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## Article

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## Oil Exports, Political Issues, and Stock Market Nexus

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### ABSTRACT

This study investigates the influence of oil export and political issues on Iraq's stock exchange using various Ordinary Least Square regression models. The empirical results show that the model's effect is not similar based on the explanatory variables included, such as the Covid-19 outbreak, financial crisis, parliament elections, and ISIS emergence are not significant. In contrast, the internal conflict, oil export, and oil prices are substantial effects on the index of the Iraq stock exchange from (2004 to 2021); researchers in the literature have neglected this market due to its novel establishment after (2003). Moreover, the market capitalization still considers very small compared to the regional financial markets. The study contributes to the existing knowledge because most studies on stock market determinants consider political, economic, democratic, or governmental factors. In contrast, here, most elements included using new measurements, such as the internal conflict by cutting off the financial share of the Kurdistan region from the central state budget. Finally, the analysis incorporates the conclusions with straightforward suggestions that policymakers can use, government, investors, and supervisors to control the stock market risk.

**Keywords:** Iraq, Energy, Political Issues, Stock Exchange

**JEL Classifications:** K32, Q43, F5, D53

### 1. INTRODUCTION

The stock market plays a critical role in all economic activities via moving funds from the lender to the borrower regardless of sector type (Mohammed and Habib, 2015; Brihi and Fadil, 2018). Capital market indicators are vital for economic growth in various economic sectors such as industry, services, investment, and banking (Siwan, 2016). Therefore, economic instability happened due to the stock market collapse, and actual economic development needs financial stability (Odeh et al., 2020). Also, stock market volatility leads to fear among investors. It can have a significant adverse knock-on impact on the whole economy due to recently the movement of the stock market becoming popular and an exciting topic among scholars and economists in developed or emerging countries (Hashem et al., 2020; Alkayed et al., 2022).

Besides, financial markets are affected by various factors based on the Arbitrage Pricing Theory (Mustafa, 2020). The Covid-19 effects on the economy have been studied in detail since the pandemic's spread became a global issue in 2020. Most researchers focused on the effect of the pandemic on the stock market indicators and economic activities in the short and long term (Aslam et al., 2020; Bahrini and Filfilan, 2020; Devpura, 2021; Hatmanu and Cautisanu, 2021; Kyriazis, 2021; Nwosa, 2021; Yilmazkuday, 2021). Although nevertheless, the Covid-19 outbreak would probably continue with a negative effect on financial markets if the vaccination process did not start by the public people in March 2021 (Alkayed et al., 2022; Asaad and Al-Delawi, 2022). The vaccine discovery led to the ending of the unexpected government procedure (Rouatbi et al., 2021; Apergis et al., 2022) and decreased the uncertainty of economics (Unal et al., 2022).

Further, oil export changes or oil prices fluctuation have been under attention since the seventies of the twentieth century, and studied their consequences in the short intensely- and long term on the stock market performance (Jain and Biswal, 2016; Shabbir et al., 2020; Nguyen et al., 2020; Kyriazis, 2021; Nwosa, 2021), due to the significant role of oil in economic development as an engine for the national economy in exporting or importing countries (Bash and AL Qureshi, 2017; Al-Falahi and Battal, 2021). Additionally, country risks and bad government practices such as political instability, internal conflict, violent activities like ISIS emergence, and non-democracies practices, potentially the financial institution affected adversely via country risks like the economic environment, social conditions and events, and political developments (Asaad and Marane, 2020a; Chien et al., 2021).

Iraq faced several economic and financial challenges, and crises following the Iraq war in march 2003 (Asaad, 2014), the liberalization of the capital account and oil export increased after the ending of economic sanctions against Iraq on May 2003, and the weakness of the Iraqi economy against external shocks such as oil volatility in spite of stabilization of the economy after invasion operation in Iraq but still, the country struggled with several extraordinary conditions such as the escalation of violence due to sectarian conflicts in 2005 (Al-Falahi and Battal, 2021), Islamic State (ISIS, ISIL, Daesh) occupied about (40%) of Iraq territory including Mosul as the second largest city in 2014 (Wilson Center, 2017), lacking industrial production, the deterioration of infrastructure, and heavy dependence on good imports (Brihi and Fadil, 2018). Also, because Iraq is a net oil exporter and an emerging economy, hence any drop in oil prices had a negative significant reflection on the economy's financial market performance through the government austerity policies (Hashem et al., 2020), the suspect corruption in the currency auction conducted by the central bank as part of monetary policy in order to stabilize the local currency (Dagher and Mohamed, 2017), and on December 19, 2020, the Central Bank approved the devaluation of the Iraqi dinar against the Dollar by (22%). Moreover, the small size of the market capitalization to economic activities, the weak trading volume of the market, and weak interaction with regional or international stock markets due to the short period of the market establishment (Kaehler et al., 2014; Asaad, 2014), because of that the Iraqi stock exchange is none efficient at a weak form because it offers the opportunities to use past information to obtain the profit (Ghalibi and Abod, 2016; AL-Shakurji and Chaqmaqchi, 2019; Hamed and Mohammed, 2021).

Even though several studies highlighted the developed and developing stock markets, Iraq is still an exceptional case yet to receive the required attention in past studies. Hence, needs more studies have attention to determining the factors that create stock market volatility in Iraq because of low performance and revealed that all sectors' performance indicators in Iraq were a decline (Siwan, 2016; Hashem et al., 2020). Despite a substantial and driving development in the Iraq stock exchange, the electronic trading system increases the liquidity and diversification of traded tools (Kaehler et al., 2014; Abdel-Hakim and Dalloul, 2016). Meanwhile, Iraq faces several challenges as an oil-exporting or developing country, such as economic conditions, political events,

energy prices, financial crisis, Arab spring, wars, and global diseases like the covid-19 pandemic (Alwan et al., 2013; Missaoui et al., 2018; Asaad, 2021; Asaad and Al-Delawi, 2022). For instance, researchers have no consensus yet on energy production, political issue, economic factors, and the stock market nexus (Ali et al., 2020; Shabbir et al., 2020; Nguyen et al., 2020). Despite Iraq being a member of the thirteen countries' representative system of the Organization of the Petroleum Exporting Countries (OPEC) since 1960, Iraq's economy was still not of interest in the literature.

As stated, the study aims to investigate the integration of healthcare disease, political instability, and oil shocks indicators with the Iraq stock exchange performance using Ordinary Least Square for the period (2004-2021) to test the effects of change over time of two explanatory factors on the dependent variable. In addition, the results present a necessary policy implication to improve portfolio diversification strategies and assist investors in predicting the shocks that lead to stock price volatility. The study is organized into five parts. The second part comes after the introduction and presents reviewing of some previous studies from the literature. Research methodology is presented in the third part, while parts fourth and fifth cover the discussion of empirical results, conclusion, and suggestions for further studies, respectively.

## 2. LITERATURE REVIEW

According to the Arbitrage Pricing Theory, not only one factor affects the financial market but many factors (Mustafa, 2020); several studies tested and highlighted the theory in developed and developing stock markets and are still exceptional cases of interest to scholars or researchers like economic factors, political events, energy prices, financial crisis, Arab spring, wars, global healthcare disease such as a covid-19 pandemic (Missaoui et al., 2018; Abuoliem et al., 2019; Asaad, 2021; Asaad and Al-Delawi, 2022). However, researchers do not have a consensus on energy production, political issue, economic factors, and the stock market nexus (Ali et al., 2020; Shabbir et al., 2020; Nguyen et al., 2020).

### 2.1. Stock Market and Explanatory Variables

The Covid-19 pandemic, after spread clearly at the beginning of (2020) led to an inverse effect on the financial market and economic activities, particularly after the Covid-19 new cases increased (Ashraf, 2020; Aslam et al., 2020; Bahrini and Filfilan, 2020; Devpura, 2021; Hatmanu and Cautisanu, 2021; Kyriazis, 2021; Nwosa, 2021; Yilmazkuday, 2021; Yousfi et al., 2021). On the contrary, the Covid-19 vaccine discovery led to reducing economic uncertainty and international financial markets volatility (Demir et al., 2021; Rouatbi et al., 2021; Apergis et al., 2022; Asaad and Al-Delawi, 2022; Nguyen et al., 2022; Unal et al., 2022). Besides, the developed stock markets are more sensitive to the Covid-19 pandemic than the emerging stock market (Salisu et al., 2020). Moreover, many studies' results presented evidence of interdependence and interactions among the regional or global stock market indicators (Komlavi, 2010; Patel, 2017; Meng and Huang, 2019; Jiang and Yoon, 2020; Hung, 2021; Matar et al., 2021), especially during the global economic decline (Aloui and Hkiri, 2014; Shahzad et al., 2017). Nevertheless, studies found very high fluctuation in the stock market during the Covid-19

period, even higher than the financial crisis or global recession (Shehzad et al., 2021; Alkayed et al., 2022).

The connection between political and economic decision-makers is meaningful (Caporale and Grier, 2005). Therefore, political system stability nowadays has been a more exciting topic and has become one of the determinants of emerging and developing financial markets (Cherif and Gazdar, 2010; Moussa and Talbi, 2019; Modugu and Dempere, 2020). It means that instability leads to internal conflict, no democratic practice, and bad governance. As a result, the investors flee from an environment with high risk and less progress in economic activities, including stock market performance (Chen et al., 2005; Abdelbaki, 2013; Asaad and Marane, 2020a). So, inconsistency was found based on many studies with different results on political risk impact on the stock market (Chen et al., 2005; Cherif and Gazdar, 2010; Abdelbaki, 2013; Chau et al., 2014; Zaiane, 2018).

In general, global economic development and stock markets are affected negatively by terrorism activity, exposing investment to high-risk and uncertain conditions (Moussa and Talbi, 2019). Currently, terrorism events have been a concerning matter to the financial market and make investors flee (Geyikci and Tepeci, 2017; Hadhek et al., 2019). Therefore, several studies found that the stock market is significantly affected by terrorism events (Bilal et al., 2012; Alam, 2013; Christofis et al., 2013; Arif and Suleman, 2014; Hassan et al., 2014). In addition, small and emerging markets are more critical to terrorism activities (Arin et al., 2008; Nguyen and Enomoto, 2009; Kollias et al., 2011; Gadhoun et al., 2017; Zaiane, 2018).

Recently, different researchers and market analysts presented studies investigating the influence of the election process on the stock market (Blanchard, 2018; Li et al., 2018). Political uncertainty profoundly influences almost all market sector risk-return profiles with different intensity levels (Ahmed, 2017). Therefore, the stock market is affected by elections by influencing government policies and corporate governance (Blanchard et al., 2018).

Moreover, the energy sources like oil consider an engine for the national economy in exporting or importing countries due to the significant role of oil in economic development; hence, any change in oil price leads to stock market volatility (Asaad, 2021). The oil price is a type of factor that affects the stock market two-sided (Prabheesh et al., 2020; Nguyen et al., 2020; Nwude et al., 2021). Also, oil prices sharply changed during exceptional conditions like wars, financial crises, Covid-19 outbreak (Alemzero et al., 2021; Shehzad et al., 2021), which reflected adversely on the stock market (Chien et al., 2021; Nwosa, 2021).

Besides, there is still no agreement despite many studies have been conducted on the long-run relationship between the Iraq stock exchange indicators and macroeconomics variables (Al-Mamouri and Al-Zubaidi, 2014; Bash and AL Qureshi, 2017; Yarah, 2018; Hassan and Sabah, 2019; Mustafa, 2020; Alsaor and Al-Jweiatee, 2021; Asaad, 2021). Moreover, most studies mentioned that Iraqi policy maker needs to put more effort into activating the fiscal and

monetary functions to make the market efficient and effective in economic development (Mustafa, 2020), while other confirmed that the Iraq stock exchange index might consider an indicator on the direction of future economic activity (Al-Mamouri and Al-Zubaidi, 2014; Brihi and Fadil, 2018), meanwhile studies emphasized on the stability of the stock exchange is a measure of the success of the national economic policy (Al-Musawi et al., 2018). In addition, study results found a positive relationship between foreign direct investment and some Iraq stock exchange indicators (Murshedi, 2017).

The above review shows that many studies investigated the linkage between stock market performance and the Covid-19 pandemic, financial crisis, election process, political instability, terrorism, and oil price volatility. While on the contrary, few studies have been conducted on the Iraq stock exchange (Asaad and Marane, 2020a). The motivational factors for this study are as follows; firstly, most previous studies' results cannot be generalized to the Iraq stock market regarding the political instability, governance system, geopolitical location, internal challenge or conflict, and terrorist activities. Second, each context has its own factors leading to stock market volatility. Third, despite the interest of bankers, policymakers, and academics in stock market determinants, there is still a deficiency of studies in Iraq. Fourth, most of the past studies on the stock market in the MENA or GCC region excluded the Iraq stock exchange; therefore, more single-country studies on this market are needed. Fourth, no studies mention the influence of the covid-19, ISIS, or election on the Iraq stock exchange (Asaad and Marane, 2020a; Asaad, 2021; Asaad and Al-Delawi, 2022). Because of that, the study is different from others due to the lack of investigation on developing countries or oil-exporting countries like Iraq during the period of 2004 to 2021, which faced many local and global fluctuations, oil price volatility, financial crisis, Covid-19, increasing terrorism activities, Arab spring, wars and internal conflict, where stock market responded adversely to all these factors. As a result, the study aims to fill this gap by centering on the stock market determinants in Iraq using a new perspective of measurement of the categorical (dummy or indicator) explanatory variables for the period (2004-2021).

Similarly, many studies present evidence that the stock exchange in Iraq was affected negatively by an ineffective banking sector, the absence of the rule of law, corruption, and lack of transparency (Marane and Asaad, 2014); likewise, internal conflict, political instability, terrorism activities, and financial crisis cause to decline the development of Iraq stock exchange performance (Alwan et al., 2013; Asaad and Marane, 2020a). Furthermore, the studies result highlighted the case of the influence of oil price on the stock market are still debatable (Kyriazis, 2021; Nguyen et al., 2020; Nwosa, 2021); in addition, the oil price changed sharply during the period of the Covid-19 pandemic (Gharib et al., 2020; Alemzero et al., 2021; Shehzad et al., 2021).

Finally, this study contributes to the existing body of knowledge as follows; firstly, after deeply searching the literature found out there is no study that has investigated the determinants of the Iraq stock exchange considering the study set of explanatory variables such as internal conflict. Second, it concentrates on

the Iraq stock exchange, which researchers in the literature have neglected due to its novel establishment after 2003. Third, the number of studies on stock market determinants considers political, economic, democratic, or governmental factors, while analyses combine all factors in this study. Fourth, the study used new measurements for all categorical explanatory variables. Oil was measured when the price and export exceeded the peak instead of using oil prices per barrel such as Texas Intermediate, Brent, or OPEC price. Also, this is the first study using the internal conflict measured by cutting off the financial share of the Kurdistan region from the central state budget. Fifth, the study incorporates the conclusions with straightforward suggestions that policymakers can use, government, investors, and supervisors to control the stock market risk.

## 2.2. Iraq Stock Exchange Background

The Baghdad Stock Exchange (BSX) from its established in (1991) until the end of the Iraq regime in (2003); the government, through the ministry of finance in Iraq, ruled the market during this period. The market was closed by the Iraqi government before the war started against the Iraqi regime, then order (74) issued in (2004) determined the Iraq stock exchange board of governors (Asaad, 2014).

The new stock exchange in Iraq continues to operate with less liquidity and high volatility due to the differences between listed and traded stocks nearly half of the stocks listed were not being traded during the whole year of (2021) (ISX annual report, 2021). Moreover, after the Covid-19 outbreak, the market witnessed development exceeding double in stock trading and trouble in traded stock value. At the same time, the Iraq stock exchange capitalization was less than (0.3%) of the total Arab markets' capitalization.

The primary market's trading indicators movement for the period (2004-2021) is shown in Figure 1. Also, Table 1 clarify that the ISX60 index registered the highest value in (2015), the highest trading volume in (2013), the highest trading share in (2017), and the highest capitalization in (2021). In general, the main stock index has risen since (2014), and the number of companies traded and listed has risen since (2017).

## 2.3. Variables Definitions

The current study includes two types of variables: a dependent variable and an independent variable as follows.

### 2.3.1. Dependent variable

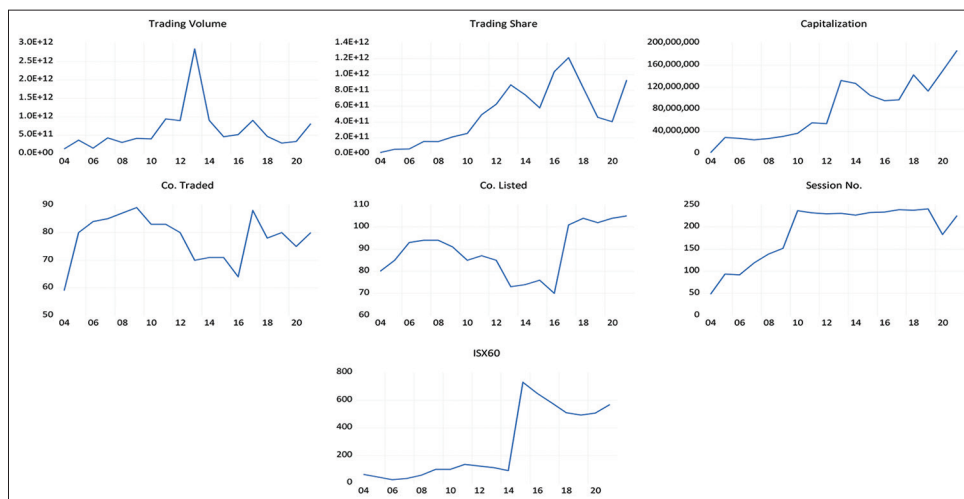
The prominent role of the stock exchange is as a financial intermediary of lending and borrowing funds between the non-financial economic units to produce goods and services in the economy. A financial market is a place or channel for buying and selling financial securities such as stocks and bonds to contribute to economic growth by allocating funds is determined effectively and efficiently (Faure, 2013; Elhassan and Braima, 2020). The study dependent variable refers to the Iraq stock exchange performance measured by the main index Iraqi stock exchange closing price for sixty selected companies (ISX60) which has been widely used in earlier studies (Mustafa, 2020; Asaad and Marane, 2020a; Asaad, 2021).

### 2.3.2. Independent variables

The independent variables are in the categorical scale used in this study as follows (Asaad and Marane, 2020b):

1. Covid-19 Outbreak: The value of the period (2004-2019) is equal to zero (0), meaning the period without the existence of the Covid-19 outbreak, while the period (2020-2021) is equal to one (1).
2. Financial Crisis (FC): The value of the period except (2007-2008) is equal to zero (0), meaning the period is without the existence of the financial crisis, while the two years are equal to one (1).
3. Internal conflict (IC): The value of the period (2004-2013) is equal to zero (0), meaning the period without the existence of the tension between the central government in Baghdad and the Kurdistan region measured by Cutting off the financial share from the central state budget, while the period (2014-2021) is equal to one (1).
4. Iraq Parliament Election (IPE): The value of the year without an Iraq parliament election is equal to zero (0), while the year with Iraq parliament elections is equal to one (1).
5. ISIS Emergence: The value of the period except (2013-2015) is equal to zero (0), meaning the period without the existence

Figure 1: Iraq stock exchange main trading indicators for the period (2004-2021)



**Table 1: Iraq stock exchange main trading indicators by iraqi dinner for period (2004-2021)**

Year	Trading Volume	Trading Share	Capitalization	Co. Traded	Co. Listed	Session No	ISX60
2004	127,950,794,521	14,393,676,668	1715503	59	80	48	64.66
2005	366,809,833,896	55,639,194,917	29106053	80	85	94	45.64
2006	146,891,383,748	57,974,907,158	27641864	84	93	92	25.29
2007	427,367,466,114	152,990,975,885	24920229	85	94	119	34.59
2008	301,350,341,360	150,853,102,359	27417024	87	94	139	58.36
2009	411,928,166,561	211,290,601,162	31259250	89	91	152	100.86
2010	400,359,889,406	255,659,508,500	36821218	83	85	237	100.98
2011	941,198,207,505	492,371,557,351	55521663	83	87	232	136.3
2012	893,825,279,307	625,639,963,322	54264864	80	85	230	124.14
2013	2,840,220,313,948	871,182,103,309	132446403	70	73	231	113.15
2014	898,315,988,958	743,852,399,937	127061651	71	74	227	92
2015	456,179,755,871	579,640,287,333	105464572	71	76	233	730.56
2016	515,956,944,318	1,038,229,751,662	95822558	64	70	234	649.48
2017	900,154,220,191	1,215,082,161,610	97292896	88	101	239	580.54
2018	466,476,989,349	832,630,977,024	142279647	78	104	238	510.12
2019	284,914,117,424	460,097,146,400	113142429	80	102	241	493.76
2020	330,385,118,079	403,315,836,085	149462622	75	104	183	508.03
2021	812,698,567,867	930,597,155,346	186688882	80	105	226	569.2

Source: Iraq stock exchange annual reports, 2004-2021

- of the Islamic State in Iraq and Syria, while the three years are equal to one (1).
6. OE-3.5M: The value of the period (2004-2014) is equal to zero (0), meaning the period with oil export of fewer than 3.5 million barrels per day, while the period (2015-2021) is equal to one (1).
  7. Op-100: The value of the period except (2011, 2012, 2013, 2021) is equal to zero (0), meaning the period with an oil price of fewer than (100) dollars per barrel, while the four years are equal to one (1).

The guideline is that if the independent variables (Covid-19 outbreak, financial crisis, internal conflicts, ISIS, parliamentary elections, oil exports exceed 3.5 million barrels per day, and oil prices exceed 100 dollars per barrel) become significant. The coefficient is positive, which means that the independent variable affects the Iraq stock exchange as the dependent variable.

## 2.4. Hypothesis Development

The study hypothesis has been built based on the reviewing of the literature and the context characteristics of Iraq's economy; hence the following hypothesis is constructed as follows:

H1: There is a significant effect of the (Covid-19 outbreak, financial crisis, internal conflict, parliament elections, ISIS emergence, oil export, and oil price) on the Iraq stock exchange index cover (2004-2021) period.

H2: There is a significant interaction effect between the (Covid-19 outbreak, financial crisis, internal conflict, parliament elections, ISIS emergence, oil export, and oil prices) on the Iraq stock exchange index cover (2004-2021) period.

## 3. METHODOLOGY

### 3.1. Design

This empirical study analyzes the Iraq Stock Exchange's performance after the Iraq regime changed in 2003. The study

period covered the period between 2004 and 2021. In general, this period witnessed and faced different dramatic movements after becoming an open system characterized by voting parliamentary elections, more freedom in economics, political instability, undesirable social events, sectorial conflict, and securities challenges, these factors affect the business environment and state production, economic sectors and activities, then stock return development (Figure 2). Therefore, the stock market performance in Iraq was analyzed during this period which faced a variety of challenges, for instance, covid-19, financial crisis, internal conflict, parliament elections, terrorism, oil export changes, and oil price volatility as shown in Table 2.

### 3.2. Scope and Data Sources

The study used secondary data to measure the annual time series of stock market development by the general index of Iraq stock exchange closing price (ISX60) as a dependent variable gathered from the annual market reports for the period (2004-2021). While, the independent variables were not in numerical values due to the specialty of the factors or subjects under study, which appears in dummy variables, also called nominal or categorical scale variables, such as the period of existence of the Covid-19 outbreak, financial crisis, internal conflicts, ISIS, parliamentary elections, oil export exceeds the 3.5 million barrel per day and oil price exceeds the 100 dollars per barrel. The data were obtained from different sources, databases, publications, or annual reports such as the database of the World Bank, the United Nations Conference on Trade and Development, the United Nations Development Program, and the US Energy Information Administration, as shown in Table 3.

### 3.3. Limitations

The study used a specific model with international and local events such as healthcare, political, financial, and energy factors only on the stock market and not including other variables; also, the study was determined for eighteen years over the period (2004-2021). Moreover, the study was conducted from the perspective of a developing country (Iraq); therefore, the results of the current

**Table 2: Study variables for the period (2004-2021)**

Years	LISX60	COVID_19	FC	IC	IPE	ISIS	OE_35M	OP_100
2004	4.1691	0	0	0	0	0	0	0
2005	3.8208	0	0	0	1	0	0	0
2006	3.2304	0	0	0	0	0	0	0
2007	3.5436	0	1	0	0	0	0	0
2008	4.0666	0	1	0	0	0	0	0
2009	4.6137	0	0	0	0	0	0	0
2010	4.6149	0	0	0	1	0	0	0
2011	4.9149	0	0	0	0	0	0	1
2012	4.8214	0	0	0	0	0	0	1
2013	4.7287	0	0	0	0	1	0	1
2014	4.5218	0	0	1	1	1	0	0
2015	6.5938	0	0	1	0	1	1	0
2016	6.4762	0	0	1	0	0	1	0
2017	6.3640	0	0	1	0	0	1	0
2018	6.2346	0	0	1	1	0	1	0
2019	6.2020	0	0	1	0	0	1	0
2020	6.2305	1	0	1	0	0	1	0
2021	6.3442	1	0	1	1	0	1	1

Source: Researcher's Construction using EViews 12

**Table 3: Variables measurements and data sources**

Variable	Group	Variable	Measurement	Acronym	Data Source
DV	Financial Market	Iraqi Stock Exchange Index	General Index of the closing price	ISXI60	Stock Exchange Annual Reports
IV1	Global health challenge	Covid-19	Existence of the Covid-19 outbreak	Covid-19	Johns Hopkins University (Center Systems Science and Engineering)
IV2	International crisis	Financial Crisis	Existence of Financial Crisis	FC	Word Bank
IV3	Politics	Internal Conflict	The tension between Central and KRG	IC	Iraq local references
IV4	Terrorism	Islamic State in Iraq and Syria	Existence of ISIS	ISIS	International Terrorism Reports
IV5	Elections	Iraq Parliament Election	Number of Iraqi parliaments vote	IPE	Independent High Electoral Commission in Iraq
IV6	Energy Market	Oil export	Oil export exceeds 3.5M	OE-3.5M	US Energy Information Agency
IV7	Energy Market	Oil price	Oil prices exceed 100 \$	OP-100	US Energy Information Agency

Source: Researcher's construction using EViews 12

study are not applicable to other countries due to the privacy of the Iraqi environment in terms of geopolitical risks, despite the presence of other countries similar to the Iraq context in the term of the dependency on the oil sector to fund the state expenditure such as some Gulf Cooperation Council or OPEC members.

### 3.4. Model Specification

The study focused on the influence of seven independent variables (Covid-19 outbreak, financial crisis, internal conflict, Iraqi parliament elections, Islamic State in Iraq and Syrian emergence, oil export exceeding (3.5) million barrels per day, oil price exceeding (100) dollars per barrel on Iraq stock exchange using the Ordinary Least Square technique for a set of models as a parametric statistical test based on a number of assumptions. This model's use came from the need for long-time series data or the difficulties in measuring the independent variables, as most of these events happened after the year (2003).

Where Y denotes the dependent variable, which represents a logarithm of the stock exchange index, which is defined as the

LISX60,  $\beta_0$  is an intercept of the model. Covid-19 outbreak (Covid-19), financial crisis (FC), internal conflict (IC), Iraqi parliament elections (IPE), Islamic State in Iraq and Syrian emergence (ISIS), oil export exceeding (3.5) million barrels per day (OE-3.5M), oil price exceeds (100) dollars per barrel (OP-100) and are the independent variables.  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ ,  $\beta_5$ ,  $\beta_6$ ,  $\beta_7$ , and  $\beta_8$  are the parameters in the model, and the E denotes the error term disturbances as shown in Table 4.

## 4. EMPIRICAL RESULT ANALYSIS

The study analyzed the data via the Ordinary Least Square method in two categories;

### 4.1. Regression Results

This category examines the first hypothesis of the effect of the explanatory variables on the dependent variable. The study results in Table 5 come out to show the impact of the proxy of the Covid-19 outbreak, financial crisis, internal conflict, parliament elections, ISIS emergence, oil export, and oil price on the Iraq

**Table 4: Estimation commands and equations**

Model	Estimation command
(1)	LS LISX60 COVID_19 C
(2)	LS LISX60 COVID_19 FC C
(3)	LS LISX60 COVID_19 FC IC C
(4)	LS LISX60 COVID_19 FC IC IPE C
(5)	LS LISX60 COVID_19 FC IC IPE ISIS C
(6)	LS LISX60 COVID_19 FC IC IPE ISIS OE_35M C
(7)	LS LISX60 COVID_19 FC IC IPE ISIS OE_35M OP_100 C
(8)	LS LISX60 OE_35M OP_100 C
Model	Estimation equation
(1)	LISX60=C (1)*COVID_19+C (2)
(2)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)
(3)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)*IC+C (4)
(4)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)*IC+C (4)*IPE+C (5)
(5)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)*IC+C (4)*IPE+C (5)*ISIS+C (6)
(6)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)*IC+C (4)*IPE+C (5)*ISIS+C (6)*OE_35M+C (7)
(7)	LISX60=C (1)*COVID_19+C (2)*FC+C (3)*IC+C (4)*IPE+C (5)*ISIS+C (6)*OE_35M+C (7)*OP_100+C (8)
(8)	LISX60=C (1)*OE_35M+C (2)*OP_100+C (3)

Source: Researcher's Construction using EViews 12

**Table 5: Regression results of Iraq stock price with explanatory variables**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
C	4.932287	5.093314	4.364247	4.485021	4.517879	4.343780	4.154020	4.130699
Covid-19	1.355099	1.194072	0.221982	0.302498	0.209109	0.003092	-0.324675	
FC		-1.288217	-0.559149	-0.679923	-0.712782	-0.538683	-0.348923	
IC			1.701158***	1.741415 ***	1.798486 ***	-0.067277	0.310674	
IPE				-0.483095	-0.476177	-0.081552	-0.064301	
ISIS					-0.276706	0.326838	0.121395	
OE-3.5M						2.048567***	1.898014***	2.142061***
Op-100							0.563007*	0.536089**
R <sup>2</sup>	0.151204	0.285715	0.745278	0.781310	0.789134	0.887974	0.919382	0.891443
Adjusted R <sup>2</sup>	0.098154	0.190477	0.690695	0.714021	0.701273	0.826869	0.862949	0.876968
F-statistic	2.850224	3.000011	13.65397	11.61122	8.981642	14.53195	16.29168	61.58788
Prob.	0.110753	0.080175	0.000193	0.000311	0.000956	0.000118	0.000101	0.000000

Source: Researcher's construction using EViews 12. \*\*\*Significance at the 1% level, \*\*Significance at the 5% level, \*Significance at the 10% level

stock exchange index for the period (2004-2021) through eight models.

All models found Covid-19 an insignificant positive standardized coefficient in all models. In contrast, the insignificant negative in the model (7) indicates that the Covid-19 confirmed cases change does not lead to the stock market closing price due to the contribution of the market being very low as a result of using oil heavily in the economy (Bash and AL Qureshi, 2017; Brihi and Fadil, 2018; Al-Falahi and Battal, 2021; Asaad and Al-Delawi, 2022). Also, the developed stock markets are more sensitive to the Covid-19 pandemic compared to the emerging stock market (Salisu et al., 2020); this result does not come in line with others (Ashraf, 2020; Hatmanu and Cautisanu, 2021; Kyriazis, 2021; Nwosa, 2021; Yilmazkuday, 2021). While all eight models have an insignificant negative standardized coefficient for the financial crisis, this indicates that the Iraq stock market is still local and not influenced by the global crisis (Al-Falahi and Battal, 2021; Asaad and Marane, 2020a).

Adversely to Covid-19 and the financial crisis variables, mixed results have been found in the internal conflict measured by the existence of the tension between the central government in Baghdad and the Kurdistan region measured by Cutting off

the financial share from the central state budget, with positive significance found in the model (3, 4, 5) and non-significant in the model (6, 7), the reasons of that may back to more liquidity will be available when the tension raise between the central government and Kurdistan region, this result in harmony in some way with other studies (Chen and Chen, 2005; Cherif and Gazdar, 2010; Chau et al., 2014; Zaiane, 2018), while not in consist with others (Abdelbaki, 2013; Moussa and Talbi, 2019).

It is also apparent that the insignificant standardized coefficient parliament elections in Iraq and the launch of the Islamic state indicate no influence of both on the Iraq stock market due to the weaknesses and ineffectiveness of the private sector in Iraq after 2003 as a result of the war consequences or not attractive investment due to security instability (Al-Falahi and Battal, 2021; Asaad and Marane, 2020a), this result is not in line with some previous studies (Alam, 2013; Christofis et al., 2013; Hassan et al., 2014; Zaiane, 2018; Blanchard et al., 2018).

Similar to history, Iraq's economy grew during the increase in oil price or when the oil production and exporting exceeded, leading to an effect on economic development, including the stock market; therefore, the stock price reacted positively to any improvement in oil price in Iraq as one of top five oil-exporting countries in the



**Table 6: Regression equations of Iraq stock price with explanatory variables**

Model	Substituted coefficients
(1)	LISX60=1.3550989011*COVID_19+4.93228728248
(2)	LISX60=1.19407181407*COVID_19-1.28821669621*FC+5.09331436951
(3)	LISX60=0.221981808697*COVID_19-0.559149192176*FC+1.70115750941*IC+4.36424686548
(4)	LISX60=0.302497570021*COVID_19-0.679922834161*FC+1.74141539007*IC - 0.48309456794*IPE+4.48502050746
(5)	LISX60=0.209109171169*COVID_19-0.712781715238*FC+1.79848607826*IC - 0.476176908765*IPE - 0.276706366967*ISIS+4.51787938854
(6)	LISX60=0.00309177118272*COVID_19-0.538682503982*FC - 0.067277135705*IC - 0.0815520299179*IPE+0.326837565389*ISIS+2.04856738578*OE_35M+4.34378017728
(7)	LISX60 = -0.324675274225*COVID_19-0.348922635588*FC+0.310674337707*IC - 0.0643011327912*IPE+0.121395063243*ISIS+1.89801410177*OE_35M+0.563006551681*OP_100+4.15402030889
(8)	LISX60=2.14206091582*OE_35M+0.536089201683*OP_100+4.13069920386

Source: Researcher's construction using EViews 12

**Table 7: Regression results of Iraq stock price with explanatory variables integration**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	4.957816	4.261058	4.199495	4.261058	4.008455	4.008455	4.008455
Covid-19	1.272724						0.165136
FC							
IC		2.112249***	2.109105***		2.080540***	2.293018***	2.056949***
IPE		-0.043204		0.058107			
ISIS			0.529219			-0.139420	
OE-3.5M				2.112249***			
Op-100	-0.136156				0.813206	0.859679	0.813206*
COVID-19*OP-100	0.249847						
IC*IPE		-0.629880					
IC*ISIS			-1.280019			-0.604253	
IPE*OP-3.5M				-0.141975			
IC*OP-100					-0.557969***	-0.816920*	-0.699514
R <sup>2</sup>	0.153596	0.758168	0.769524	0.851797	0.785648	0.822842	0.786730
Adjusted R <sup>2</sup>	-0.027776	0.706347	0.720136	0.820039	0.739715	0.749026	0.721109
F-statistic	0.846855	14.63047	15.58126	26.82168	17.10436	11.14723	11.98893
Prob.	0.490951	0.000135	0.000097	0.000005	0.000059	0.000354	0.000266

Source: Researcher's construction using EViews 12. \*\*\*Significance at the 1% level, \*\*Significance at the 5% level, \*Significance at the 10% level

**Table 8: Regression equations of Iraq stock price with explanatory variables integration**

Model	Substituted coefficients
(1)	LISX60=4.95781644984+1.27272405111*COVID_19-0.136155559255*OP_100+0.249846924518*COVID_19*OP_100
(2)	LISX60=4.2610579085+2.11224852771*IC - 0.0432044072875*IPE - 0.629879883785*IC*IPE
(3)	LISX60=4.19949509982+2.10910467953*IC+0.529219272264*ISIS - 1.28001908142*IC*ISIS
(4)	LISX60=4.2610579085+0.058107284658*IPE+2.11224852771*OE_35M - 0.141974791684*IPE*OE_35M
(5)	LISX60=4.00845537124+2.0805398788*IC+0.813205519353*OP_100-0.557968903176*IC*OP_100
(6)	LISX60=4.00845537124+2.29301799074*IC+0.859678778607*OP_100-0.13941977764*ISIS - 0.816920274369*IC*OP_100-0.604253614017*IC*ISIS
(7)	LISX60=4.00845537124+0.165136126066*COVID_19+2.05694900365*IC+0.813205519353*OP_100-0.69951415409*IC*OP_100

Source: Researcher's construction using EViews 12

world, this finding comes in harmony with some studies (Jain and Biswal, 2016; Nguyen et al., 2020), while not consistent with some others (Asaad and Marane, 2020a; Mustafa, 2020).

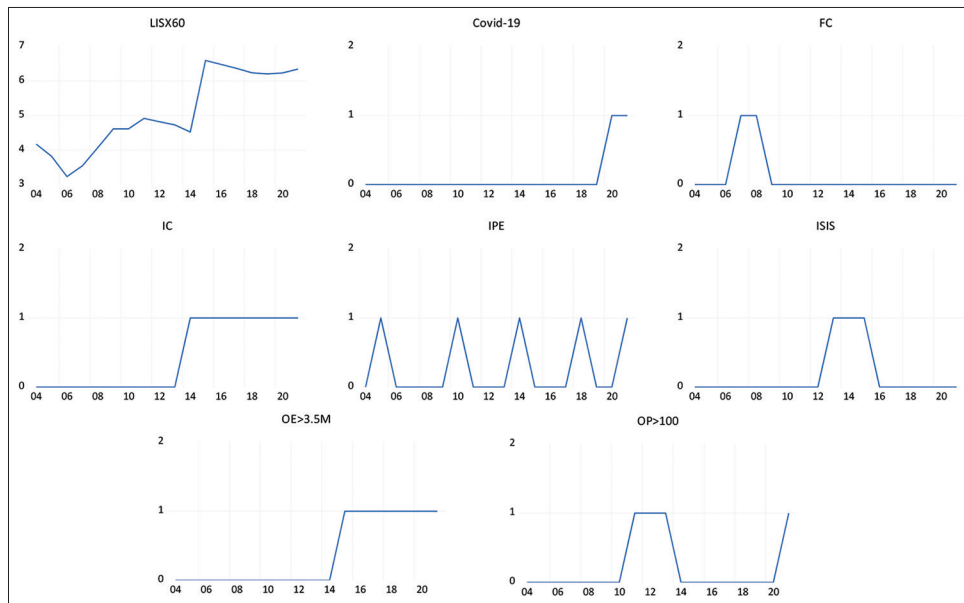
The study output can be expressed mathematically in the equation, as shown in Table 6. To evaluate the regression equation for models fitness, the R<sup>2</sup> and adjusted R<sup>2</sup> are more than (70%) in models (3, 4, 5) and around (90%) in the model (6, 7, 8), which denotes a good fit of the models due to high level of the variations dependent variable are elucidating via the variations in the explanatory variables. Also, the F-statistics describe that the model is significant at 1% in overall except for the first two models. Furthermore, the better model is the number (7) back to the highest R<sup>2</sup> and adjusted R with the positive significance of both

measurements as a proxy of oil variables; this results in some way consistent with others (Jain and Biswal, 2016; Nguyen et al., 2020).

To sum up the results, internal conflict (IC) in models (3, 4, 5), oil export (OE-3.5M) in the model (6), oil export (OE-3.5M) and oil price (OP-100) in model (7, 8) appear the significant influence on Iraq stock exchange index (ISX60). On the other hand, the Covid-19 pandemic, financial crisis (FC), parliament elections (IPE), and an Islamic state in Iraq and Syria emergence (ISIS) seems not to have any effect on the Iraq stock exchange index (ISX60).

## 4.2. Regression Results of Integration

This category examines the second hypothesis of the effect of the integration of the regressors variable on the dependent variable.

**Figure 2:** Study variables movements for the period (2004-2021)

The study results in Table 7 come out to show the effect of the integration of the Covid-19 outbreak, financial crisis, internal conflict, parliament elections, ISIS emergence, oil export, and oil price on the Iraq stock exchange index for the period (2004-2021) through seven models.

The insignificant standardized coefficient of explanatory variables integration in all models except for the internal conflict and oil price exceeds hundred dollars per barrel in the model (7, 8), meaning that the market stock price index was affected negatively by the combination of the internal tension with the increasing oil price. In other words, the existing of the political instability with higher oil price leads to increasing the cost of production, then the investors avoid investing in stocks, this result comes out to be in harmony with other studies (Chen et al., 2005; Abdelbaki, 2013; Asaad and Marane, 2020a). Meanwhile, the other models have insignificant explanatory variables integration may be back to the small size of the market capitalization to economic activities, the weak trading volume of the market, and weak interaction with regional or international stock markets, meaning that the stock market still local traded and does not respond to the integration of the variable, this results in some way come in line with others (Kaehler et al., 2014; Asaad, 2014).

The study output can be expressed mathematically in the equation, as shown in Table 8. To evaluate the regression equation to see the fitness of the models, the R2 and adjusted R2 have been found to be more than (75%) in all models except the first one, which denotes a good fit of the models due to the high level of the variations dependent variable are elucidating via the variations in the explanatory variables. Also, the F-statistics describe that all models are significant at a 1% level except the first model. Furthermore, the better model is the number (6) back to the highest R2 and adjusted R with the negative significance of integration measurements of internal conflict and high oil price; this results in some way consistent with (Cherif and Gazdar, 2010; Moussa

and Talbi, 2019; Modugu and Dempere, 2020; Chien et al., 2021; Nwude et al., 2021). Moreover, according to the cointegration of Covid-19 with oil prices exceeding hundred dollars, the internal conflict with the parliament election or ISIS emergence, and the parliament election with oil exports exceeding (3.5) million barrels does not have any influence on the Iraq stock exchange index at a 10% significant level.

## 5. CONCLUSION

The study has analyzed the effect of the interaction between the explanatory variables of the Covid-19 outbreak, financial crisis, internal conflict, parliament elections, ISIS emergence, oil export, and oil price on the Iraq stock exchange index for the period (2004-2021) by employing the multiple regression model to fill the gap by centering on the stock market determinants in Iraq using a new perspective of measurement of the categorical (dummy or indicator) explanatory variables.

During the study period, the Iraq stock exchange responded differently to the regressors. The integration of regressors was found insignificant in all models except in the model (7, 8) for the internal conflict and oil price exceeding hundred dollars per barrel, meaning that the market stock price index was affected negatively by the combination of the internal tension with the oil price increase, indicating that the existing of the political instability with higher oil price leads to increase the cost of production, Hence making investors stay away from investing in stocks, this result in line with other (Chen et al., 2005; Abdelbaki, 2013; Asaad and Marane, 2020a). Meanwhile, the rest of the integration models are insignificant may be back to the small ratio of the market capitalization to economic activities, the weak trading volume of the market, and weak interaction with regional or international stock markets; it means that the stock market is still local traded and does not respond to the integration of the variable, this results in some way come in line with others (Kaehler et al., 2014; Asaad, 2014).

Further, the results present a vital policy implication to improve strategies for portfolio diversification and assist investors in predicting the shocks that lead to stock price volatility, also to guide the decision-makers to rebuild a regulatory framework for monitoring fluctuations from energy shocks and financial crises or political instability.

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