



Experimental Study of the Effect of Exchange Rate Volatility Spillover on Capital Market index: A Case Study of Selected Oil-Exporting OPEC Member Countries

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Submit: 14/08/2022 Accept: 08/11/2022

ABSTRACT

Exchange rate fluctuations are always one of the variables affecting economic activities and thereby affecting the behavior of actors in capital markets. Therefore, the study of these relationships is of particular importance. On the other hand, the present study is conducted to study the effect of exchange rate fluctuations' spillover on capital market indicators of selected oil-exporting OPEC member countries. These countries are similar in terms of economic reliance on oil resources, but different in terms of economic growth rate and capital market characteristics. The research period is from 2016 to 2021 and data related to exchange rates and capital market indicators of Iran, Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain are collected from reliable sources and using multivariate GARCH models. Findings from the experimental data show that currency fluctuations in the capital market affect the capital market index of Iran, Iraq, UAE, Qatar, Saudi Arabia, Oman, and Bahrain. This effect is asymmetric only in the Iranian capital market, and is symmetrical in other countries.

Keywords:

fluctuation spillover, exchange rate, capital market index, OPEC member countries.

1. Introduction

The stock market is an integral part of the financial sector, which is closely linked to economic growth. In this way, the stock market can more efficiently allocate savings to investment opportunities by distributing risk combined with a higher rate of return. The stock market, through the purchase and sale of stocks, can take steps to equip financial resources, strengthen the sense of participation in the general public by directing their small capital to productive and commercial activities.

But the recent spillover effect in the financial markets is a side effect that appears after the primary effect occurs, but may occur far beyond the primary event (temporally or spatially). Past records of volatility in one market help predict its occurrence in another. Spillover in economics refers to events that occur due to other factors, while seemingly unrelated to those factors. For example, the economic benefits of increasing trade can be seen as the spillover effect of regional alliances, such as the Association of Southeast Asian Nations, the European Union, and the like. Volatility spillover is the transfer of risk from one sector to another or from one market to another, so the effect of volatility spillover can be called as a reciprocal effect of price fluctuations in different markets (Kim and Lee, 2015).

Numerous studies have shown that information about financial variables is transferred to each other over time in the asset market. This issue has become more important with the expansion of communication systems and the interdependence of financial markets. Thus, the magnitude of price fluctuations in a market is not only affected by its past fluctuations, but also by fluctuations in foreign markets (Dale, 2012). Therefore, volatility information can be transferred between different markets. Spillovers can be studied from two perspectives. The first category is related to internal spillovers that are a function of the current fluctuations of a financial market due to past fluctuations of the same market. The second category is cross-sectional spillovers, i.e. the current fluctuations of a financial market resulting from past fluctuations of the same market and other markets. It depends on the root of the volatility spillover, including domestic and foreign market shocks, i.e. to what extent there is convergence between markets (Tillmann, 2016). The complex environment of financial and economic markets and the close

relationship between these markets is a vital need that has led researchers to predict the scenario of future economies. In fact, by discovering the analysis of cross-sectoral or inter-market relations, we can take an effective step in identifying the financial and economic system better and more accurately (Garcia and Kremer, 2017).

Measuring the levels of interconnectedness between markets by measuring the volatility spillover among them is when markets are interconnected by economic factors or channels, such as investment preferences and communication channels that can be expected to have cash flow exchange. For this purpose, the ARCH family models and its generalized form are mainly used by Engle and Bolerslow (1986) to measure the coherence and dependence of markets (Kang et al., 2021).

One of the strong levers of stock market expansion is the price and return index, which is influenced by many internal and external factors. Internal factors in the field of companies include how to finance companies listed on the stock market and how much debt and equity in minimizing financing costs or capital costs and, consequently, increasing the stock market value of companies is effective (Kohonen et al., 2013). External factors are also outside the scope of companies' decisions and changes in them can of course affect the profitability and stock value of these companies. Institutional factors, especially exchange rate fluctuations, are external factors that affect the stock price index and the resulting return. In fact, exchange rate fluctuations, by providing stability or instability, provide the ground for the presence and absence of investors and the productivity of listed companies in the stock market by reducing transaction costs, leading to stock demand and ultimately, increased stock market returns (Mensi et al., 2017).

In fact, the investor can increase the stock purchase share of companies listed in the stock market in his portfolio and provide the basis for increasing the price index and cash return of the stock market when there is a good stability index in the country. When markets are interconnected, investors can be influenced by news, economic, legal, socio-political, environmental, business, and innovative market scenarios (Xiong and Han, 2015). The use of volatility spillover between markets is due to the effect of transferring cash flows between them. Understanding the spillover relationships of exchange rate

fluctuations can play an important role in making financial decisions and managing the risk of capital market participants. Also, the outputs of this topic have the dimensions of financial-economic policy- and decision-making in macroeconomic programs and management of financial shocks in the country. Facilitating financial transactions, financial innovations, deregulation in financial markets, and advances in information technology have facilitated capital transfers and market interconnectedness. In addition, portfolio management, taking into account international components and the role of foreign investment in resource transfer, has led to a greater connection between national markets and international trends (Santamaria et al., 2017; Nakamura, 2018). Research examining exchange rate volatility spillover has only investigated the issue in a limited environment, while a comparative study, especially in economies located in close geographical and political environments, will provide a good output of the research result. As there is no comprehensive study to study and compare different countries with regard to growth rate but similar income resource, comparing these kind of countries can lead us to new results on the impact of exchange rate fluctuation spillover. There is no comprehensive and comparative research in this field in literature review and this research will try to fill this gap. So, this study strives to compare the impact of exchange rate fluctuation spillover on the capital market index of Arab OPEC member countries (Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain) and Iran.

2. Research literature and background

Identifying convergence in oscillating transfers between different markets is one of the most important issues for researchers, especially after the recent financial crisis. Many researchers believe that the correlation between fluctuations is even greater than the correlation between earnings. Various studies have shown that information about financial variables is transferred to each other over time in the asset market. This issue has become more important with the expansion of communication systems and the interdependence of financial markets. Thus, the magnitude of price fluctuations in a market is not only affected by its past fluctuations, but also by fluctuations in foreign markets. Therefore, fluctuation information can be transferred between different

markets (Morales et al., 2016). The stock market is volatile due to economic conditions, including monetary, financial, currency and political sectors. Exchange rate fluctuations can be considered as one of the fundamental components in the analysis of companies' stock price valuation, which creates inflation expectations. The spillover of exchange rate fluctuations to other financial markets is of interest to economic actors, especially in countries with a floating exchange rate system. Exchange rate fluctuations can affect the production of goods and services of companies, which is important for the valuation of companies' stocks through the channel of predicting future cash flows for investors (Kim et al., 2012).

Another important point is that equity prices in equilibrium indicate the financial capability and current and future economic capacity of companies. The effect of exchange rate on stock price can be defined from various channels, such as the combination of foreign exchange assets and liabilities, export products, imported raw materials, the cost of foreign exchange services and, at a macro level, the weakening of the national currency, political risk, and etc. Spillovers can be classified into two types, internal and cross-sectional. In the internal spillover hypothesis (fluctuation clustering), current fluctuations make a financial market a function of past fluctuations in the same market (Santamaria et al., 2017). However, in cross-sectional overflows (fluctuation transfer), the current fluctuations of a financial market are assumed to be the result of the past fluctuations of the same market and other markets (alternative markets). It depends on the root of the fluctuation spillover, whether domestic or foreign market shocks, to what extent there is convergence between markets. The stock market fluctuates due to the conditions of the economy, including the real, monetary, financial, currency and political sectors. Exchange rate fluctuations can be considered as one of the fundamental components in the analysis of companies' stock price valuation, which creates inflation expectations. The spillover of exchange rate fluctuations to other financial markets is of interest to economic actors, especially in countries with a floating exchange rate system. Exchange rate fluctuations, especially in a country like Iran, are considered risky for businesses and have an important systemic place in creating economic fluctuations. Exchange rate fluctuations can affect the production of companies'

goods and services, which is important for investors to value companies' stocks through the channel of predicting future cash flows (Wu and Xia, 2016).

Examining the effect of spillover of currency fluctuations and market returns of Arab OPEC member countries and Iran due to budget reliance on oil with different similarities and differences can clarify important points for researchers in this field.

Diebold and Yilmaz (2012) examined the direction of fluctuation spillover as well as the generality between stock markets, bonds, currencies and commodities from January 1999 to January 2010 using their generalized vector auto-regression framework. They showed that the inter-market volatility spillover has intensified since the 2007 crisis.

Andreou et al. (2013) examined the exchange rate fluctuation spillover in the stock market using the VAR_GARCH model in twelve emerging countries during the Asian financial crisis and showed that there is a bilateral fluctuation spillover, which depends on the type of currency regime of the countries.

Xiong and Han (2015) investigated the effect of the spillover of fluctuations in the Chinese yuan exchange rate on financial markets using a random fluctuation model from 2005 to 2008. They showed that when the exchange rate rises, there is an asymmetric and two-way oscillation overflow between the two markets.

Morales et al. (2016) studied the spillover of exchange rate fluctuations on the capital market in seven regions (Britain, euro area, Australia, Switzerland, Canada, England, and Japan) in the period 1990 to 2015 using the C-GARCH model. They demonstrated that long-term volatile relationships are stronger than short-term relationships between markets, which is exacerbated in times of crisis.

Kang et al. (2021) conducted a study entitled "the effect of direct spillover between ASEAN countries and global markets" and examined the differences in the impact of spillover by comparison between different countries. The results showed that spillover in global stock markets is higher than ASEAN stock markets. In addition, other results indicate a heterogeneity between ASEAN-5 stock exchanges in spillover rate in comparison to global markets over time.

Antonakakis et al. (2021) examined the transfer of international monetary policy spillovers between developed countries. The researchers used data from

1995 to 2018. The empirical results of this study showed that the rate of international monetary policy spillover, which was unprecedented over time during the Great Depression of 2009, is heterogeneous and indicates the potential benefits of unconventional monetary policy coordination. In addition, the results showed that the dominant transmitter of spillovers are the international monetary policy of the euro area and the United States, while Japan and England are the dominant recipients of spillover.

Zhang and Wang (2022) in their article reviewed return and volatility spillovers between China and world oil markets. Their research results show that positive relationship between return and volatility spillovers between China and world oil markets in China and world oil market.

3. Research methodology

This research is an applied research in terms of its objective, because the results can be used in investment decisions. Also, in terms of inference about research hypotheses, it is in the group of descriptive-correlational research, because to discover the relationships between research variables, regression and correlation techniques will be used, which, therefore, is inductive reasoning. Moreover, since we will reach a conclusion by testing the available data, our research will be in the group of positive theories. Furthermore, the statistical population of this research is the information of Tehran and Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain stock exchanges during the period 2016 to 2021 (6-year period), which were selected using the elimination method (screening).

Assessing the levels of correlation between markets by measuring the fluctuation spillover between them is when the markets are interconnected by economic factors or channels that can be expected to have an exchange of cash flows. For this purpose, the ARCH family models and its generalized form are mainly used by Engle and Bollerslow (1986) to measure the coherence and dependence of markets (Korobilis and Yilmaz, 2018). Financial changes over time can bring fluctuations between assets and markets closer together, so correlations between movements need to be modeled. The family of univariate heterogeneous models is extended to GARCH models and its generalized form (ARCH), linear and nonlinear autoregressive condition, which can obtain the salient

features of stock market returns including stretches, leverage effects, and clustering fluctuations that could not be estimated by univariate models. In the present study, these researchers have also been followed. The data required to test the research hypothesis were obtained from the investing site. These data were collected and used for the market index and exchange rate (equal to the dollar) on a monthly basis for each country.

4. Research Hypothesis

According to the theoretical foundations presented in this research, it is attempted to study the following hypothesis in the financial market and economic environment of Iran, Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain:

Currency fluctuations in the capital market affect the capital market index.

5. Research variables

The variables of this research are divided into two groups of independent and dependent variables in order to test the hypotheses.

5.1. Dependent variable

Market Index (R): indicates the stock market development index as a dependent variable. The price index and cash return or the total return can be the result of price movements and cash returns of stocks on the stock exchange, which is the total return on investment in stocks in a given period. This index represents the total return of the stock exchange and is affected by price changes and cash returns that include all companies listed on the stock exchange. For this purpose, we have taken the stock market index of companies in the studied countries from investing.com and used it in this research (Antonakakis et al., 2021).

5.2. Independent variables

Currency (Cur): is one of the components associated with portfolio risk. According to Markowitz model, changes in asset risk can affect its demand and cause changes in stock prices, because companies are export and import-oriented, increasing and decreasing the exchange rate can have different effects on the resources listed on the stock exchange and companies. As the exchange rate falls, the cost of products decreases, resulting in higher profit margins and earnings per share, followed by higher company stock prices. As the stock price of companies increases, the total stock price also changes. Analyzing the direct relationship between stock market price index and exchange rate in 2017, Santamaria et al. stated that companies present in the stock market have a better competitiveness in exports by increasing the exchange rate, and as a result, are in a better position by increasing revenues from the export of goods and services. Therefore, with the increase of the exchange rate and the improvement of the income situation, the demand for companies' stocks increases, and as a result, the total stock market price index increases. Kang et al. (2021) negatively assessed the relationship between the exchange rate and the stock price index. The information required for this variable was also extracted and used from investing.com. In this study, the exchange rate refers to the dollar. This information was obtained on a monthly basis and classified to test the hypotheses (Antonakakis et al., 2021).

6. Research findings

6.1. Descriptive statistics

Descriptive statistics of 7 countries during a period of 6 years (2016-2021) are presented in the table above. Table (1) shows the descriptive statistics of experimental variables. This table shows what characteristics the research variables have. This table contains indicators to describe the research variables, including central indices, dispersion indices, and distribution shape indices.

Table 1: Descriptive statistics of research variables

Country	Variable	Max.	Min.	Mean	Median	SD.
Iraq	R	010.1	405.0	648.0	526.0	213.0
	Cur	200.1	086.1	174.1	119.1	089.0
Bahrain	R	669.1	089.1	346.1	438.1	261.0
	Cur	383.0	373.0	377.0	386.0	011.0
UAE	R	426.5	304.0	655.4	537.4	641.0
	Cur	678.3	671.3	673.3	442.3	114.0

Country	Variable	Max.	Min.	Mean	Median	SD.
Qatar	R	621.3	092.2	912.2	454.2	342.0
	Cur	917.3	620.3	646.3	668.3	069.0
Saudi Arabia	R	159.11	327.5	858.7	621.7	762.0
	Cur	768.3	746.3	751.3	246.3	062.0
Oman	R	551.7	367.3	236.5	284.5	382.0
	Cur	386.0	383.0	385.1	226.0	017.0
Iran	R	366.2	408.0	312.1	225.1	217.0
	Cur	000.1800	000.1000	000.1500	000.1500	000.800

6.2. Stationary test

The stationary test results of the research variables are presented in the table below. The generalized Dickey-Fuller test was used to determine the stationary state of the research variables. The results of this test indicate

that the independent, dependent and control variables of the research during the research period were at the appropriate stationary state. Because the probability value of t-statistic for the test was less than 5%.

Table 2: Stationary test results

Country	Exchange rate		Market return	
	t-statistics	t-statistics prob.	t-statistics	t-statistics prob.
Bahrain	-3.88382	0.0035	-3.34627	0.0163
Oman	-6.36102	0	-2.92746	0.0471
Saudi Arabia	-2.90595	0.0042	-2.07817	0.037
Qatar	-4.53898	0.0027	-2.0962	0.0355
UAE	-8.17772	0	-1.96207	0.3027
Iraq	-4.88446	0.0001	-2.07817	0.037
Iran	-2.90595	0.0042	-2.92746	0.0471

6.3. Heteroscedasticity test

The variance is not constant during the random process of the desired series and is a function of the behavior of the error sentences. ARCH models can explain the conditional variance trend based on their past information and are used for time series that fluctuate

and their variance changes over time. Therefore, the model can be estimated using GARCH methods when the existence of conditional heteroscedasticity is confirmed by the ARCH effect test. The output of the ARCH effect test confirms the existence of heteroscedasticity in the models used.

Table 3: Results of heteroscedasticity test

Bahrain	F-statistic	156.7253	Prob. F(1,70)	0
	Obs*R-squared	49.77046	Prob. Chi-Square(1)	0
Oman	F-statistic	5.812371	Prob. F(2,68)	0.0047
	Obs*R-squared	10.36558	Prob. Chi-Square(2)	0.0056
Saudi Arabia	F-statistic	264.5144	Prob. F(1,70)	0
	Obs*R-squared	56.93339	Prob. Chi-Square(1)	0
Qatar	F-statistic	56.50839	Prob. F(1,70)	0
	Obs*R-squared	32.16075	Prob. Chi-Square(1)	0
UAE	F-statistic	88.60113	Prob. F(1,70)	0
	Obs*R-squared	40.22217	Prob. Chi-Square(1)	0
Iraq	F-statistic	4.365738	Prob. F(1,70)	0.0403
	Obs*R-squared	4.226854	Prob. Chi-Square(1)	0.0398
Iran	F-statistic	99.71284	Prob. F(1,70)	0
	Obs*R-squared	42.30278	Prob. Chi-Square(1)	0

6.4. Research hypothesis testing

The research hypotheses are tested by examining the correlation between each pair of series at a specific point in time that can be conditioned by the division of covariance on the deviation of conditional criteria. One alternative approach could be to model the dynamics directly by correlation. The fixed conditional correlation model is an alternative method for reducing the number of parameters within a multivariate GARCH model. Although conditional covariance are not constant, their variance to conditional correlations

can be assumed to be constant. In this model, the conditional variance-covariance matrix is modeled separately by the conditional correlation matrix and the conditional variance matrix (Krippner, 2013). The output results of the fixed conditional correlation model are presented in Table 4. In this model, it is shown that there is a constant conditional correlation between the return of the stock market index and the exchange rate in a positive way in the markets of the studied countries.

Table 4: Fixed conditional correlation model output

Country	Variable	Coefficient	SD	z-statistics	Prob.
Bahrain	R	13.25530	5.215447	2.541547	0.0110
	Cur	-16.05498	13.82749	-1.161092	0.2456
Oman	R	-115.1979	1.422941	-80.95765	0.0000
	Cur	321.3885	3.700836	86.84214	0.0000
Saudi Arabia	R	48.65836	2.367132	20.55583	0.0000
	Cur	-10.57563	0.632120	-16.73041	0.0000
Qatar	R	9.622905	1.542948	6.236700	0.0000
	Cur	-0.441654	0.423847	-1.042012	0.2974
UAE	R	-443.9452	0.207567	-2138.806	0.0000
	Cur	123.1614	0.055246	2229.307	0.0000
Iraq	R	49.89338	5.444078	9.164707	0.0000
	Cur	-6.165931	0.769523	-8.012665	0.0000
Iran	R	4.591974	0.008060	569.7028	0.0000
	Cur	3200.200	19.83435	161.3464	0.0000

6.5. The results of vector GARCH and volatility spillover model

In this section, the research hypothesis is tested and the model outputs are summarized in Table 5.

The outputs from the table show that the GARCH model is confirmed in the equations related to the study of Bahrain, Oman, Saudi Arabia, Qatar, UAE and Iraq, and there is a symmetrical spillover of fluctuations between the foreign exchange market and stock market returns. Given the stability that exists in the economies of these countries and leads to stability in the value of the national currency and decrease in exchange rate fluctuations, we see a symmetrical relationship between the fluctuations and the stock market returns of these countries.

The results obtained in the table of outputs for Iran show that there is an asymmetric fluctuation spillover between the foreign exchange market and stock market returns. Since volatility spillovers have an aspect of asymmetry in bad news, the impact of bad news on

spillover is greater than good news. Therefore, in different markets, negative exchange rate fluctuations can affect the capital market more than positive fluctuations. Thus, it can also be said that there is a spillover of fluctuations from the foreign exchange market to the capital market in the same direction but asymmetrically. This can be considered as coming from the channel of investors' expectations in the continuity of volatility transfers between the two markets.

Therefore, in the general case, the assumption that currency fluctuation in the capital market affects the capital market returns in different countries and markets is confirmed.

Exchange rates can affect the capital market in a number of ways. Although there is no theoretical consensus based on research conducted in different countries on the volatile relationship between the stock market and foreign exchange, this is the case for the country's financial sector, considering the type of

correlations and positive asymmetric spillover, and the current view of the capital market. Thus, dollar fluctuations interact negatively with the capital market index in the form of cross-sectional and return effects, and positive values of the conditional correlation for

the dollar currency are interpreted as long-term stability in the same direction as fluctuations in dollar price returns with the index. This will create levels of connectivity between the two markets.

Table 5: Output of vector GARCH and volatility spillover model

Country	Variables	Coefficient	SD	z-statistics	Prob.
Bahrain	M(1,1)	0.000429	0.000789	0.543752	0.5866
	A1(1,1)	0.998613	0.295205	3.382783	0.0007
	A2(1,1)	0.001000	813.7291	1.23E-06	1.0000
	B1(1,1)	0.161726	4.858228	0.033289	0.9734
Oman	M(1,1)	0.000379	0.001563	0.242453	0.8084
	A1(1,1)	0.807843	0.351057	2.301176	0.0214
	A2(1,1)	0.001000	508.4910	1.97E-06	1.0000
	B1(1,1)	0.637445	0.758331	0.840590	0.4006
Saudi Arabia	M(1,1)	0.000348	0.000650	0.535787	0.5921
	A1(1,1)	0.908698	0.286700	3.169509	0.0015
	A2(1,1)	0.000196	2541.982	7.70E-08	1.0000
	B1(1,1)	0.518901	0.554806	0.935284	0.3496
Qatar	M(1,1)	0.001484	0.060310	0.024613	0.9804
	A1(1,1)	1.011771	0.208178	4.860127	0.0000
	A2(1,1)	4.34E-11	4.79E+11	9.08E-23	1.0000
	B1(1,1)	1.28E-09	1.59E+10	8.05E-20	1.0000
UAE	M(1,1)	0.000305	0.000464	0.655871	0.5119
	A1(1,1)	0.691669	0.272601	2.537298	0.0112
	A2(1,1)	0.000871	291.1359	2.99E-06	1.0000
	B1(1,1)	0.706278	0.301276	2.344291	0.0191
Iraq	M(1,1)	0.001877	185.9953	1.01E-05	1.0000
	A1(1,1)	1.001980	0.222506	4.503164	0.0000
	A2(1,1)	4.29E-06	1.16E+10	3.71E-16	1.0000
	B1(1,1)	1.61E-06	3.08E+10	5.22E-17	1.0000
Iran	M(1,1)	8.97E-06	7.98E-05	0.112359	0.9105
	A1(1,1)	1.447038	0.185581	7.797332	0.0000
	A2(1,1)	-6.00E-06	1531362.	-3.92E-12	1.0000
	B1(1,1)	-1.32E-06	3320728.	-3.98E-13	1.0000

7. Discussion and Conclusion

One of the strong levers of stock market expansion is the price and return index, which is influenced by many internal and external factors. Among the internal factors in the field of companies is how to finance the companies listed in the stock market and what is the volume of shareholders' equity in minimizing financing costs or capital costs and consequently how they are effective in increasing the stock market value of companies (Belke et al., 2018). External factors are also outside the scope of companies' decisions and changes in them can of course affect the profitability

and stock value of these companies. Institutional factors, especially exchange rate fluctuations, are external factors that affect the stock price index and the resulting return. In fact, exchange rate fluctuations, by providing stability or instability, pave the way for the presence and absence of investors and the productivity of listed companies in the stock market by reducing transaction costs, leading to stock demand and ultimately, increased stock market returns (Klops and Krippner, 2016).

In fact, the investor can increase the stock purchase share of companies listed in the stock market

in his portfolio and provide the basis for increasing the price index and cash return of the stock market when there is a good stability index in the country. When markets are interconnected, investors can be affected by news, economic, legal, socio-political, environmental, business, and innovative market scenarios. Facilitating financial transactions, financial innovations, deregulation in financial markets, and advances in information technology have facilitated capital transfers and market interconnectedness. Also, portfolio management, taking into account the international components and the role of foreign investment in the transfer of resources, has led to a greater connection between national markets and international trends. In this study, an attempt was made to compare the effect of exchange rate fluctuations on the capital market returns of Arab OPEC member countries and Iran. The research period was 2016-2021 and the stock market information of Tehran and Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain were selected as the statistical population of the research.

Findings obtained from the experimental data testing showed that currency fluctuations in the capital market affect the returns of the capital markets of Iran, Iraq, UAE, Qatar, Saudi Arabia, Oman, and Bahrain. This result tries to reveal and fill the gap of literature review in this field. The obtained results need to consider the macro and micro-economic dimensions of the countries under study, especially the capital markets of these countries. The specific characteristics of the capital market of each country also have different effects. This result is according to the innovation of the research as no other research in this field do the comparative research and all of them just do the research in one country.

Based on the results obtained from the analysis of research variables, it can be predicted that the stock markets of Iraq, UAE, Qatar, Saudi Arabia, Oman and Bahrain are less affected by negative news and the effect of negative news is not more than positive news. However, it can be stated that the effect of negative news on the spillover of exchange rate fluctuations in the Iranian stock market, which affects the market index, is greater than positive news. In other words, the slightest negative news that is published in the financial and monetary markets will affect the spillover of currency fluctuations, and this in turn will affect the stock market index.

Given the listing of stocks of different companies on the stock exchange and OTC, identifying how the capital market and stock prices are affected by currency fluctuations is important for stakeholders including the government, regulatory body, managers and shareholders and can play a decisive role in strategic decisions. Also, an in-depth understanding of the mechanisms of conditional correlation and volatility spillover provides information on the dimensions of fundamental capital market analysis with an emphasis on exchange rate fluctuations, which seems to be the missing link in financial analysis. However, spillover mechanisms in stock price management are important for companies, because having information about the impact of exchange rate spillover can be useful in strategy selection, diversification, and scenario analysis to reduce the investment risk in various projects and or the result of financial performance and exchange rates in the form of portfolio adjustments.

References

- 1) Andreou, E., Matsi, M., & Savvides, A. (2013). Stock and foreign exchange market linkages in emerging economies. *Journal of International Financial Markets, Institutions and Money*, 27, 248-268.
- 2) Antonakakis, N., & Gabauer, D. (2021). International monetary policy spillovers: Evidence from a time-varying parameter vector autoregression, *International Review of Financial Analysis*, 166, 117-138.
- 3) Belke, A., Dubova, I., & Volz, U. (2018). Bond yield spillovers from major advanced economies to emerging Asia. *Pacific Economic Review*, 23(1), 109-126.
- 4) Claus, E., Claus, I., & Krippner, L. (2016). Monetary policy spillovers across the Pacific when interest rates are at the zero lower bound. Reserve Bank of New Zealand discussion paper series dp2016/08.. Reserve Bank of New Zealand.
- 5) Dale- Olsen, H., 2012. Executive pay determination and firm performance - Empirical evidence from a compressed wage environment. *The Manchester School*, 80(3), pp.355-376.
- 6) Diebold, F. X., & Yilmaz, K (2012). Better to give than to receive: Predictive directional measurement of volatility spillovers. *International Journal of Forecasting*, 28(1), 57-66.

- 7) Engle, R. F., & Kroner, K. F. (1995). Multivariate simultaneous generalized ARCH. *Econometric theory*, 11(1), 122-150.
- 8) Engle, R. F., & Susmel, R. (1993). Common volatility in international equity markets. *Journal of Business & Economic Statistics*, 11(2), 167-176.
- 9) Garcia-de Andoain, C., & Kremer, M. (2017). Beyond spreads: Measuring sovereign market stress in the Euro Area. *Economics Letters*, 159, 153–156.
- 10) Kang SH, Uddin GS, Troster V, Yoon S-Min, (2021) Directional Spillover Effects between ASEAN and World Stock Markets, *Journal of Multinational Financial Management*, doi: <https://doi.org/10.1016/j.mulfin.2021.100592>
- 11) Kim, S., Lee, B.-S., 2015. Spillover effects of the U.S. financial crisis on financial markets in emerging Asian countries. *International Review of Economics & Finance* 39, 192-210.
- 12) Kim, S., Lee, J.-W., 2012. Real and financial integration in East Asia. *Review of International Economics* 20 (2), 332-349.
- 13) Kohonen, A., 2013. On detection of volatility spillovers in overlapping stock markets. *Journal of Empirical Finance*, 22, pp.140-15
- 14) Korobilis, D., & Yilmaz, K. (2018). Measuring dynamic connectedness with large Bayesian VAR models. Technical report.. University of Essex, Essex Business School.
- 15) Krippner, L. (2013). A tractable framework for zero lower bound Gaussian term structure models. Reserve Bank of New Zealand discussion paper series dp2013/02.. Reserve Bank of New Zealand.
- 16) Li, Y., Giles, D.E., 2015. Modelling volatility spillover effects between developed stock markets and Asian emerging stock markets. *International Journal of Finance & Economics* 20 (2), 155-177.
- 17) Mensi, W., Hammoudeh, S., Kang, S.H., 2017a. Dynamic linkages between developed and BRICS stock markets: portfolio risk analysis. *Financial Research Letters* 21, 26-33.
- 18) Mensi, W., Al-Yahyaee, K.H., Kang, S.H., 2017b. Time-varying volatility spillovers between stock and precious metal markets with portfolio implications. *Resources Policy* 53, 88-102.
- 19) Morales-Zumaquero, A., & Sosvilla-Rivero, S. (2016). Volatility Spillovers between Foreign-Exchange and Stock Markets. *The Quarterly Review of Economics and Finance*. Volume 70, Pages 121-136.
- 20) Nakamura, E., & Steinsson, J. (2018a). High frequency identification of monetary non-neutrality: The information effect. *Quarterly Journal of Economics*.
- 21) Santamaria, G.S., Gomez-Gonzalez, J. E., Hurtado-Guarin, J. L., & Melo-Velandia, L. F. (2017). Stock market volatility spillovers: Evidence for Latin America. *Finance Research Letters*, 20, 207-216.
- 22) Tillmann, P. (2016). Unconventional monetary policy and the spillovers to emerging markets. *Journal of International Money and Finance*, 66, 136–156.
- 23) Xiong, Z. & Han, L. (2015). Volatility spillover effect between financial markets: evidence since the reform of the RMB exchange rate mechanism. *Financial Innovation*, Volume 1(1).
- 24) Wu, J. C., & Xia, F. D. (2016). Measuring the macroeconomic impact of monetary policy at the zero lower bound. *Journal of Money, Credit and Banking*, 48(2-3), 253–291.
- 25) Zhang, B., Wang, P., (2022). Return and volatility spillovers between China and world oil markets. *Economic Modelling* 42, 413-420.