empirical findings and the fifth section is dedicated to findings and conclusion.

2. Literature Review

Determinants of stock market prices and returns consist of fundamental factors, technical factors, news circulating, and occasions. Where fundamental factors consist of company profits, liquidity, growth and stock market performance (Alomari et al., 2018). Other studies mention that stock market prices are determined by changes in earnings per share (Al Tamimi et al.,2011; Benesh&Peterson,1986; Foster,1973; Sami&Abdullah,2020).

Technical factors assist in the relationship between macroeconomic variables and stock market (Sami & Abdullah, 2020). Macroeconomic variables consist of money supply, inflation, interest rate, GDP, etc. These variables have an impact on stock prices and returns. Other macroeconomic variables such as exchange rates, monetary policy, and consumer price index have an impact on stock prices and returns for example a study done in Cyprus where the country depends heavily on services such as tourism and off shore banking (Tsoukalas,2003). Other studies also study exchange rate and trade openness as determinants of stock prices and returns (Bahmani&Saha,2017; Pan et al.,2007;Gavin,1989; Lim&Kim,2011). Other studies have concluded that money supply and interest rates are the major macroeconomic variables that affect stock prices (Oyama,1997). In addition, inflation has an impact on real stock prices as examined in the study from Italy covering the period from 1963 until 1995 (Bagliano &Beltratti,1997).

The third factor affecting the stock price and returns is the news circulating and how it affects investors' behavior and preferences. Studies have mentioned that media plays an important role in altering investors' decisions toward stock market as companies 'news become available to the public through media. Therefore, this has an impact on stock return (Tetlock,2007;

Baker&Wurgler,2006). Moreover, internet platforms that include Twitter have a huge impact on stock market as news are being circulated among users and hence, stock prices change as investors' behavior changes based on these news (Ranco et al.,2015).

The fourth factor affecting stock prices is any event or incident occurring in the market. It has been argued that an incident such as financial crisis has an impact on the stock market returns and its correlation (Baur,2012; Simmons & Tantisantiwong,2014). In addition, normal events such as calendar days that include holidays, weekdays, and weekends affect the duration of stock trade and hence, stock prices and returns become affected (Gerlach,2011; Murgea,2016; French,1980; Aly et al., 2004).

This study aims in introducing another factor that determines stock market correlation, which is BIT. BIT occurs between two countries in order to protect and promote foreign direct investments especially for developing countries. When a developed country signs and ratifies the treaty with developing countries or developed ones in order to have a mutual agreement that protects the rights of both parties involved in the treaty. Developing countries sign BIT with developed countries in order to raise FDI inflow and thus improve their economy. BIT is an important determinant of stock prices and returns as it affects FDI and therefore, it has a significant impact on stock market correlation.

2.1 Stock Market

The stock market has been playing an important role in the wealth of any economy as it facilitates the trade of securities between listed companies. According to Al Tamimi et al., (2011), economic growth is boosted by the continuous flow of investment opportunities offered by the stock market (Al Tamimi et al.,2011). The prices of stocks fluctuate as they are determined by supply and demand that increase or decrease based on some “fundamentals, macroeconomic factors, and market behavior”. The fundamentals of the company that affect stock prices are company performance, distribution of dividends, change of ownership, change of the board of directors, entering into new projects, profits, etc. The macroeconomic variables include interest rate, inflation, monetary policy, money supply, government rules and regulations. Market behavior includes changes in investors’ behavior and their preferences, etc. These factors can affect the stock market indices positively or negatively.

In addition to the importance of financial market and its impact on the economy, stock market correlation has also an impact on the economy by affecting the behavior of investors as stock market correlation helps in identifying stocks with positive correlation and stocks with negative correlation and accordingly, investors make their investment decisions. Stock market correlation is mentioned by Eom & Park (2017), in their study, which is related to the effects of common factors on stock market correlation and how markets are interconnected and affect each other. For example, the global financial crisis of US subprime mortgage of 2007-2009 has affected the financial system globally. In addition to the European sovereign debt crash that took place in 2011-2012. This means that there was a positive impact on the stock market correlation. Moreover, they studied the effect of the common factors and the stock correlation on pricing models and portfolio theory. This shows that stocks in the same industry are more connected with each other compared to stocks in different industries. Another study by Singh et al., (2019), has also focused on partial correlations of stock markets during normal and abnormal periods and the extent of regional and global factors in affecting stock market correlations. This study uses partial correlation rather than total correlation in order to ignore the effects of “third variable” and to examine the direct correlation between the two indices. Geography plays an important role in affecting the correlation among countries during different economic phases. Countries

geographically close to others tend to have stronger economic relations and accordingly higher correlations. Globalization has increased the interdependence and integration among countries. This integration does not help in diversification of portfolios during financial crisis. However, in normal times, market integration helps in increasing market proficiency. The findings of the study show that global market pairs tend to have negative correlations while regional market pairs tend to have positive correlation (Singh, et al., 2019). Moreover, Aslanidis et.al., (2010), have observed a high correlation between US and UK stock markets during periods of instabilities by taking time changing into consideration to examine the correlation over time. While Simon (2012), has focused on the effects of global financial crisis on the MENA region and its impact on stock market correlation. The study examines financial markets regionally and globally among the MENA region countries, the developed markets of the US and EU and the movement of financial markets between oil and non oil producing MENA countries. The models used are the GARCH, Arch M, and Arch as well as VAR models in order to measure co movements of the stock market returns. Global financial crisis affects MENA countries differently according to the level of incorporation with other developed countries affected by the crisis. The most affected MENA countries economically from the global financial crisis are Egypt, Morocco, Kuwait, Jordan, and the United Arab Emirates as they are interdependent with developed countries and therefore, more likely to be affected by any distress. While Saudi Arabia is the least country to be affected from the global financial crisis as its financial incorporation with other countries remain low. The results of the finding show that trade make countries more integrated and therefore become more affected during crisis periods especially for non oil producing Mena countries (Aslanidis &.al., 2010). Moreover, Youssef and Mokni (2018) have studied the effects of herding behavior on stock market correlation of GCC countries. The study argues that investors tend to follow the herding behavior in making decisions concerning buying or selling stocks instead of using reasonable decisions based on available information (Bikhchandani & al., 1992; Devenow & Welch, 1996). In addition, countries tend to be affected by others in time of crisis as happened during US financial crisis as well as other crisis. Therefore, the study of Youssef and Mokni (2018) focuses on group behavior and stock market independence in GCC region using “cross sectional absolute deviation approach” and DCC GARCH model respectively. The data used is weekly returns for GCC stock indices from 2003 till 2017 mainly focusing on six countries, Saudi Arabia, Oman, Qatar, Bahrain, Kuwait, and United Arab Emirates. The study tests investors’ behavior toward decisions made by

the masses in two different conditions, fixed and different market conditions during periods of low and high volatility. The results show that at fixed markets, the herding behavior only applies in Oman, Qatar, and Abu Dhabi. While at different market conditions, Saudi Arabia tends to have herd behavior during low volatile periods as investors tend to observe the masses and follow them when there is low risk. On the other hand, Oman tends to have herding behavior during high and low volatility as a result of a low level of transparency in the market among investors. Similarly, Qatar has herd behavior but in periods of high volatility. While Bahraini, Abu Dhabi, and Kuwaiti markets have no herding behavior as investors tend to make rational and independent decisions. The other purpose of the study is to test the effects of the herding behavior on the dependency of GCC stock markets. The test using Dynamic Conditional Correlation model shows that in fixed market conditions herding behavior positively affects GCC stock market dependency. This means that GCC markets become dependent on each other when investors follow others' investment decisions. While in different market conditions, GCC stock markets become more correlated when herding behaviors are high and become less correlated when herding behaviors are low.

An earlier study by Solnik and Longin (1995) has used GARCH Model to test constant conditional correlation for seven major countries, USA, Switzerland, Germany, France, United Kingdom, Japan, and Canada for a period of thirty years from 1960 till 1990 by taking monthly returns of their stock market indices and calculating correlations between each country and the other. The test also includes the effects of interest rates, and dividend yields as the study argues that returns tend to change based on information related to dividend distributions and interest rates. In addition, events such as oil crisis period, growth of 1960's, and market crash of 1987 affect global stock market correlation. The study shows that national stock markets are not strongly correlated, unlike global stock markets that are strongly correlated, mostly during periods of volatility as global markets tend to be interdependent on other markets. The study has concluded that stock market of the big seven countries are highly correlated during periods of volatility especially crisis with the increase of global integration among the world (Solnik & Longin,1995).

2.2 Macroeconomic Factors and Stock Correlation

Macroeconomic factors and stock market correlation help investors in knowing the most sensitive stock to others in the market. However, it is important to study macroeconomic variables with the stock market correlation in order to see which variable might have an impact on stock market correlation. Moreover, the study of stock-bond correlation is important so that investors know the movement of different asset classes in order to create a diversifying portfolio. Studies such as Dimic et, al (2016) and Skintzi (2019) examine the short and the long term effects of global financial market uncertainty and macroeconomic factors on stock-bond market correlation. This study helps investors in becoming aware of their risk management, portfolio optimization, and hedging selections as they are studying the correlation between the stocks and bonds. In addition, the behavior of stocks and bonds are being studied by policy makers to predict inflation rate and the movement of the economy. Dimic's study has focused on emerging markets as international investors are interested in portfolio diversification and therefore, they are highly demanding assets from the emerging markets. The study applied the wavelet analysis approach, which enables them to test the stock-bond correlation for ten emerging markets during the periods of 2001 till 2013 (Dimic et, al,2016).

While Skintzi (2016) has studied the degree of stock-bond market dependency in the Eurozone countries as they have witnessed economic integrations and single currency. The study focused on macroeconomic and financial factors to test stock-bond correlation for 11 European countries by collecting quarterly data for macroeconomic variables from the second quarter of 1999 till the second quarter of 2016. In addition to daily stock and bond returns. The sample of data was divided into two groups. The first includes Austria, Belgium, Germany, France, Belgium, Finland, and Netherlands. The second group includes Greece, Ireland, Italy, Spain, and Portugal. This study is important in analyzing the changes between asset classes in a unified structure. In addition to analyzing the effects of macroeconomic variables as well as the volatility of financial market on stock-bond correlation. These macroeconomic factors include monetary policy, inflation, money supply, etc (Skintzi,2016). The results show that global stock market uncertainty explains stock-bond correlation in emerging markets better than global bond market uncertainty. While stock-bond market correlation is increasing after crisis periods for European countries. Furthermore,

monetary policy affects stock-bond correlation in the short term, while stock market uncertainty and inflation affect stock market correlation in the long term.

Mobarak et.al (2016) in his study examined the determinants of stock market correlation during crisis and non crisis periods and whether or not the crisis in one country acts as a “wake-up call” for investors to change their fundamentals in other country. The study examined stock market correlation for 190 emerging and developed countries during the period of global financial crisis. Also examining stock market correlation before and after the crisis period and during non crisis period from 1999 to 2011. The study focuses on three country pairs that include “advanced-advanced, emerging-emerging, and mixed”. The model used was taken from Colacito & al. (2011), which is DCC-MIDAS model where MIDAS is a mixed data sampling approach as it divides the correlation into daily and quarterly correlations by using a panel data. The data consists of macroeconomic and financial factors such as GDP, interest rates, total trade size, and inflation rates. Also cultural differences and bilateral trade agreements were added in the variables to test the stock market correlation. The results show that all these variables affect stock market correlation and the correlation is higher during periods of crisis for all country pairs except for the advanced pair (Mobarak et. al.,2016).

2.3 Bilateral Investment Treaties

A Bilateral Investment Treaty is intended to protect and encourage Foreign Direct Investments between two countries. It was first signed between German and Pakistan in 1959 in order to stimulate and facilitate FDI. According to United Nations Conference on Trade and Development, 179 countries signed at least one BIT in 2010. Although, the number of signed BITs have been increasing, many countries have been withdrawing from these treaties and almost 27% of BITs were signed between developing countries (UNCTAD,2008). The number of signed treaties were increasing for countries, as foreign investors needed protection from any kind of expropriations. These BITs require countries to follow certain clauses in order to protect parties involved in the treaty.

2.4 BIT Clauses

This part is mainly about the articles of BITs signed between countries in order to protect parties involved and encourage investors to invest in these countries. According to UNCTAD (2007), articles of BITs include the right of fund transfers of investments within a specific time range and a certain currency at a certain exchange rate. Also, BIT has a clause that protects investors in case of war or civil disturbance and in some cases, a compensation is mandatory to be paid. Some countries with specific risks make BITs with specific clauses in order to protect the rights of other parties involved such as a protection against bankruptcy and the means to manage monetary and financial policies (UNCTAD, 2007). In addition, the clauses include the safety of national security, environment, public health, and labor of the involved parties.

An example of BIT between the Government of Australia and the Government of the Arab Republic of Egypt mentions the importance of promoting investment and economic collaboration by following policies of international accepted principles that include “mutual respect of sovereignty, equality, mutual benefit, non-discrimination, and mutual confidence” (UNCTAD, 2007). However, prior to BITs, developed countries felt that their assets and investments were at risk of expropriation as happened in some of the host countries. Although, the “Hull Rule” used to exist, which was created to protect both home and host countries against any expropriations (Guzman, 1997), countries did not follow the “Hull Rule” as for example, Iran has nationalized British oil assets in 1951 in addition to the Libya’s government expropriation and nationalization of Liamco’s concession privileges in 1955 and the nationalization of the Suez Canal by the former Egyptian president Gamal Abd El Nasser in 1956. These nationalizations have stimulated the United Nations in introducing “Resolution on Permanent Sovereignty over Natural Resources and enforcing compensations against any nationalization or expropriation” (Elkins, et. al, 2006, 813). The start of BIT in the late 1950s was successful as it has helped foreign investors in protecting their rights and assets in host countries by allowing for direct concessions with governments of the host countries and potential investors. Disputes are resolved through “International Center for Settlement of Investment Disputes (ICSID) or the UN Commission on International Trade Law (UNCITRAL)” (Elkins, & al., 2006). These resolutions have attracted foreign investors in signing bilateral investment treaties with the host countries as the “Hull rule” that failed to protect foreign investors’ assets has ended (Neuymar & Spess, 2005).

2.5 Investment

International investment law has been ignored in most of the studies. Therefore, Sasse (2011) has focused on the economic analysis of international investment law especially bilateral investment treaties and authoritative quality. His result shows that BIT has a positive impact on the authoritative quality.

BITs do not just mention the policies for each party but rather states the definitions for what an investment would be between the involved parties. According to Dolzer and Shurer (2008), there are two questions raised with respect to shareholders. These questions are whether shareholders can reach for a claim under a BIT if their nationality is not eligible for BIT protection and the other question is whether the minority shareholder has the right to be protected through a BIT. The answers to the two questions are as follows, the foreign shareholder has the ability to pursue for a claim under the BIT even if his nationality is not qualified for BIT and minority shareholders are also protected by BIT.

Moreover, (Buthe, et al., 2008) has studied the relationship between international trade agreements and the flow of foreign direct investments by focusing on developing countries. The study aimed to analyze the effects of international trade agreements such as Bilateral Investment Treaties, Preferential Trade Agreements, and World Trade Organization in foreign direct investment and whether FDIs are increasing with the increase in trade agreements or not. After the second World War, there was a threat of increase in government interference and not protecting foreign investors' assets and rights in the host countries. This fear has changed with the introduction of policies that protect foreign investors from government intervention and hence attract foreign direct investments as well as help in the flourishing of the economy. These policies are transferred into international treaties that state the rights and obligations for each involved party. The study has examined statistical sample by using panel data from 122 developing countries in the period from 1970 till 2000. Ordinary Least Squares and autoregressive AR(1) are used in the study where variables include natural log of country's population to determine market size, natural log of per capita GDP to determine country's economic development, and percentage change in GDP per year to determine country's economic growth, BIT by taking the number of signed BITs by each country, degree of country's democracy and World Trade Organization. The results of the study

show that political instability reduces the inflow of FDI while BIT and WTO increases FDI inflow (Buthe, et al., 2008).

Other studies have also focused on the effects of the exports and imports of WTO on country's FDI such as J. Paul (2015) who focused on the two growing emerging countries: India and China. His study uses Granger Causality in order to test imports, exports, and FDI before and after the existence of WTO. The results of this analysis show that WTO has a large impact on improving FDI in India while showing insignificance among FDI, imports, and exports in China (Paul,2015).

Other studies such as Elkins (2006), Neuyman and Spess (2005), and Guzman (1998) argue that BITs increase FDI of the host country and that developing countries compete in signing BITs in order to increase their FDI. However, BITs tend to lower local firms' competition as the rights given to multinational firms exceed those given to local firms. Guzman(1998) has argued that developing countries compete to sign BITs in an attempt to increase FDI and that developing countries as a group do not benefit from signing BIT, where as developing countries as individuals benefit from signing BITs as they negotiate terms and conditions with other countries (Guzman,1998). While, other studies such as Tobin and Rose-Ackerman (2005) argued that BITs signed solely does not increase FDI but rather the host country should have a strong economic environment and low political risk in order to increase FDI flows. The study has taken into account the differences among countries by measuring FDI at the end of the period and the independent variables of market size, political risk, and growth at the beginning of the period from 1975 to 2000. FDI is measured as FDI inflows as a percentage of the world FDI taking into account market size and growth with their lagged values along with other variables that are natural resources, political risk, and black market premia (over valuation of national currencies). The second model results in a more efficient outcome than the first model and that although BIT has a weak relationship with investment environment domestically, it facilitates and encourages the flow of FDI (Tobin & Rose-Ackerman, 2005).

Another study by Sirr et,al.(2017) focused on the effects of BITs on Foreign Direct Investment but specifying their study on vertical and horizontal FDI. The study divides FDI into two types; vertical and horizontal FDI. According to Slangen and Beugelsdik (2010) as well as Desbordes (2007),

vertical FDI means that multinational corporation uses cheap production from multiple sources worldwide with cheaper factory prices. Horizontal FDI depends on host country's productions by using a local subsidiary to sell their products and to create affiliates to the multinational corporation in the host country to serve the host country's needs. The horizontal FDI is considered cheap as multinational corporations tend to make use of cheap local productions instead of importing these products. Therefore, horizontal FDI is vulnerable to local market conditions while vertical FDI is vulnerable to global market conditions and therefore, it is much more affected by Bilateral Investment Treaties than horizontal FDI. According to Beugelsdijk et, al (2008), vertical FDI tends to hire more labor with low cost than does horizontal FDI as vertical FDI produces their products in low cost countries by low cost labor. In addition, vertical FDI tends to use more exports than horizontal FDI as they export their goods for final assembly in another country or their final goods to the home country. On the other hand, horizontal FDI sells their final goods to the local markets (Zhang,2009). In addition, both vertical and horizontal investments have different usage of technology as horizontal investments use more technology and know-how of capital in the host country as their local subsidiaries require more technology and know-how in order to produce the same final output as required by the multinational firm (Beugelsdijk,2008). The results of the study show that BIT has a strong positive impact on vertical FDI and no impact on horizontal FDI as vertical FDI tends to involve the use of global markets Sirm et,al.(2017).

Another study by Krener (2009) has found that BIT affect FDI flow positively and that investments in host countries signing and enforcing BITs increase. Moreover, the study shows that BITs have the ability to attract FDI by ensuring a secured investment for protected and unprotected investors. The sample of the study includes 127 developing countries to represent host countries and OECD countries in addition to Japan, Australia, and New Zealand to represent home countries from 1982-2001 using Ordinary Least Squares. The variables used are annual macro-economic variables from World Bank that include Log of GDP ,domestic savings rate for host countries, as low savings rate encourages FDI, Log of trade openness, in addition to Preferential Trade Agreements as a variable from World Trade Organization.

Moreover, Allee and Peinhardt (2009) argued that BITs attract FDI inflows but only with a government having good reputation by following BIT clauses and laws. Their study argues that governments with signed BITs performing expropriations or any illegal actions towards their investors will have to settle a dispute held in the International Centre for Settlement of Investment Disputes (ICSID), which is a center created by the World Bank for BIT settlements. Governments having legal cases held against them are facing bad reputation for not following BIT rules and regulations leading to losing their credibility and therefore, their FDI inflows will be affected. This means that BIT alone does not increase FDI inflows but rather a government reputation is also important as it reassures the tendency of a government in protecting investors' rights in the host country (Allee and Peinhardt ,2009). In addition, Simmons (2000) has studied the importance of government's reputation in abiding by agreements and treaties such as BITs and whether government's compliance towards these agreements and rules would affect its behavior or not. The study has shown that reputation plays a very important role in government's behavior and that it affects the future of the country in keeping its credibility among other countries by complying with treaties and that governments tend to follow article XIII¹ compliance of International Monetary Fund (IMF) to help them gain reputation related to compliance of treaties

On the other hand, Allee and Peinhardt (2008) have studied the reasons behind having different clauses in each bilateral investment treaty signed and the reasons of having formal provisions in some treaties and informal provisions in others. The paper has mentioned two examples for signed BITs; the first BIT signed is UK with Belarus and the second one is UK with India. The paper argues that the UK-Belarusian BIT contains more formal clauses than do the UK-Indian BIT as in the first one any dispute that occurs between the UK multinational company and Belarus government occurs will result in a case held in International Centre for Settlement of Investment Disputes (ICSID), while in the second BIT, any disagreement between UK multinational corporation and the Indian government will result in a communication first to settle the argument before any case is held against the government.

¹ Article XIII is in one of the IMF's Articles of Agreements, where this article contains all members' general duties regarding payment balances to creditors. See Simmons (2000).

Furthermore, Egger and Merlo (2007) have focused their study on ratified BITs and their effects on FDI stocks on both developed countries and developing countries over the period 1980 till 2001. The data used is FDI stocks in US dollars and dummy variables of signed and ratified BIT from UNCTAD, real GDP and sum GDP from World Bank. The model used consists of a static country pair model and a dynamic country pair model in order to measure the effect of time in the short and long run. The results of the model show that BIT affects FDI in the long run more than the short run.

3. Model Specifications

3.1 Hypothesis Development

Hypothesis testing will be used in order to test the significance of each variable to changes in the stock market correlation. It is important to know what affects the stock market correlation and fill the gap of other studies that did not focus on the effects of bilateral investment treaties on stock market correlation. Four variables will be tested in order to examine the most significant ones resulting in changes in stock market correlation. These variables are close to the explanatory variables used by Neumayer and Spess (2005) and Hallward-Dremeir (2013), and Tobin and Rose-Ackerman (2005). In addition to variables used by Singh & al., (2019). These explanatory variables are bilateral investment treaty, GDP annual growth rate, Trade openness, and whether the involved party is a member of WTO or not.

Bilateral Investment Treaty

As discussed before, BITs are becoming very important in protecting FDI and can have an impact in stock market correlation of the two countries involved in the BIT.

H1: Countries having enforced BITs with other countries affect stock market correlation positively.

GDP Annual Growth Rate

The natural log of GDP annual growth rate will be studied in order to examine its impact on stock market correlation. GDP and per capita income are important indicators that measure the well being of a country's economy. It will be used in the model to examine the effects of GDP on stock market correlation.

H2: Countries with high Annual GDP% per capita positively affect stock market correlation.

Trade Openness

This is explained in terms of market potential and market size. Higher trade openness (imports+ exports /GDP) affects the stock market correlation positively.

H3: Countries with high percentage of trade openness have high stock market correlation.

WTO

This variable is to clarify whether the country is a member of the World Trade Organization or not.

H4: Members of WTO have high stock market correlation.

3.2 Research Question

What is the impact of bilateral investment treaties on stock market correlation in Africa and Middle East region?

3.3 Research Design:

My model is intended to be Fixed effect model that tends to control unobserved heterogeneity across countries. It has 1 dependent variable, which is stock market correlation and four independent variables mentioned above.

3.4 Data and Methodology:

The data used in this study is daily data for stock market prices compiled from Thomson Financials for 13 countries in Africa and Middle East, that are Egypt, Saudi Arabia, UAE, Morocco, Jordan, Oman, Bahrain, Lebanon, Israel, South Africa, Mauritius, Tanzania, and Cote D'Ivoire over the period 2003-2019. After that, weekly returns on stock indices are being calculated from the daily stock prices and then stock market correlation for these returns is being calculated. Also, the dates of enforced BIT and no BITs are compiled from UNCTAD so that a dummy variable that includes 1 and Zeros are used in countries with and with no BIT. One starts with the date of BIT enforcement and Zero is used for countries having no BIT. Other variables taken from World Bank are annual GDP growth rate, trade openness, and member of WTO. WTO is also a dummy variable that includes 1 and Zeros, where 1 is used for countries that are members of WTO and Zero is used for countries that are not members of WTO.

The methodology used in this study is linear regression model and a control is made on a country pair fixed effect. Fixed effect model is implemented as the model used by (Sami&Abdallah,2020) to test the impact of BIT on stock market correlation in Africa and Middle East region in order to control unobserved heterogeneity. The model is written as follows,

$$\text{Correlation } i, w = \alpha + \beta X_{i,t} + \Phi \text{ BIT}_{i,t} + \gamma_i + \varepsilon_{i,w}$$

Where the correlation is the stock market correlation for indices of both countries (i) at the week (w). $X_{i,t}$ is a matrix that consists of macroeconomic variables per year. Φ is the coefficient that measures the elasticity of stock market correlation to BIT. γ_i describes the fixed effect country and $\varepsilon_{i,w}$ is unexplained variables that affect stock market correlation. Therefore, the model is written in details as follows,

$$\text{Correlation } i, w = \alpha + \beta_1 \text{Annual GDP capita } i, t + \beta_2 \text{Trade Openness } i, t + \beta_3 \text{WTO } i, t + \Phi \text{ BIT}_{i,t} + \gamma_i + \varepsilon_{i,w}$$

In the three runs, the model is controlled and has no problem in multicollinearity, autocorrelation, and heteroscedasticity.

Hallward-Driemeier (2003) and Tobin and Rose-Ackerman (2005) used linear model to measure the determinants of FDI flows. It was then used by Neuyamar and Laura Spess (2012). The first model was used to measure the determinants of FDI flows. The second model was also used to measure the relationship between FDI and certain variables such as BIT. This fixed effect model is used to test the relationship between weekly stock market correlation of indices and four independent variables. This model is similar to the model used by (Mobarak et.,al ,2016; Sami&Abdallah,2020) where a country pair was used to also study the determinants of stock market correlation. The data collected in this paper is daily stock market prices calculated from it the weekly correlation of stock market indices between countries having BIT with other countries. The four independent variables including enforced Bilateral investment treaties (dummy variable) between Africa countries and other countries gathered from United Nations Conference on Trade and Development, natural log of Annual GDP growth rate, the log of trade openness, the value of imports added to it, exports divided by GDP which is gathered from world bank, and WTO (dummy variable) as indicator of whether the country is a member of World Trade Organization or not.

4. Empirical Findings:

The results of this study are attained by using Fixed Effect model on weekly data over the period 2003-2019 for BIT and annual data for macroeconomic variables using STATA software.

The below tables provide the findings of the mentioned points in the last sections. A regression coefficient model is used to test the significance between returns of stock market correlation and BIT along with other variables. The data consists of 63,523 observations divided into 192 groups that include the African and Middle East countries with other countries having a ratified BIT and no BIT with them. The dependent variable is the stock market correlation of both price and returns and the independent variables are BIT, annual % GDP, openness to trade, and membership of WTO. This paper findings' report a strong positive impact of annual GDP on stock market correlation in returns and prices by p-value 0.004 and 0.005 respectively less than alpha of 0.05. This means that H0 should be rejected and that stock market correlation depends positively on Annual GDP growth. It also shows a strong negative correlation of WTO on stock market correlation in return and prices in both Table 1 and 2 respectively, -0.004 and -0.008 as they are less than alpha of 0.05. This means that H0 should be rejected and that stock market indices correlation are negatively related to WTO. In addition, this study shows a strong negative correlation of Trade Openness on stock market indices correlation in both return and prices as the sample used is mainly from developing countries. This is shown in Table 1 and 2 respectively, -0.025 and -0.013 as they are less than alpha of 0.05. This means that H0 should be rejected and that stock market indices correlation are negatively related to Trade Openness. This study adds another variable, which is BIT. The result of this study shows that when BIT takes place, stock market correlation increases by 0.016. The regression model in tables 1 and 2 shows that BIT affect stock market correlation positively as the p-value is less than the alpha 0.05. This means that H0 should be rejected and that stock market correlation depends on BIT. R squared, which is the significance of the model shows that in the third run, 20% of the variables explain stock market correlation in terms of return. While 19.5% of the variables explain stock market correlation in terms of prices. This shows that this model is highly significant.

When comparing this paper's findings to other studies, it appears that other studies include in the regression some of the control variables such as Annual growth of GDP, where GDP has a strong positive impact on stock prices and returns (Ralph & Eriki, 2001; Fama & French, 1989; Black, 2000). This means that corporate revenues are increased through increase in output growth and therefore, stock prices and returns are increased. However, other study by (Al Tamimi, et al., 2011) has argued that GDP has positive but insignificant effect on stock prices.

Another variable is tested in this study, which is a member of World Trade Organization and whether this membership positively or negatively affects stock market correlation between countries having BIT. A study has examined China's market before and after WTO, where China was required to open up their stock markets for the trade of other foreign companies in order to be a member of WTO. This open up allows for market interdependence and integration. Therefore, there is a positive correlation on stock market indices (Kwon, 2009). Other study has also argued that financial liberalization resulting from WTO has allowed for a strong positive correlation between countries (Hongbo & al., 2014). Other studies have argued that WTO only allows for a minor increase of FDI and real GDP and it is important to remove trade barriers in order to stimulate FDI and therefore, stock market prices and returns will be affected (Li & Zhai, 2000; Mai, 2003 & Mai & al., 2003). Moreover, studies argue that WTO and other agreements affect FDI and stock market positively (Buthe et al., 2008). While other studies argue that WTO has no significant impact on trade and thus no significant impact on FDI inflows and stock market (Rose, 2004; Rivers & Tomz, 2007; Tuman & Emmert, 2004).

Moreover, Trade Openness is examined in this study in order to analyze the effects of international trade on stock market indices correlation. Studies have focused their attention on the effects of trade openness and the performance of the economy in developing countries (Santos-Paulino, 2005; Balassa, 1971; Little et al., 1970). Where their findings show that trade liberalization in developing countries has a positive impact on their economy. Another study by Basu & Morey (2005) argues that stock market shows a random walk behavior and that trade openness has a zero correlation on stock returns. However, Lim & Kim (2011) has argued that trade openness has a negative impact

on stock market correlation in developing countries where information about company's earnings are not certain.

Also, this study focuses on adding BIT in determining stock market correlation, which is an important variable that was not taken into consideration in other studies. Although, there are no previous studies for the effects of BIT on stock market correlation, there are many studies about the effects of BIT on FDI. Some of these studies argue that BIT increases the flow of FDI (Bhasin&Manocha,2016; Egger& Pfaffermayer,2004; Guzman,1998). Whereas a study has concluded that BIT has a positive impact on fixed capital investments rather than other events related to multinational corporations (Kerner,2009). Other studies have examined the effects of signed and enforced BIT on FDI. The results show that signed BIT do not provide protection for foreign investors and are considered costly to the host country as it does not abide by the policies of the treaty unless enforced and therefore, FDI inflows are not affected. However, governments react more to enforced BIT as they abide by the treaty policies and therefore, their FDI inflows increase (Haftel,2010; Guzman,2005; Yackee,2008a,2008b).

On the other hand, other studies have argued that BIT has a positive impact on FDI only when there are no cases or claims held against governments for not abiding by the treaty rules (Allee and Peinhardt,2011). On the other hand, a study by Salacuse and Sullivan (2005) has analyzed United States BIT and found a positive impact on FDI while BIT has a negative impact on FDI in other countries of the Organization of Economic Cooperation Development (OECD). Other studies have argued that these treaties usually have higher costs than their benefits and that they still need modifications (Salacuse,2007).

In addition, this paper examines the changes of enforced BITs over time in Africa and Middle East countries as shown in the below graph. Where enforced BITs are significantly increasing over the years with Egypt having the largest number of enforced BITs (42) and Cote D'Ivoire having the smallest number of BIT (1).Moreover, the recent BIT was enforced in 2018 between UAE and Slovakia and the oldest BIT was enforced in 1973 between Mauritius and Germany.

Table (1):

	(1)	(2)	(3)
Correlation Returns	1	1	1
BIT	0.014*** (0.005)	0.019*** (0.005)	0.016*** (0.005)
GDPAnnualGrowthC2		0.004*** (0.001)	0.004*** (0.001)
C2MemberofWTO			-0.004 (0.009)
TradeOpenessC1			-0.025*** (0.003)
Constant	0.080*** (0.003)	0.068*** (0.004)	0.096*** (0.009)
R2	0.16	0.18	0.20
Observations	63,523	60,587	60,587
Country FE	YES	YES	YES
Number of groupco	192	189	189
chi2	.	.	.

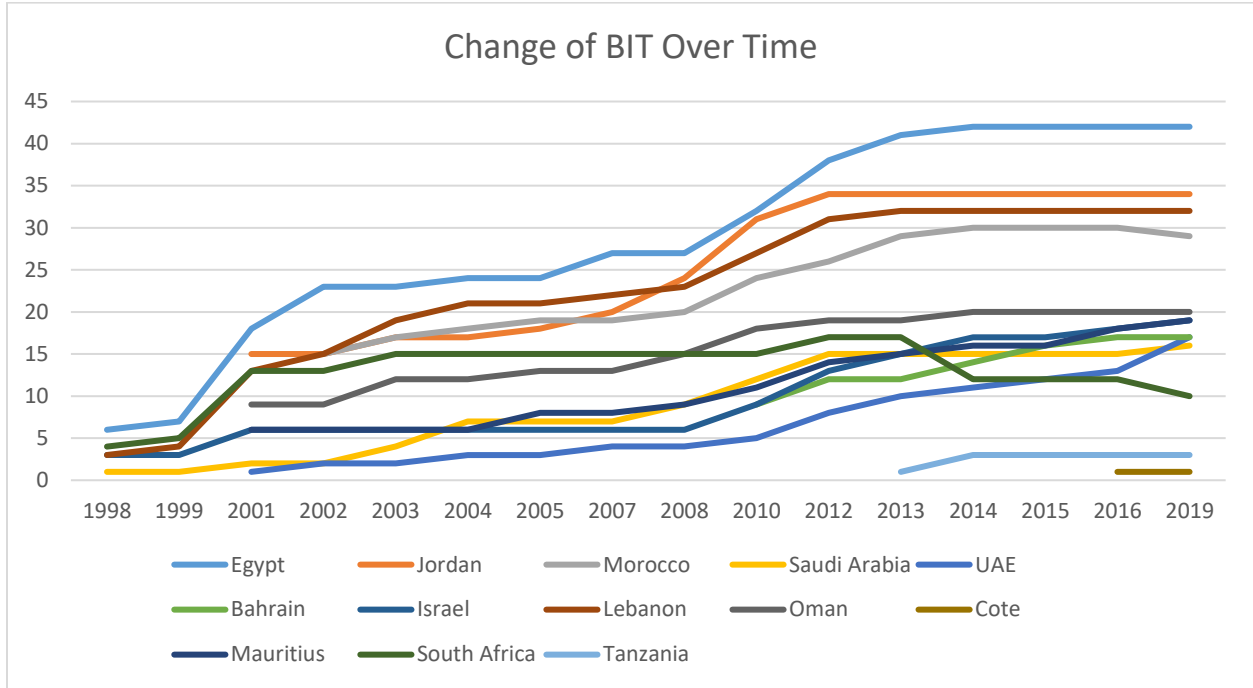
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table (2):

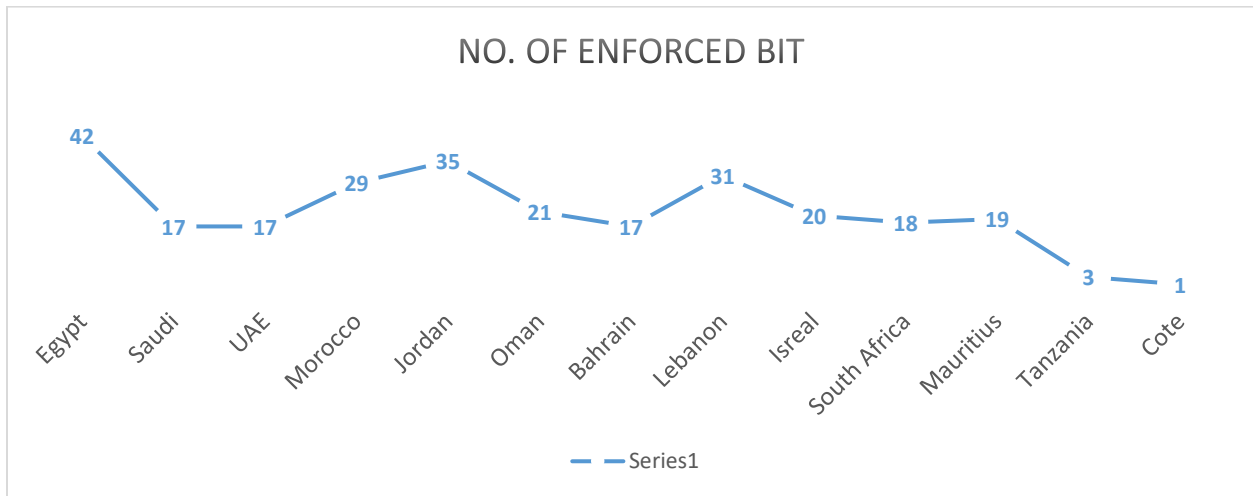
	(1)	(2)	(3)
Correlation Prices	1	1	1
bit	0.010** (0.005)	0.018*** (0.005)	0.017*** (0.005)
GDPAnnualGrowthC2		0.005*** (0.001)	0.005*** (0.001)
C2MemberofWTO			-0.008 (0.008)
TradeOpenessC1			-0.013*** (0.002)
Constant	0.182*** (0.003)	0.163*** (0.003)	0.183*** (0.008)
R2	0.17	0.18	0.195
Observations	63,523	60,587	60,587
Country FE	YES	YES	YES
Number of groupco	192	189	189
chi2	.	.	.

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Graph (1)



Graph(2)



5. Conclusion & Recommendations for Further Studies:

Finally, this paper provides a thorough analysis of BIT on stock market correlation in Africa and Middle East countries over the period 2003 till 2019. Stock market correlation is determinant by macroeconomic variables such as GDP, Trade Openness, WTO, etc. The results of the findings show that GDP per capita and BIT have a significant positive impact on stock market correlation. While openness to trade and WTO have a significant negative impact on stock market correlation. The study shows that when BIT takes place, there is an increase in stock market correlation by 0.016 percent in terms of return and 0.017 percent in terms of price.

BIT is an important variable to study particularly in Africa and Middle East region as mentioned by Guzman (1998) that developing countries compete in signing BITs in order to increase their inflow of FDI. Therefore, it is important to understand how BITs affect their economy and how their stock market correlation with countries having BITs with them become affected. This study is very crucial for policy makers, governments, and investors as they become well informed about the policies in countries having BITs with others and therefore, policy makers and governments modify and improve these policies to suit both countries' needs. In addition, it helps policy makers in managing crisis as the correlation among countries becomes clear. This study is important for investors in diversifying their portfolios as they become aware of the stock market correlation between countries having BIT with others.

This study has some restraints as it focuses only in Africa and Middle East region. It is better to examine the effects of BIT on stock market correlation globally in order to better understand the effects of BIT on both regions and also focus the study on the culture of both regions as developed countries might have different results on their stock market correlation. In addition, more macroeconomic variables should be added to the study in order to better understand the determinants of stock market returns.

Appendix A

Descriptive Statistics:

Variable	Obs	Mean	Std. Dev.	Min	Max
corr_returns	63,497	0.086042	0.458069	0.89997	0.899989
corr_prices	63,497	0.185978	0.418761	0.58397	0.899977
bit	63,497	0.442793	0.49672	0	1
GDPAnnualG~2	62,790	3.062483	3.049094	33.1008	54.15777
C2Memberof~O	62,790	0.905829	0.292069	0	1
TradeOpene~1	64,725	1.00902	0.757853	0	7.156284

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