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The Impact of Intangible Assets and Macroeconomic Factors on Stock Prices in Developing Economies

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Abstract: This study examines the relationship between firm-level and macroeconomic variables and stock prices (SP) in Iran, Saudi Arabia (KSA), and Iraq, where economic conditions are uncertain. The sample consists of all firms listed on these countries' stock exchanges between 2015 and 2019, yielding a comprehensive dataset from 154 Iranian firms, 82 KSA firms, and 33 Iraqi firms. Using a fixed effect model, intriguing relationships are uncovered between firm-level and macroeconomic factors on SP. The findings indicate that, at a 1% significance level, there is a strong link between Iran and Iraq's GDP and their respective SP. In KSA, the association between GDP and SP is positive and significant at a 5% level. In addition, there is a positive and statistically significant correlation between the inflation rate and SP in all three countries. Moreover, the association between exchange rates and SP is significant and positive in KSA and Iraq but negative and significant at the 1% significance level in Iran. Furthermore, in KSA, the connection between oil prices and SP is positive and significant, whereas, in Iran, the relationship is negative at the 1% level. Surprisingly, there is no association between the price of oil and Iraqi SP. Regarding intangible assets, their impact on SP in Iran and KSA is negligible. In Iraq, however, there is a negative and significant relationship at the 5% level, indicating that intangible assets have a detrimental impact on SP. These findings highlight the complex link among macroeconomic factors, intangible assets, and SP in the examined countries. Policymakers and governments should prioritize implementing measures to foster sustainable economic growth, manage inflation, and stabilize exchange rates. These actions can boost investor confidence and contribute to the stock market's overall development.

Keywords: intangible assets; macroeconomic factors; stock prices

1. Introduction

In recent years, abrupt fluctuations in stock prices (SP) have garnered considerable interest from both academics and capital market professionals. As a result, numerous global research efforts have explored the effect of firm-level factors on SP. These factors can be classified as either internal or external. Internal factors consist of corporate tax avoidance (Blaufus et al., 2019), opaque financial reports (Ding et al., 2020), accounting conservatism (Wang et al., 2021), corporate social responsibility (Fiori et al., 2015), CEO overconfidence (Lee et al., 2019), financial constraints, stock liquidity (Li et al., 2019), corporate financing (Loukil et al., 2012), corporate debt maturity (Dang et al., 2018), large foreign stock ownership (He et al., 2013), equity incentives (Zhou et al., 2021), and other similar circumstances. In addition, studies have also investigated the impact of external factors such as religion (Callen et al., 2015), social trust (Su and Song, 2022), media sentiment and sensationalism (Strycharz et al., 2018), individualism (An et al., 2018), political connections (Lee et al., 2017), trading behaviour and investor sentiment (PH and Rishad, 2020), and product market competition (Li et al., 2020) on stock price. This study adopts a unique approach to explore the influence of both firm and macroeconomic factors on SP. Previous studies have primarily concentrated on firm-level factors while neglecting intangible assets and SP. Although a few studies have taken a broader perspective,

encompassing macroeconomic factors such as GDP, oil prices, inflation rates, and exchange rates, they remain limited in number. Therefore, this study seeks to bridge the gap by simultaneously considering firm-specific factors and macroeconomic indicators. Doing so aims to provide a more comprehensive understanding of the factors affecting SP.

Due to the economic crisis in Iran, Saudi Arabia (KSA) and Iraq have experienced unfavourable economic relations with European nations and the United States due to severe economic sanctions. Sanctions implemented by the United States and other European countries have had a major impact on Iran's economy (Ghodsi et al., 2022; Ghomi, 2022). Sanctions in vital sectors like energy, finance, and trade have made it challenging for Iran to participate in international trade and access international markets (Mallard et al., 2020). This has led to decreased foreign investment, a shortage of available capital, and problems importing basic products in Iran (Majidi et al., 2016). Although not to the same degree as Iran, KSA is another significant oil producer and exporter and has encountered economic troubles and concerns. The economic stability of KSA has been affected by fluctuations in global oil prices, geopolitical conflicts, and changes in the energy markets (Alqahtani et al., 2021; Su et al., 2019). In addition, human rights concerns, the war in Yemen, and the murder of journalist Jamal Khashoggi have strained the relationship between KSA and some Western nations (Rane and Mitchell, 2021). These issues have resulted in demands for restrictions on arms sales and certain economic ties, creating additional economic uncertainty for KSA. Furthermore, Iraq has significant oil reserves and economic growth potential, but it has faced several obstacles, such as political instability, corruption, and security concerns (Aljawareen, 2019). Iraq's economy and its ability to attract international investment have been hampered by the country's persistent conflicts and terrorist threats, especially during the war against ISIS (Naama, 2022). The state of Iraq's economy has been impacted by its strained relations with the West, especially the United States. When the United States led an invasion of Iraq in 2003 and occupied the country, it caused widespread disruptions and uncertainty in the country's economy. Moreover, Iraq's economic links with Western countries have been influenced by the difficult relationship between the US and Iran and Iran's influence in Iraq, which may affect investor confidence (Entessar, 2023). Undoubtedly, the severe economic sanctions imposed on Iran, the surveillance faced by Saudi Arabia, and the difficulties in Iraq's economic development have increased the systemic risk and insecurity for investors and lenders in these markets. These unfavourable economic relations generate uncertainties and restrictions that make it more difficult for businesses to operate and for investors to assess and mitigate potential risks. Regarding the KSA market, despite ongoing conflicts, KSA's GDP has been growing (Al-Tamimi et al., 2021). In contrast, economic conditions in Iran and Iraq have been difficult. In recent years, Iran and Iraq have been subjected to severe economic sanctions, resulting in financial difficulties for many of its firms (Laudati et al., 2023; Seyfi et al., 2022). The economic sanctions imposed on Iran and Iraq have had a significant effect, resulting in a severe decline in their GDP and a continuous depreciation of their national currencies due to the substantial increase in exchange rates (Rasoulinezhad and Popova, 2017). Under such unfavourable economic conditions, the cost of necessary basic materials for businesses has become prohibitively expensive, resulting in higher product prices. The unbridled inflation has caused daily price increases, eroding the purchasing power of individuals over time. As a result, the demand for manufactured products in the Iranian and Iraqi markets has decreased significantly (Burhan Ismael et al., 2021; Solaymani, 2021). Firms are unable to hire new workers due to high production costs and declining sales levels and are forced to lay off a significant portion of their personnel to reduce costs. As a result, the unemployment rate has increased. The combination of rising inflation, decreased purchasing power, declining sales, and increased unemployment makes it difficult for firms to secure financing through the issuance of shares, which could ultimately result in a decline in SP (Moradi et al., 2021). In addition, under these unfavourable economic conditions, creditors are less likely to lend to firms with lower profits. These factors exacerbate the financial difficulties encountered by firms operating in Iran and Iraq, further straining their survival ability and influencing SP.

Additionally, financial statements play a crucial role in reducing information asymmetry by providing specific values that serve as signals and effectively represent the value of a firm (Cao et al.,

2023). The book value of equity, earnings value, and intangible assets value is anticipated to serve as significant signals, allowing internal issuers and external parties to communicate effectively (Le et al., 2023). By providing accurate and pertinent information, these values enable public investors to make informed investment decisions. Particularly, contemporary businesses rely heavily on their intangible assets to create value, constituting essential elements of innovation capabilities and serving as the basis for the increase in a firm's SP (Ferdaous et al., 2019). In today's extremely competitive market, businesses increasingly rely on intangible assets, such as patents, as a crucial foundation for enhancing their competitiveness and operational performance (Purnamawati et al., 2022). Understanding the influence of these intangible assets has drawn the interest of academics and business professionals. However, thoroughly examining the existing literature on the effect of intangible assets reveals significant gaps. First, the majority of research has concentrated on developed countries (Mansion and Bausch, 2020; Nichita, 2019; Ocak et al., 2019), resulting in a paucity of studies being conducted on developing nations. Therefore, this study examines the effect of macroeconomic factors (such as GDP, oil prices, inflation rates, and exchange rates) and firm-level factors (specifically intangible assets) on SP in emerging markets, including Iran, KSA, and Iraq. The study is grounded on the theoretical underpinnings of the Arbitrage Pricing Theory (APT) and the Signalling Theory, which provide the foundation for understanding the relationships between macro and micro factors and their influence on SP. This study employs an exhaustive sample of all firms listed on the Stock Exchanges of Iran, KSA, and Iraq between 2015 and 2019. There were a total of 815 observations for Iran, 385 observations for KSA, and 165 observations for Iraq based on the sample of 154 Iranian firms, 82 KSA firms, and 33 Iraqi firms.

This in-depth study uses a fixed effect model to show how firm-level macroeconomic factors and SP in Iran, KSA), and Iraq are related in interesting ways. Firstly, a positive link exists between Iran's and Iraq's GDP and their SP at a 1% significance level. In the same way, there is a positive and significant link between GDP and SP in KSA, but only at a 5% level of significance. Secondly, there is a strong and positive link between the inflation rate and SP in all three countries. Also, the data show a positive and statistically significant link between exchange rates and SP in KSA and Iraq. The relationship between exchange rates and SP is important in Iran, but at a 1% significance level, it shows a negative trend. With a significance level of 5%, the study also finds a strong and significant link between oil prices and SP in KSA. On the other hand, Iran has a negative relationship between oil costs and SP, which is significant at the 1% level. Oil prices seem not to affect the stock market in Iraq, which is surprising. Also, intangible assets do not affect SP in Iran and KSA much. At a 5% level of statistical significance, however, a negative link has been found between intangible assets and SP in Iraq. This study contributes significantly to the existing literature. Examining the impact of macroeconomic and firm-level factors on SP, this study enhances our comprehension of the determinants of SP risk. We argue that these factors contribute to the behaviour of the stock market, particularly during economically uncertain periods marked by severe sanctions and elevated systemic risk. In such circumstances, managers may be motivated to conceal bad tidings.

The study's subsequent sections are organized as follows. The following section provides a theoretical framework, formulates hypotheses, and examines pertinent literature. The study methodology is depicted in section 3. In section 4, we discuss the key findings from our statistical analyses. Section 5 presented the concluding remarks of the study.

2. Review of Literature and Hoypothesis Development

In the current era dominated by technology and data, businesses increasingly recognize the significance of intangible assets and embrace digital transformation. They are investing in patents, intellectual property rights, software, human capital (skills and knowledge), brands, R&D, artificial intelligence, consumer loyalty, and other information technology-related intangible assets. In the era of information technology, these intangible assets are considered significant contributors to the value of a firm, as they contain a substantial amount of value. Notably, reporting goodwill and other intangible assets has demonstrated a strong and highly significant correlation with SP. This suggests that firms' identification and valuation of these intangible assets have a substantial effect on the SP

and perception of corporate value. The emphasis on intangible assets highlights the changing landscape of value creation in the digital age, in which a company's intangible assets are of great importance and contribute considerably to its overall value. The signalling theory suggests that a company's disclosure of intangible assets can signal investors regarding the value and development prospects of the firm (Giovanni et al., 2020). Positive signals related to intangible assets may increase investor confidence and impact SP positively, whereas the absence or limited disclosure of intangible assets may have a negative effect. On the other hand, according to APT, SP is influenced by broader macroeconomic conditions in addition to firm-specific variables (Mandala et al., 2023). These macroeconomic variables may include GDP growth, inflation, interest, exchange rates, and other pertinent indicators. Ross (1976) first presented APT, which states that several factors, such as macroeconomic variables, influence SP. The industrial production, yield curve, interest rate (IR), inflation, and risk premium are all macroeconomic variables Fama (1981) showed significantly correlated with SP in the APT model. Based on these theoretical foundations, a plethora of studies have been done to examine the impact of macroeconomic factors on SP (Ajaz et al., 2017; Hunjra et al., 2014; Huy et al., 2021; Wei et al., 2019). These studies have confirmed that macroeconomic factors have a substantial effect on SP.

This study used the Signalling Theory to investigate the association between firm-level factors, specifically intangible assets, and SP. In contrast, the APT was employed to comprehend the impact of macroeconomic variables on SP. By employing these theoretical frameworks, we hoped to achieve more insights into how intangible assets and macroeconomic factors influence SP in tandem. The study constructs hypotheses in the following sub-section to test the relationships between intangible assets, macroeconomic variables, and SP. These hypotheses are based on these theoretical frameworks and previous research findings.

2.1. Intangible Assets and SP

Traditional accounting standards, which predominantly rely on historical cost and accounting conservatism, have limitations when it comes to companies with substantial intangible assets (Biondi et al., 2012; Brynjolfsson et al., 2002; Lim et al., 2020). Unlike tangible assets such as real estate or instruments, intangible assets lack a physical form and make it difficult to calculate their profitability precisely. Valuing intangible assets frequently requires managerial subjectivity, which exacerbates the difficulty. According to the signalling theory, this information asymmetry results from disparities in the information received by management and other stakeholders (Bae et al., 2018). To bridge the gap and provide public investors with a better comprehension of the issuers, businesses strive to disclose pertinent information about their products, financial conditions, and growth prospects. Financial statements play an essential role in reducing information asymmetry, as specific values within these statements serve as signals that effectively represent the value of a company (Armstrong et al., 2010). The book value of equity, earnings value, and intangible asset value is anticipated to serve as significant signals, allowing internal issuers and external parties to communicate effectively. These values allow public investors to make well-informed investment decisions by communicating accurate and relevant information. The trading volume and price of securities will probably reflect changes in decision-making influenced by the signals provided. In the absence of an active exchange market for intangible assets, it may be challenging to estimate their fair value (Maigoshi et al., 2018).

Intangible asset valuation is further hampered by estimating the likelihood of long-term failure. According to Dahmash et al. (2009), accounting information regarding intangible assets is unreliable. Several studies, including Wu and Lai (2020), have investigated the connection between intangible intensity, asymmetric information, and financial reporting quality. Baboukardos et al. (2016) discovered that intangible-intensive firms attract a greater number of analysts. Still, investors' ability to evaluate the fair value of intangible assets is hampered by biased information regarding intangible assets. Despite the growing importance of intangible assets to the economy and publicly listed firms, their impact on SP has not been sufficiently studied. Intangible assets, such as intellectual property, brand value, and human capital, have emerged as essential growth and competitive advantage

drivers. However, traditional accounting and valuation frameworks have primarily concentrated on tangible assets, resulting in the relative abandonment of intangible assets in stock market dynamics.

A recent study has explored the association between firm innovation and the risk of stock market collapses, yielding contradictory findings. For instance, Jia (2018) investigated the effect of corporate innovation strategy on SP crash risk and found that exploration-oriented firms are more likely to experience a higher SP crash risk than exploitative-oriented firms. This is due to the higher failure-to-success ratio faced by exploratory firms, which makes them less likely to disclose interim negative information regarding their innovation initiatives. In this regard, Ben-Nasr et al. (2021) discovered an inverse relationship between firm innovation and SP failure risk. They assumed that granted patents and patent citations reduce the cost of commercial information and strengthen investor self-confidence by transmitting positive market signals. Notably, these studies focused predominantly on patent citations, R&D expenditures and patent applications which are innovation output measures, rather than measuring intangible assets directly. Prior research has primarily concentrated on investigating the association between intangible assets and firm value (Ferdaous et al., 2019; Gamayuni, 2015; Satt and Tamek, 2017) corporate disclosure (Kim et al., 2016), and financial reporting (Ertugrul et al., 2017; Feng et al., 2022; Jin et al., 2006). However, a relative lack of attention has been given to the link between intangible assets and SP. Consequently, the present study proposes the following hypotheses to address this research gap.

H1a: Intangible assets have a significant impact on the stock market's prices in Iran
H1b: Intangible assets have a significant impact on the stock market's prices in KSA
H1c: Intangible assets significantly impact the stock market's prices in Iraq.

2.2. GDP and SP

Numerous studies have explored the correlation between the gross domestic product (GDP) and SP, with varying results. Some studies indicate a relationship between the gross domestic product and SP (El-adaway et al., 2020; Idan, 2022; Muhammed Al-Kassab, 2022). However, Hunjra et al. (2014) discovered no relationship between Pakistan's GDP and stock market index. Singh et al. (2011) demonstrated a significant association between GDP and stock market returns in Taiwan. Momani et al. (2012) also identified a statistically significant relationship between national production and share prices. In contrast, El-Nader et al. (2013) found that nominal GDP has a negative effect on the development of the stock market in Jordan. As the GDP growth rate rises, SP also tends to rise (Basher et al., 2012; Simbolon and Purwanto, 2018). Jayasundara et al. (2019) found that the real GDP positively affects the All Share Price Index (ASPI) in emerging markets. Qamruzzaman and Wei (2018) emphasized the effect of stock market development on economic growth, whereas Hossin et al. (2021) identified a unidirectional link between the stock market and GDP. Gurloveleen et al. (2015) analyzed the influence on the BSE 500 manufacturing companies and discovered no significant correlation. Tiryaki et al. (2019) discovered a correlation between stock market returns and industrial production. In addition, Balagobei et al. (2022) discovered a positive long-term relationship between industrial production and share prices in Sri Lanka. The present study proposes the following hypotheses based on conflicting results and APT.

H2a: GDP has a significant impact on the stock market's prices in Iran
H2b: GDP has a significant impact on the stock market's prices in KSA
H2c: GDP significantly impacts the stock market's prices in Iraq.

2.3. Inflation Rate and SP

There is no consistent association between inflation and SP. Several investigations have discovered a negative association between inflation rate and SP (Fama, 1981; Mukherjee et al., 1995). This negative association occurs because a rise in inflation generates ambiguity regarding future inflation rates, causing investors to demand higher risk premiums. As a consequence, SP decreases (Malkiel, 1979). A further explanation for the negative relationship could be that higher inflation

increases production costs, resulting in decreased cash flows for companies and a subsequent decline in SP. Nonetheless, numerous studies have discovered a strong relationship between SP and inflation. For example, Ongan et al. (2017) discovered an explicit co-integration between SP and inflation in several European nations, including Germany, the United Kingdom, Switzerland, the Netherlands, Italy, and France. Mugableh (2018) also discovered similar results on the Malaysian stock exchange. Numerous other empirical studies have examined the relationship between inflation and SP (Acikalin et al., 2008; Qamri et al., 2015; Raghutla et al., 2020). Laichena et al. (2015) discovered that inflation substantially affects stock returns. Still, they noted that the effect depends on economic conditions and investor perceptions, namely whether inflation is viewed as positive or negative news. Moreover, Delgado et al. (2018) examined the connection between inflation and SP and discovered that inflation has a negative effect on SP. Contrary, Chang et al. (2018) discovered a statistically significant relationship between the Industrial Production Index (IPI) and SP . Based on the above-mentioned studies and the model of APT, the present study proposes the following hypotheses.

H3a: Inflation has a significant impact on the stock market's prices in Iran
H3b: Inflation has a significant impact on the stock market's prices in KSA
H3c: Inflation has a significant impact on the stock market's prices in Iraq

2.4. Exchange rate and SP

Various studies indicated that fluctuations in exchange rates significantly affect the stock market's performance (Khan, 2019; Setiawan, 2020; Singhal et al., 2019). According to Nwosa (2021), currency depreciation can enhance the performance of the domestic stock market. When the local currency loses value, domestic products become more competitive on the global market, increasing export volumes, higher cash flows for companies, and ultimately higher SP. In addition, a higher exchange rate encourages more foreign portfolio investments, which contributes to the expansion of the domestic economy. However, not all studies find a consistent relationship between exchange rates and SP. For instance, Rahman and Uddin (2009) found no long-term or causal relationship between exchange rates and SP in Bangladesh, India and Pakistan. Likewise, Yang et al. (2014) discovered a feedback relationship between exchange rates and SP in Japan, Korea, Indonesia, Malaysia, India, Thailand, the Philippines, Taiwan, and Singapore. Recent studies by Ajaz et al. (2017) and Delgado et al. (2018) reveal significant associations between exchange rates and SP. For example, Delgado et al. (2018) discovered that exchange rates negatively and significantly impact SP in Mexico, indicating that SP rises as the currency appreciates. Likewise, Roubaud and Arouri (2018) employed vector autoregressive (VAR) and multivariate Markov switching VAR models to illustrate a nonlinear relationship between exchange rates and SP. Akbar et al. (2019) also discovered a significant correlation between exchange rates and SP. Based on the inconsistent results of previous studies and the framework of the APT, the present study proposes the following hypotheses.

H4a: Exchange rate has a significant impact on the stock market's prices in Iran
H4b: Exchange rate has a significant impact on the stock market's prices in KSA
H4c: Exchange rate has a significant impact on the stock market's prices in Iraq

2.5. Oil prices and SP

The impact of oil prices on SP has received considerable attention in recent years (Liu et al., 2023). Investors base their decisions on fundamental information from stock markets and oil market data (Pandiangan et al., 2022). It is widely believed that an increase in oil prices causes a decline in SP (He et al., 2020; Herrera et al., 2019). Many studies have examined the relationship between oil prices and stock markets (Ligocká et al., 2019; Prabheesh et al., 2020; Singhal et al., 2019). Nonetheless, these studies have been criticized for lacking consensus on the causal relationship between oil prices and SP, displaying differences across nations, and lacking empirical support (Sharif et al., 2020). Numerous studies contend that a linear approach might not adequately convey the complexity and nonlinearity of the oil-stock interaction (Afshan et al., 2018; Dutta, 2017). According to Sim and

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Zhou (2015), the stock market reacts asymmetrically to oil price disruptions and equity markets and exchange rates may respond differentially to positive and negative oil price shocks. Also extensively studied is the relationship between oil prices and SP (Czech et al., 2021). For instance, Czech et al. (2021) discovered that when real oil prices increase, countries with a high reliance on oil experience a greater currency depreciation. Similarly, Jain et al. (2016) demonstrated that rising oil prices cause the Indian rupee to depreciate. Mensah et al. (2017) discovered a negative correlation between oil prices and oil prices in the G20. The present study proposes the following hypotheses based on past literature and APT.

H5a: Oil prices have a significant impact on the stock market's prices in Iran
H5b: Oil prices have a significant impact on the stock market's prices in KSA
H5c: Oil prices have a significant impact on the stock market's prices in Iraq

3. Methodology

3.1. Population and Sample Selection

This study's sample includes all firms listed on the stock exchanges of Iran, KSA, and Iraq between 2015 and 2019. In total, 154 Iranian companies, 82 KSA companies, and 33 Iraqi companies were included, resulting in datasets with 815, 385, and 165 observations, respectively. The selection of these firms was based on the following criteria: 1) Firms were required to maintain a consistent fiscal year throughout the desired periods; 2) Firms had to be continuously active during the study period and their stocks actively traded; 3) Availability of all necessary financial data for the study between 2010 and 2019; and 4) Firms belonged to productive industries, allowing for standardized reporting procedures and enhancing comparability across the sample. These selection criteria assure the validity and applicability of the study's data.

3.2. Panel Data Regression Analysis

This study used panel data analysis to investigate the relationship between Intangible Assets and macroeconomic factors on the SP of Firms Listed on the Stock Exchanges of Iran, KSA, and Iraq. Compared to cross-sectional or time-series datasets, panel data offers several significant benefits. First, by combining the data, panel analysis improves parameter estimates' precision by increasing the degrees of freedom and sample variability during the estimation procedure (Jamaludin et al., 2017). Second, using panel analysis rather than cross-sectional data allows researchers greater flexibility in identifying variations in panel member behaviour (Greene et al., 2010). Lastly, panel analysis is more reliable than time-series and cross-sectional data because it allows for monitoring individual-specific characteristics and simultaneous examination of Granger causality across variables (Kunst, 2010). For regression analysis, the study utilized Stata software and pooled OLS, fixed effect, and random effect models. Furthermore, data for the selected firms in this study was collected from various sources, including annual reports, Central Bank websites, and the World Bank. The study obtained firm-level data from the annual reports of the firms. On the other hand, macroeconomic indicators were sourced from the countries' Central Bank websites and the World Bank.

3.3. Variables Measurement

3.3.1. Dependent Variable

SP are a reliable indicator of firm performance. By "performance," they refer specifically to the firm's SP over a number of years, emphasizing long-term tendencies. Following the study of Ewens et al. (2019), This study used the SP of the firm over a specific time frame, namely the years (t, t+1, t+2), where "t" represents the current year, "t+1" represents the year following it, and "t+2" represents the year after that. The study used the natural logarithm of the 3-year standard deviation of SP to measure the volatility or dispersion of SP over three years. The standard deviation quantifies the

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quantity of variation or dispersion within a dataset. In this instance, it computes the deviation of the firm's SP from its three-year average value. Using the natural logarithm of the standard deviation is likely to stabilize the SP variance and make the results easier to interpret, particularly when dealing with potentially large SP variations.

3.3.2. Independent variable

Intangible assets: Intangible assets are non-tangible assets that contribute to a firm value but cannot be readily quantified or physically touched. These assets consist of intellectual property, brand recognition, patents, copyrights, trademarks, and benevolence. Many firms rely on intangible assets because they frequently play a significant role in generating revenue, fostering consumer loyalty, and providing a competitive edge. Following the study of Ewens et al. (2019) this study used the ratio of intangible assets (specific intangible assets and goodwill included) to total firm assets.

Macroeconomic Indicators: This study also employs a variety of macroeconomic indicators to assess the SP of the firm. Alongside Gross Domestic Product (GDP), the study analyses the inflation rate, exchange rate, and oil price as significant indicators. The GDP is calculated by dividing the percentage difference between the current year's and the previous year's GDP by the previous year's (Engelberg et al., 2009). The Inflation rate (Infl) utilized in the study is the officially reported inflation rate obtained from the World Bank (Alshamsi et al., 2015). The exchange rate (Exch) is represented as the natural logarithm of the exchange rate based on the central bank information of each firm (Shugliashvili, 2023). Lastly, the Oil price indicator was calculated by dividing the percentage difference between the current year's oil price and the previous year's oil price by the previous year's oil price (Wei et al., 2019).

3.3.3. Control variables

Control variables, such as profitability, earnings per share (EPS), firm size, and leverage, were included in this study. These variables help account for additional factors that could influence the analysed relationship. Profitability (Prof) was utilized to measure a firm's business profitability. It is calculated as the net profit ratio to total assets (Dong et al., 2010). Earnings per share (EPS) represents the amount of earnings allocated to each outstanding share of a company's stock. It is calculated based on the year-end net profit (Majanga, 2015). Moreover, Firm size (Size) is captured by considering the firm's total assets extracted from the balance sheet (Husna et al., 2019). Lastly, Leverage (LEV) is represented by the debt ratio, which is determined by dividing total liabilities by total assets (Yazdanfar and Öhman, 2015). This variable provides insights into how much a firm relies on debt financing.

3.4. Model Specification

The following analytical model, with variable code names and descriptions, investigated the relationship between intangible assets and macroeconomic factors on the SP of Firms Listed on the Stock Exchanges of Iran, KSA, and Iraq. The description of the variables used in model 1 is presented in Table 3.2.

$$Stp_{it} = \alpha_0 + \beta_1 \text{inta}_{it} + \beta_2 \text{gdp}_{it} + \beta_3 \text{inf}_{it} + \beta_4 \text{exch}_{it} + \beta_5 \text{oil}_{it} + \beta_6 \text{prof}_{it} + \beta_7 \text{eps}_{it} + \beta_8 \text{size}_{it} + \beta_8 \text{size}_{it} + \lambda_{it} + \eta_t + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots (1)$$

where, SP= Stock prices, inta= Intangibles, gdp= Gross domestic product, inf= inflation rate, exch=exchange rate, oil= oil price, prof= profitability, eps= earnings per share, size= Firm size, lev= leverage, \lambda_{it}= Country effect, ηt = Time effect, ε = error term

4. Results and Discussion

4.1. Descriptive statistics

Tables 1–3 provide descriptive statistics for various variables related to Iran, KSA and Iraq. The purpose of descriptive statistics is to summarise the essential characteristics of a dataset. The average

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SP (stp) in Iran is approximately 7.940, whereas it is 10.931 in KSA and 6.973 in Iraq (see Tables 1–3). Based on 815 observations, Iran's minimal and maximum SP are 6,378 and 9,586, respectively. Based on 385 observations, KSA has a minimum of 0.819 and a maximum of 46.617. Based on 165 observations, the SP of Iraq ranges from a minimum of 1.398 to a maximum of 10.325. In addition, the variable "Intangible Assets" (inta) reveals that Iran has a mean value of approximately 0.005, KSA has a mean value of approximately 1.190, and Iraq has a mean value of approximately 0.041. This indicates that KSA has the highest average value of the three countries. In Iran, the range of intangible assets is between 0 and 0.0587; in KSA, it is between 0 and 9.960; in Iraq, it is between 0.000 and 0.423.

Regarding Gross Domestic Product (GDP), Iran has a mean of about 0.065, KSA has a mean of 0.131, and Iraq has a mean of 0.115. Among the three countries, KSA has the greatest average GDP. Specifically, Iran's GDP ranges from 0.015 to 0.125, whereas KSA GDP's ranges from 0.011 to 0.269. In contrast, Iraq's GDP ranges between 0.001 and 0.269. In terms of the inflation rate, Iran has a mean of approximately 0.460, KSA has a mean of approximately 1.942, and Iraq has a mean of approximately 0.821. The KSA has the greatest average inflation rate of the three countries. The inflation rate variable (inf) ranges between 0.1290 and 1.0194, with KSA between 0.185 and 6.500 and Iraq between 0.363 and 1.500.

In terms of exchange rates, Iran has a mean of approximately 10.423, KSA has a mean of approximately 1.927, and Iraq has a mean of approximately 7.087. The average exchange rate in Iraq is the greatest of the three countries. KSA's exchange rate range is between 10.234 and 10.645, while Iraq's range is between 1.321 and 2.531. The mean value of the oil for Iran, KSA, and Iraq remains approximately 0.274. KSA's oil prices fluctuate between 0.079 and 0.487, whereas Iraq's range is identical.

Regarding profitability, Iran has a mean of 0.143, KSA has a mean of 2.260, and Iraq has a mean of 0.127. KSA has the greatest average value for this variable among the three countries. The profitability range for Iran is between 0 and 6.206, while Iraq's range is between 0 and 1.359.

Regarding earnings per share, Iran has a mean value of about 0.042, KSA has a mean value of 3.031, and Iraq has a mean value of 3.597. The average earnings per share in Iraq are the greatest of the three countries. Iran's range is between 0 and 9.806, while KSA's is between 0 and 32.580. Iran's prof variable ranges from 0 to 1.359.

The range of firm size in Iran is between 0 and 114.433, with a mean of approximately 14.633. The range of KSA is between 0 and 25.4967, with a mean of 21.365. The average firm size of Iraq is the largest of the three countries, with a range of 11.197 to 20.183 and a mean of 22.465.

In terms of leverage, Iran has a mean of approximately 0.556, KSA has a mean of approximately 0.448, and Iraq has a mean of approximately 1.321. Iraq has the greatest average leverage of the three countries. Iran's leverage ranges between 0.013 and 1.363, KSA's between 0 and 4.124, and Iraq's between 0.000 and 47.883.

Table 1. Iran descriptive statics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Stp	815	7.939	0.963	6.378	9.585
inta	815	0.004	0.008	0.000	0.057
gdp	815	0.065	0.040	0.015	0.125
inf	815	0.460	0.300	0.129	1.019
exch	815	10.423	0.149	10.234	10.645
oil	815	0.274	0.139	0.079	0.487
prof	815	0.142	0.244	0.000	6.206
eps	815	0.041	0.509	0.000	9.806
size	815	14.632	1.571	11.197	20.183
lev	815	0.555	0.216	0.013	1.363

Table 2. KSA descriptive statics.

Variable	Obs	Mean	Std. Dev.	Min	Max

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Stp	385	10.931	7.808	0.819	46.617
inta	385	1.190	2.324	0.000	9.960
gdp	385	0.130	0.099	0.011	0.269
inf	385	1.942	2.319	0.185	6.500
exch	385	1.926	0.428	1.321	2.531
oil	385	0.274	0.139	0.079	0.487
prof	385	2.265	16.792	0.000	186.365
eps	385	3.031	5.295	0.000	32.580
size	385	21.364	1.895	0.000	25.496
lev	385	0.447	0.372	0.000	4.124

Table 3. Iraq descriptive statics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Stp	165	6.973	2.194	1.397	10.325
inta	165	0.041	0.058	5.950	0.423
gdp	165	0.115	0.092	0.001	0.269
inf	165	0.821	0.396	0.363	1.500
exch	165	7.086	0.006	7.073	7.090
oil	165	0.274	0.139	0.079	0.487
prof	165	0.126	0.193	0.000	1.359
eps	165	3.597	14.826	0.000	114.433
size	165	22.465	1.476	17.456	26.723
lev	165	1.320	5.269	0.000	47.883

4.2. Correlation Matrix

Multicollinearity refers to a high correlation between independent variables, which can present difficulties in statistical analysis, especially regression models. Tables 4–6 display the correlation coefficients for all Iran, KSA, and Iraq explanatory variables. Correlation coefficients quantify the intensity and direction of the linear relationship between two variables. In this context, they assist in determining the degree of multicollinearity between the explanatory variables. The tables indicate that correlation coefficients between explanatory variables in Iran, KSA, and Iraq are all less than 0.90. This indicates that there is no significant multicollinearity among the explanatory variables. It is also evident by the Variance inflation factor (VIF). VIF is commonly used to evaluate multicollinearity further. VIF quantifies the degree to which multicollinearity increases the variance of estimated regression coefficients. All VIF factors of explanatory variables are below 10, indicating that multicollinearity does not exist in explanatory variables.

Table 4. Correlation Matrix of Iran.

	inta	gdp	inf	exch	oil	prof	eps	size	lev
inta	1.000								
gdp	-0.012	1.000							
	0.727								
inf	-0.046	0.571*	1.000						
	0.182	0.000							
exch	-0.050	0.319*	0.754*	1.000					
	0.147	0.000	0.000						
oil	0.026	-0.860*	-0.693*	-0.633*	1.000				
	0.442	0.000	0.000	0.000					
prof	-0.026	0.010	0.111*	0.102*	-0.040	1.000			
	0.452	0.766	0.001	0.003	0.243				
eps	-0.018	0.038	0.099*	0.094*	-0.066	0.033	1.000		

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	0.605	0.271	0.004	0.007	0.056	0.342			
size	-0.028	0.061	0.154*	0.180*	-0.118*	0.079*	0.237*	1.000	
	0.418	0.080	0.000	0.000	0.000	0.022	0.000		
lev	0.093*	-0.033	-0.111*	-0.108*	0.066	-0.229*	-0.045	0.004	1.000
	0.007	0.339	0.001	0.001	0.059	0.000	0.196	0.899	

Table 5. Correlation Matrix of Iran KSA.

	inta	**gdp**	**inf**	**exch**	**oil**	**prof**	**eps**	**size**	**lev**
inta	1.000								
gdp	-0.061	1.000							
	0.231								
inf	-0.033	0.311*	1.000						
	0.506	0.000							
exch	0.020	0.382*	0.507*	1.000					
	0.682	0.000	0.000						
oil	0.055	0.941*	0.108*	0.660*	1.000				
	0.274	0.000	0.033	0.000					
prof	0.065	0.053	0.012	-0.003	0.044	1.000			
	0.201	0.292	0.801	0.938	0.379				
eps	0.096	-0.014	0.004	0.028	-0.022	0.250*	1.000		
	0.057	0.776	0.937	0.575	0.661	0.000			
size	0.207*	-0.021	-0.073	-0.039	-0.007	0.160*	0.043	1.000	
	0.000	0.669	0.147	0.444	0.890	0.001	0.399		
lev	-0.187*	-0.022	-0.040	0.002	-0.025	-0.019	-0.078	0.125*	1.000
	0.000	0.662	0.426	0.962	0.619	0.703	0.124	0.013	

Table 6. Correlation Matrix of Iraq.

	inta	**gdp**	**inf**	**exch**	**oil**	**prof**	**eps**	**size**	**LEV**
inta	1.000								
gdp	-0.018	1.000							
	0.815								
inf	0.124	0.565*	1.000						
	0.110	0.000							
exch	0.005	0.839*	0.578*	1.000					
oil	-0.060	0.892*	0.733*	0.763*	1.000				
	0.441	0.000	0.000	0.000					
prof	0.247*	0.091	-0.069	-0.033	0.095	1.000			
	0.001	0.242	0.377	0.674	0.223				
eps	-0.030	-0.025	0.048	0.037	-0.031	0.005	1.000		
	0.698	0.744	0.537	0.636	0.687	0.940			
size	-0.395*	0.001	-0.006	-0.005	-0.001	0.233*	0.537*	1.000	
	0.000	0.980	0.932	0.944	0.989	0.002	0.000		
lev	0.045	-0.049	0.085	0.064	-0.034	0.197*	-0.053	-0.293*	1.000
	0.559	0.524	0.276	0.413	0.663	0.011	0.495	0.000	

4.3. Results and Discussion

Table 7 displays the fixed effects models for Iran, KSA, and Iraq. Initial analysis included 815 observations for Iran, 385 for KSA, and 165 for Iraq. During model estimation, Cook's distance test was used to identify outliers (Cook, 1977). Using the "cut-off = 1" command, the system automatically removed a set of outliers from the estimation procedure. Therefore, the fixed effects models were estimated using 780 observations for Iran, 365 observations for KSA, and 156

observations for Iraq. The diagnostic test for the models in Iran, KSA, and Iraq revealed respective mean values of 3.17, 1.44, and 3.3. This indicates that the variance inflation factor (VIF) values were below the threshold, indicating no multicollinearity among the independent variables.

The study results showed that the effect of intangible assets on SP in Iran and KSA is insignificant. In contrast, a negative and significant relationship at a 5% significance level is observed in Iraq. There are numerous explanations for the insignificant impact of intangible assets on SP in Iran and KSA. Initially, the valuation and recognition of intangible assets can be subjective and complex. Different countries may have varying accounting standards and regulations pertaining to the measurement and reporting of intangible assets, which could contribute to inconsistencies and challenges in determining their impact on SP (Oliveira et al., 2010). Additionally, since intangible assets are frequently distinct to each firm and industry, it is difficult to generalize their influence across industries and firms (Bryan et al., 2017). In addition, SP is affected by a number of factors, including macroeconomic conditions, market sentiment, interest rates, and investor expectations (Moradi et al., 2021). These factors may overshadow the effect of intangible assets on SP, resulting in an insignificant relationship. Other fundamental factors, such as earnings, revenue growth, and financial performance, may have a greater impact on SP in these countries. Moreover, the negative and statistically significant relationship between intangible assets and SP in Iraq suggests that these assets have a discernible effect on the Iraqi stock market. Several variables may have contributed to this finding. In the past few years, Iraq has been confronted with political instability, security concerns, and economic difficulties (Alzuwaini et al., 2019). These circumstances can generate a climate of uncertainty and risk aversion among investors, resulting in a negative perception of the value of intangible assets. The negative relationship between intangible assets and SP may reflect the investor's perception of instability and lack of confidence (Thum-Thysen et al., 2019). The composition of Iraq's industries and sectors may also play a role in this relationship. Certain sectors in Iraq, such as energy and natural resources, may depend more on tangible assets, such as oil deposits or physical infrastructure. Therefore, the effect of intangible assets on SP in these industries may be diminished, resulting in a negative relationship.

The analysis reveals intriguing relationships between macroeconomic variables and SP in Iran, KSA, and Iraq. Firstly, the analysis reveals, at a significance level of 1%, a significant and positive relationship between the macroeconomic variable GDP and SP in Iran and Iraq. In the case of Iran, a one-unit increase in GDP is associated with an average increase of 9.557 units in SP, as indicated by the coefficient of 9.557. Similarly, a one-unit increase in Iraq's GDP correlates with an average 2.400-unit increase in SP. This finding suggests that the aggregate economic performance, as measured by GDP, significantly affects the SP in Iran and Iraq. When the economy is expanding, as indicated by a higher GDP, it can generate a favourable environment for firms, resulting in greater investor optimism and demand for stocks. A robust and expanding economy frequently indicates favourable business prospects, increased corporate earnings, and market confidence, which can increase SP. On the other hand, the relationship between GDP and SP in KSA is statistically significant at the 5% significance level, with a coefficient of 036.17. This indicates that a one-unit increase in GDP is associated with an average 036.17-unit increase in SP. Although the correlation is not as significant in KSA as in Iran and Iraq, it still indicates a positive relationship between GDP and SP. This relationship's significance is consistent with previous studies examining the impact of macroeconomic variables' impact on SP (Barrett et al., 2019; Omodero and Mlanga, 2019). A growing corpus of research suggests that economic indicators, such as the GDP, can provide valuable insights into stock market movements (Asafo-Adjei et al., 2021). Secondly, there is a positive and significant relationship between the inflation rate and SP in all three countries. In Iran, a one-unit increase in the inflation rate correlates to an average 1.585-unit increase in SP. Similarly, a one-unit increase in the inflation rate in KSA is associated with an average increase of 0.233 units in SP, whereas the analogous increase in Iraq is 0.838%. This suggests that higher inflation rates are generally associated with higher SP, which can be attributed to increased corporate revenues, enhanced profitability, and investor expectations of future earnings growth.

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Thirdly, at a significance level of 5%, the results indicate a positive and significant relationship between inflation rates and SP in KSA and Iraq. In KSA, a one-unit increase in the inflation rate correlates to an average increase in SP of 4.864 units, whereas in Iraq, the increase is 62.24 units. This indicates that a stronger currency relative to other currencies can positively affect SP, increasing the competitiveness of export-oriented sectors and attracting foreign investors. These findings align with the findings of Shabbir et al. (2019). Fourthly, the correlation between exchange rates and SP in Iran is significant and negative, at a significance level of 1%. This suggests that a strengthened Iranian currency may have a negative effect on SP, as it can reduce the competitiveness of Iranian exports and diminish the interest of foreign investors. Moreover, exchange rate fluctuations can generate uncertainty for businesses and investors, which can have a negative effect on SP. These findings are also consistent with past studies (Adebayo et al., 2022; Chen et al., 2022)

Lastly, using a significance level of 5% and a coefficient 34.89, the analysis reveals a positive and significant relationship between oil prices and SP in KSA. Given KSA's heavy dependence on the energy industry, this suggests that higher oil prices are associated with higher SP. In Iran, however, the relationship is negative and statistically significant at the 1% level, with a coefficient of 2.94. This suggests that greater oil prices may have a negative effect on SP in Iran, possibly due to country-specific macroeconomic imbalances, government policies, or market dynamics. The relationship between oil prices and SP in Iraq is insignificant, suggesting that other factors may impact SP in Iraq more. These results are consistent with prior research examining the relationships between macroeconomic variables and SP (Huy et al., 2020; Kumar, 2019).

Table 7. Panel Regression Analysis.

Variables	Fixed effect model (Iran)	Fixed effect model (KSA)	Fixed effect model (Iraq)
_cons	24.660*** (0.000)	38.080** (0.003)	416.600* (0.029)
inta	2.652 (0.499)	0.010 (0.900)	-4.154 (0.074)
gdp	9.557*** (0.000)	036.170* (0.012)	2.400*** (0.000)
inf	1.585*** (0.000)	0.233** (0.005)	0.838** (0.002)
exch	-1.666*** (0.000)	4.864** (0.008)	62.240* (0.021)
oil	-2.949*** (0.000)	34.890** (0.009)	-0.003 (0.996)
Profitability	3.281*** (0.000)	0.000 (0.988)	-0.395 (0.253)
eps	-0.158 (0.489)	-0.016 (0.706)	0.015* (0.031)
size	0.030 (0.107)	-1.326* (0.026)	1.496** (0.001)
lev	0.868*** (0.000)	-0.736 (0.317)	0.014 (0.627)
No. of observations	780	366	156
R-sq	0.378	0.413	0.447
Vif (mean)	3.17	1.440	3.300
Wooldridge test	Prob > F = 0.000		

Modified Wald test	Prob > X2 = 0.000	
Breusch & Pagan	Prob > chibar2 = 0.000	
Hausman fixed	Prob>X2= 0.000	

Note: This data set has 780 observations for Iran, 366 for Saudi Arabia, and 156 for Iraq. Significant levels were denoted by asterisks (***, **, *), representing 1%, 5%, and 10% as thresholds. The study employed the Hausman test, a criterion for choosing between random effects and fixed effects models.

5. Conclusion

In recent years, emerging nations such as Iran, Iraq, and KSA have confronted significant obstacles due to heavy sanctions imposed by the United States and Western nations to curb nuclear activities. These severe economic sanctions have weakened the Iranian, Iraqi, and KSA markets, resulting in numerous financial difficulties for their respective businesses. These sanctions affect trade activities such as import and export, affecting exchange rates. As a result, foreign and domestic investors have lost confidence in these emerging countries' capital markets, and creditors have become more hesitant to extend financing to companies with a higher risk of bankruptcy. This diminished access to capital has made it more difficult for businesses to procure the necessary funding. Instability, insecurity, and economic uncertainty in these nations have been exacerbated by the extreme fluctuations in macroeconomic variables in these markets. Consequently, the study investigated the impact of intangible assets and macroeconomic factors on SP. This study seeks to provide a comprehensive understanding of the drivers of SP movements in the context of the examined countries by examining these two key dimensions. The importance of intangible assets is growing in today's business environment. Companies recognize the value and potential of intangible assets such as intellectual property, brand reputation, and human capital in generating competitive advantage and long-term profitability. Understanding the relationship between these intangible assets and SP is crucial for investors, analysts, and policymakers. In addition, macroeconomic factors significantly affect the overall economic environment and stock markets. It is known that GDP growth, inflation rates, exchange rates, and oil prices influence investor sentiment, market dynamics, and the perception of stock value. This study sheds light on the complex relationships in these dynamic markets by analyzing the interaction between these macroeconomic factors and SP. This study examines the relationships between macroeconomic factors, intangible assets, and SP in Iran, KSA, and Iraq. The sample consists of all companies listed on the Stock Exchanges of these countries between 2015 and 2019, comprising 154 companies from Iran, 82 companies from KSA, and 33 from Iraq. Using a model with a fixed effect, the analysis uncovers intriguing relationships between macroeconomic variables and SP in the three countries. Based on the APT model at a significance level of 1%, Iran and Iraq show a significant and positive correlation between GDP and SP. The correlation between KSA's GDP and SP is statistically significant at a 5% significance level. Secondly, a positive and statistically significant correlation exists between the inflation rate and SP in all three nations. Thirdly, the results reveal a positive and significant (at the 5% significance level) correlation between exchange rates and SP in KSA and Iraq. At a significance level of 1%, however, the correlation between exchange rates and SP in Iran is significant but negative. The findings also showed a positive and significant relationship between oil prices and SP in KSA, with a significance level of 5%. At the 1% significance level, the relationship is negative and statistically significant in Iran. There is no significant correlation between oil prices and SP in Iraq. The study concludes that the impact of intangible assets on SP in Iran and KSA is negligible. In Iraq, however, there is a negative and statistically significant relationship at the 5% level. These findings provide valuable insight into the dynamics of SP and the impact of macroeconomic variables and intangible assets in the examined nations. The positive correlations between macroeconomic variables (such as the gross domestic product, inflation rate, and exchange rate) and SP emphasize the significance of maintaining economic stability. Governments and policymakers should prioritize implementing measures to

foster sustainable economic growth, manage inflation, and stabilize exchange rates. This can boost investor confidence and contribute to the stock market's improvement. The findings suggest that when formulating economic policies, policymakers should consider the impact of macroeconomic factors on SP. Effective management of GDP growth, inflation rates, and exchange rates can substantially impact the stock market dynamics. Policymakers must monitor and respond to these variables in order to reduce volatility and cultivate an investment-friendly environment. Given the correlation between oil prices and SP in KSA and Iran, policymakers in these countries should closely monitor and manage fluctuations in oil prices. Diversifying the economy and decreasing its reliance on oil can mitigate the impact of volatile oil prices on the stock market. This may entail investing in alternative sectors, promoting non-oil industries, and implementing effective strategies for resource management. The links between macroeconomic variables, intangible assets, and SP can be studied in greater depth in future studies that involve a wider range of countries. More research into different markets with different economic and political characteristics would improve the findings' applicability. To understand how macroeconomic variables and intangible assets affect stock values across industries, it is helpful to conduct a sector-specific analysis. As a result, governmental interventions and investment plans might be tailored to certain sectors. Understanding the long-term dynamics of macroeconomic variables, intangible assets, and SP requires an examination of the linkages between these factors across time. A deeper comprehension of the inner workings of the stock market can be gained by examining long-term trends and fluctuations.

6. Patents

This section is not mandatory but may be added if there are patents resulting from the work reported in this manuscript.

Supplementary Materials: The following supporting information can be downloaded at: www.mdpi.com/xxx/s1, Figure S1: title; Table S1: title; Video S1: title.

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, X.X. and Y.Y.; methodology, X.X.; software, X.X.; validation, X.X., Y.Y. and Z.Z.; formal analysis, X.X.; investigation, X.X.; resources, X.X.; data curation, X.X.; writing—original draft preparation, X.X.; writing—review and editing, X.X.; visualization, X.X.; supervision, X.X.; project administration, X.X.; funding acquisition, Y.Y. All authors have read and agreed to the published version of the manuscript." Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

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Data Availability Statement: In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. Please refer to suggested Data Availability Statements in section "MDPI Research Data Policies" at https://www.mdpi.com/ethics. If the study did not report any data, you might add "Not applicable" here.

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Appendix A

The appendix is an optional section that can contain details and data supplemental to the main text—for example, explanations of experimental details that would disrupt the flow of the main text but nonetheless remain crucial to understanding and reproducing the research shown; figures of replicates for experiments of which representative data is shown in the main text can be added here if brief, or as Supplementary data. Mathematical proofs of results not central to the paper can be added as an appendix.

Appendix B

All appendix sections must be cited in the main text. In the appendices, Figures, Tables, etc. should be labeled starting with "A"—e.g., Figure A1, Figure A2, etc.

References

Acikalin, Sezgin, Rafet Aktas, and Seyfettin Unal. 2008. Relationships between stock markets and macroeconomic variables: an empirical analysis of the Istanbul Stock Exchange. *Investment management and financial innovations* 5: 8-16.

Adebayo, Tomiwa Sunday, Seyi Saint Akadiri, and Husam Rjoub. 2022. On the relationship between economic policy uncertainty, geopolitical risk and stock market returns in South Korea: a quantile causality analysis. *Annals of Financial Economics* 17: 2250008.

Afshan, Sahar, Arshian Sharif, Nanthakumar Loganathan, and Rania Jammazi. 2018. Time–frequency causality between stock prices and exchange rates: Further evidences from cointegration and wavelet analysis. *Physica A: Statistical Mechanics and its Applications* 495: 225-244. https://doi.org/10.1016/j.physa.2017.12.033

Ajaz, Taufeeq, Md Zulquar Nain, Bandi Kamaiah, and Naresh Kumar Sharma. 2017. Stock prices, exchange rate and interest rate: evidence beyond symmetry. *Journal of Financial Economic Policy* 9: 2-19. https://doi.org/10.1108/JFEP-01-2016-0007

Akbar, Muhammad, Farhan Iqbal, and Farzana Noor. 2019. Bayesian analysis of dynamic linkages among gold price, stock prices, exchange rate and interest rate in Pakistan. *Resources Policy* 62: 154-164. https://doi.org/10.1016/j.resourpol.2019.03.003

Aljawareen, Adnan F. 2019. Iraqi economy post ISIS: challenges and opportunities. *Manag Econ Res J* 5: 1-11 https://doi.org/10.18639/MERJ.2019.799383

Alqahtani, Abdullah, and Tony Klein. 2021. Oil price changes, uncertainty, and geopolitical risks: On the resilience of GCC countries to global tensions. *Energy* 236: 121541. https://doi.org/10.1016/j.energy.2021.121541

Alshamsi, Khamis Hareb, and M. Azam. 2015. The impact of inflation and GDP per capita on foreign direct investment: the case of United Arab Emirates. *Investment management and financial innovations* 12: 132-141.

Al-Tamimi, Adeb Abdulelah Abdulwahid, and Uddagatti Venkatesha. 2021. The Main Factors of Yemeni Conflict: An Analysis. *JDP (Jurnal Dinamika Pemerintahan)* 4: 1-14. https://doi.org/10.36341/jdp.v4i2.1912

Alzuwaini, Hashim, D. Vasil'Kov, N. Kirillov, A. Khitrov, V. Tolmachev, Roman Okorokov, O. Gatsenko, and Dilfuza Zaripova. 2019. Problems of Petroleum industry in Iraq. *In IOP Conference Series: Earth and Environmental Science* 337: 012046). https://doi.org/10.1088/1755-1315/337/1/012046

An, Zhe, Zhian Chen, Donghui Li, and Lu Xing. 2018. Individualism and stock price crash risk. *Journal of International Business Studies* 49: 1208-1236. https://doi.org/10.1057/s41267-018-0150-z

Armstrong, Christopher S., Wayne R. Guay, and Joseph P. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of accounting and economics* 50: 179-234. https://doi.org/10.1016/j.jacceco.2010.10.001

Asafo-Adjei, Emmanuel, Ebenezer Boateng, Zangina Isshaq, Anthony Adu-Asare Idun, Peterson Owusu Junior, and Anokye M. Adam. 2021. Financial sector and economic growth amid external uncertainty shocks: Insights into emerging economies. *Plos one* 16: e0259303. https://doi.org/10.1371/journal.pone.0259303

Baboukardos, Diogenis, and Gunnar Rimmel. 2016. Value relevance of accounting information under an integrated reporting approach: A research note. *Journal of Accounting and Public policy* 35: 437-452. https://doi.org/10.1016/j.jaccpubpol.2016.04.004

Bae, Seong Mi, Md Abdul Kaium Masud, and Jong Dae Kim. 2018. A cross-country investigation of corporate governance and corporate sustainability disclosure: A signaling theory perspective. *Sustainability* 10: 2611. https://doi.org/10.3390/su10082611

Balagobei, S., and D. R. N. K. K. Bandara. 2022. Impact of Macroeconomic Variables on Stock Market Performance: Evidence from Sri Lanka. *Wayamba Journal of Management* 13: 28-45. http://doi.org/10.4038/wjm.v13i1.7551

Barrett, Christopher, Thomas Reardon, Johan Swinnen, and David Zilberman. 2019. Structural transformation and economic development: insights from the agri-food value chain revolution. Cornell University. NY, United States

Basher, Syed Abul, Alfred A. Haug, and Perry Sadorsky. 2012. Oil prices, exchange rates and emerging stock markets. *Energy economics* 34: 227-240. https://doi.org/10.1016/j.eneco.2011.10.005

Ben-Nasr, Hamdi, Lobna Bouslimi, and Rui Zhong. 2021. Do patented innovations reduce stock price crash risk?. *International Review of Finance* 21: 3-36. https://doi.org/10.1111/irfi.12265

Biondi, Yuri, and Antoine Rebérioux. 2012. The governance of intangibles: Rethinking financial reporting and the board of directors. *Accounting Forum* 36: 279-293. https://doi.org/10.1016/j.accfor.2012.03.003

Blaufus, Kay, Axel Möhlmann, and Alexander N. Schwäbe. 2019. Stock price reactions to news about corporate tax avoidance and evasion. *Journal of Economic Psychology* 72: 278-292. https://doi.org/10.1016/j.joep.2019.04.007

Bryan, Dick, Michael Rafferty, and Duncan Wigan. 2017. Capital unchained: finance, intangible assets and the double life of capital in the offshore world. *Review of international political economy* 24: 56-86. https://doi.org/10.1080/09692290.2016.1262446n

Brynjolfsson, Erik, Lorin M. Hitt, and Shinkyu Yang. 2002. Intangible assets: Computers and organizational capital. *Brookings papers on economic activity* 2002: 137-181.

Burhan Ismael, Nechirwan, Sarhang Sorguli, Hassan Mahmood Aziz, Bawan Yassin Sabir, Pshdar Abdalla Hamza, Bayar Gardi, and Farhad Al-Kake. 2021. The impact of COVID-19 on small and medium-sized enterprises in Iraq. Annals of RSCB, ISSN, 1583-6258. 25: 2496-2505

Callen, Jeffrey L., and Xiaohua Fang. 2015. Religion and stock price crash risk. *Journal of Financial and Quantitative Analysis* 50: 169-195. https://doi.org/10.1017/S0022109015000046

Cao, Thuy, Hoang Nguyen, Khuong Nguyen, and Liem Nguyen. 2023. Information asymmetry on the link between corporate social responsibility and stock price crash risk. *Cogent Economics & Finance* 11: 2230727. https://doi.org/10.1080/23322039.2023.2230727

Chang, Bisharat Hussain, and Suresh Kumar Oad Rajput. 2018. Do the changes in macroeconomic variables have a symmetric or asymmetric effect on stock prices? Evidence from Pakistan. *South Asian Journal of Business Studies* 7: 312-331. https://doi.org/10.1108/SAJBS-07-2018-0077

Chen, Lin, Fenghua Wen, Wanyang Li, Hua Yin, and Lili Zhao. 2022. Extreme risk spillover of the oil, exchange rate to Chinese stock market: Evidence from implied volatility indexes. *Energy economics* 107: 105857. https://doi.org/10.1016/j.eneco.2022.105857

Cook, R. Dennis. 1977. Detection of influential observation in linear regression. *Technometrics* 19: 15-18. https://doi.org/10.1080/00401706.1977.10489493

Czech, Katarzyna, and Ibrahim Niftiyev. 2021. The impact of oil price shocks on oil-dependent countries' currencies: The case of Azerbaijan and Kazakhstan. *Journal of Risk and Financial Management* 14: 431. https://doi.org/10.3390/jrfm14090431

Dahmash, Firas N., Robert B. Durand, and John Watson. 2009. The value relevance and reliability of reported goodwill and identifiable intangible assets. *The British accounting review* 41: 120-137. https://doi.org/10.1016/j.bar.2009.03.002

Dang, Viet Anh, Edward Lee, Yangke Liu, and Cheng Zeng. 2018. Corporate debt maturity and stock price crash risk. *European Financial Management* 24: 451-484. https://doi.org/10.1111/eufm.12134

Delgado, Nancy Areli Bermudez, Estefanía Bermudez Delgado, and Eduardo Saucedo. 2018. The relationship between oil prices, the stock market and the exchange rate: Evidence from Mexico. *The North American Journal of Economics and Finance* 45: 266-275. https://doi.org/10.1016/j.najef.2018.03.006

Ding, Rong, Hang Zhou, and Yifan Li. 2020. Social media, financial reporting opacity, and return comovement: Evidence from Seeking Alpha. *Journal of Financial Markets* 50: 100511. https://doi.org/10.1016/j.finmar.2019.100511

Dong, Huynh Phuong, and Jyh-tay Su. 2010. The relationship between working capital management and profitability: a Vietnam case. *International Research Journal of Finance and Economics* 49: 59-67.

Dutta, Anupam. 2017. Oil price uncertainty and clean energy stock returns: New evidence from crude oil volatility index. *Journal of Cleaner Production* 164: 1157-1166. https://doi.org/10.1016/j.jclepro.2017.07.050

El-adaway, Islam H., Gasser G. Ali, Ibrahim S. Abotaleb, and Herbert M. Barber Jr. 2020. Studying the relationship between stock prices of publicly traded US construction companies and gross domestic product: Preliminary step toward construction–economy nexus. *Journal of Construction Engineering and Management* 146: 04019087. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001742

El-Nader, Hasan Mohammed, and Ahmad Diab Alraimony. 2013. The macroeconomic determinants of stock market development in Jordan. *International Journal of Economics and Finance* 5: 91-103. http://dx.doi.org/10.5539/ijef.v5n6p91

Engelberg, Joseph, Charles F. Manski, and Jared Williams. 2009. Comparing the point predictions and subjective probability distributions of professional forecasters. *Journal of Business & Economic Statistics* 27: 30-41. https://doi.org/10.1198/jbes.2009.0003

Entessar, Nader. 2023. Kurdistan-Iraq and Iran. In Between Diplomacy and Non-Diplomacy: Foreign relations of Kurdistan-Iraq and Palestine (pp. 263-277). Springer. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-09756-0_13

Ertugrul, Mine, Jin Lei, Jiaping Qiu, and Chi Wan. 2017. Annual report readability, tone ambiguity, and the cost of borrowing. *Journal of Financial and Quantitative Analysis* 52: 811-836. https://doi.org/10.1017/S0022109017000187

Ewens, Michael, Ryan H. Peters, and Sean Wang. 2019. *Measuring intangible capital with market prices*. National Bureau of Economic Research, Cambridge, Massachusetts

Fama, Eugene F. 1981. Stock returns, real activity, inflation, and money. *The American Economic Review* 71: 545-565.

Feng, Jingwen, John W. Goodell, and Dehua Shen. 2022. ESG rating and stock price crash risk: Evidence from China. *Finance Research Letters* 46: 102476. https://doi.org/10.1016/j.frl.2021.102476

Ferdaous, Jannatul, and Mohammad Mizanur Rahman. 2019. The effects of intangible assets on firm performance: An empirical investigation on selective listed manufacturing firms in DSE, Bangladesh. *American Journal of Business* 34: 148-168. https://doi.org/10.1108/AJB-11-2018-0065

Fiori, Giovanni, Francesca Di Donato, and Maria Federica Izzo. 2015. Corporate social responsibility and stock prices: A study on the Italian market. *Corporate Ownership & Control* 12: 600-609.

Gamayuni, Rindu Rika. 2015. The effect of intangible asset, financial performance and financial policies on the firm value. *International Journal of scientific and technology research* 4: 202-212.

Ghodsi, Mahdi, and Huseyin Karamelikli. 2022. The impact of sanctions imposed by the European Union against Iran on their bilateral trade: General versus targeted sanctions. *World Trade Review* 21: 33-58. https://doi.org/10.1017/S1474745621000318

Ghomi, Morteza. 2022. Who is afraid of sanctions? The macroeconomic and distributional effects of the sanctions against Iran. *Economics & Politics* 34: 395-428. https://doi.org/10.1111/ecpo.12203

Giovanni, Giovanni, and Setyarini Santosa. 2020. Do intellectual capital and intangible assets influence the firm value?(case study in trade, service, and investment sector in Indonesia). *Ultima Management: Jurnal Ilmu Manajemen* 12: 200-209. https://doi.org/10.31937/manajemen.v12i2.1703

Greene, William H., and David A. Hensher. 2010. *Modeling ordered choices: A primer*. Cambridge University Press. Cambridge, Massachusetts

Gurloveleen, K., and B. S. Bhatia. 2015. An impact of macroeconomic variables on the functioning of Indian stock market: A study of manufacturing firms of BSE 500. *Journal of Stock & Forex Trading* 5: 1-7. http://dx.doi.org/10.4172/2168-9458.1000160

He, Pinglin, Yulong Sun, Ying Zhang, and Tao Li. 2020. COVID–19's impact on stock prices across different sectors—An event study based on the Chinese stock market. *Emerging Markets Finance and Trade* 56: 2198-2212. https://doi.org/10.1080/1540496X.2020.1785865

He, Wen, Donghui Li, Jianfeng Shen, and Bohui Zhang. 2013. Large foreign ownership and stock price informativeness around the world. *Journal of International Money and Finance* 36: 211-230. https://doi.org/10.1016/j.jimonfin.2013.04.002

Herrera, Ana María, Mohamad B. Karaki, and Sandeep Kumar Rangaraju. 2019. Oil price shocks and US economic activity. *Energy policy* 129: 89-99. https://doi.org/10.1016/j.enpol.2019.02.011

Hossin, Md Shakhaowat, and Md Kaisar Hamid. 2021. Capital market performance and Bangladesh's economy: An empirical study. *Global Business Review* 1: 1-19. https://doi.org/10.1177/0972150920982247

Hunjra, Ahmed Imran, Dr Muhammad Irfan Chani, Muhammad Shahzad Ijaz, and Muhammad Farooq. 2014. The impact of macroeconomic variables on stock prices in Pakistan. *International Journal of Economics and Empirical Research* 2: 13-21.

Husna, Asmaul, and Ibnu Satria. 2019. Effects of return on asset, debt to asset ratio, current ratio, firm size, and dividend payout ratio on firm value. *International Journal of Economics and Financial Issues* 9: 50-54. https://doi.org/10.32479/ijefi.8595

Huy, Dinh Tran Ngoc, Bui Thi Thu Loan, and Tuan Anh Pham. 2020. Impact of selected factors on stock price: a case study of Vietcombank in Vietnam. *Entrepreneurship and Sustainability Issues* 7: 2715. http://doi.org/10.9770/jesi.2020.7.4(10)

Huy, Dinh Tran Ngoc, Vo Kim Nhan, Nguyen Thi Ngoc Bich, Nguyen Thi Phuong Hong, Nham Thanh Chung, and Pham Quang Huy. 2021. Impacts of internal and external macroeconomic factors on firm stock price in an expansion econometric model—a case in Vietnam real estate industry. *Data Science for Financial Econometrics* 898:189-205. https://doi.org/10.1007/978-3-030-48853-6_14

Idan, Adil Majeed. 2022. Effect of Oil Prices, Inflate Rate, Energy Consumption, Gross Domestic Product on Stock Market Performance of Iraq Stock Exchange. *Cuadernos de Economía* 45: 45-52.

Jain, Anshul, and Pratap Chandra Biswal. 2016. Dynamic linkages among oil price, gold price, exchange rate, and stock market in India. *Resources Policy* 49: 179-185. https://doi.org/10.1016/j.resourpol.2016.06.001

Jamaludin, Nurasyikin, Shahnaz Ismail, and Syamimi Ab Manaf. 2017. Macroeconomic variables and stock market returns: Panel analysis from selected ASEAN countries. *International Journal of Economics and Financial Issues* 7: 37-45.

Jayasundara, J. M. D. P., R. M. A. K. Rathnayake, and P. J. S. Fernando. 2019. Impact of macroeconomic variables on stock market performances: evidence from Sri Lanka.Working paper, University of Sri Jayewardenepura, Sri Lanka

Jia, Ning. 2018. Corporate innovation strategy and stock price crash risk. *Journal of Corporate Finance* 53: 155-173. https://doi.org/10.1016/j.jcorpfin.2018.10.006

Jin, Li, and Stewart C. Myers. 2006. R2 around the world: New theory and new tests. *Journal of financial Economics* 79: 257-292. https://doi.org/10.1016/j.jfineco.2004.11.003

Khan, Muhammad Kamran. 2019. Impact of exchange rate on stock returns in Shenzhen stock exchange: Analysis through ARDL approach. *International Journal of economics and management* 1: 15-26.

Kim, Jeong-Bon, and Liandong Zhang. 2016. Accounting conservatism and stock price crash risk: Firm-level evidence. *Contemporary accounting research* 33: 412-441. https://doi.org/10.1111/1911-3846.12112

Kumar, Satish. 2019. Asymmetric impact of oil prices on exchange rate and stock prices. *The Quarterly Review of Economics and Finance* 72: 41-51. https://doi.org/10.1016/j.qref.2018.12.009

Kunst, Robert M. 2010. Econometric methods for panel data. Working paper, UK: University of Vienna. Vienna, Austria

Laichena, Kaunyangi Eliud, and Tabitha Nasieku Obwogi. 2015. Effects of macroeconomic variables on stock returns in the East African community stock exchange market. *International journal of education and research* 3: 305-320.

Laudati, Dario, and M. Hashem Pesaran. 2023. Identifying the effects of sanctions on the Iranian economy using newspaper coverage. *Journal of Applied Econometrics* 38: 271-294. https://doi.org/10.1002/jae.2947

Le, Chau, Bach Nguyen, and Vinh Vo. 2023. Do intangible assets help SMEs in underdeveloped markets gain access to external finance?—the case of Vietnam. *Small Business Economics* 1: 1-23. https://doi.org/10.1007/s11187-023-00785-z

Lee, Wei, and Lihong Wang. 2017. Do political connections affect stock price crash risk? Firm-level evidence from China. *Review of Quantitative Finance and Accounting* 48: 643-676. https://doi.org/10.1007/s11156-016-0563-3

Lee, Yun-Chi, Yang-Cheng Lu, and Yu-Chun Wang. 2019. Corporate social irresponsibility, CEO overconfidence, and stock price crash risk. *Applied Economics Letters* 26: 1143-1147. https://doi.org/10.1080/13504851.2018.1540835

Li, Jia, and Zhengying Luo. 2020. The impact of product market competition on stock price crash risk. *Journal of Business & Industrial Marketing* 35: 1141-1153. https://doi.org/10.1108/JBIM-12-2018-0375

Li, Xiafei, and Di Luo. 2019. Financial constraints, stock liquidity, and stock returns. Journal of International Financial Markets, *Institutions and Money* 63: 101139. https://doi.org/10.1016/j.intfin.2019.101139

Ligocká, Marie, and Daniel Stavárek. 2019. The relationship between financial ratios and the stock prices of selected European food companies listed on stock exchanges. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 67: 299-307. https://doi.org/10.11118/actaun201967010299

Lim, Steve C., Antonio J. Macias, and Thomas Moeller. 2020. Intangible assets and capital structure. *Journal of Banking & Finance* 118: 105873. https://doi.org/10.1016/j.jbankfin.2020.105873

Liu, Fang, Muhammad Umair, and Junjun Gao. 2023. Assessing oil price volatility co-movement with stock market volatility through quantile regression approach. *Resources Policy* 81: 103375. https://doi.org/10.1016/j.resourpol.2023.103375

Loukil, Nadia, and Ouidad Yousfi. 2012. Does corporate governance affect stock liquidity in the Tunisian Stock Market? *29th International Conference of the French Finance Association (AFFI).* Available at SSRN: https://dx.doi.org/10.2139/ssrn.2084708

Maigoshi, Zaharaddeen Salisu, Rohaida Abdul Latif, and Hasnah Kamardin. 2018. Change in value-relevance of disclosed RPT across accounting regimes: Evidence from Malaysia. *Research in International Business and Finance* 44: 422-433. https://doi.org/10.1016/j.ribaf.2017.07.114

Majanga, Byson. 2015. The dividend effect on stock price-An empirical analysis of Malawi listed companies. *Accounting and Finance Research*, 4: 99-105

Majidi, Ali Feghe, and Zahra Zarouni. 2016. The impact of sanctions on the economy of Iran. *International Journal of Resistive Economics* 4: 84-99.

Malkiel, Burton G. 1979. The capital formation problem in the United States. *The Journal of Finance* 34: 291-306. https://doi.org/10.2307/2326969

Mallard, Grégoire, Farzan Sabet, and Jin Sun. 2020. The Humanitarian Gap in the Global Sanctions Regime: Assessing Causes, Effects, and Solutions. *Global Governance: A Review of Multilateralism and International Organizations* 26: 121-153.

Mandala, Juniawan, Josua Panatap Soehaditama, Moch Arif Hernawan, Ika Utami Yulihapsari, and Maya Sova. 2023. Implementing the Capital Asset Pricing Model in Forecasting Stock Returns: A Literature Review. *Indonesian Journal of Business Analytics* 3: 171-182.

Mansion, Stephanie E., and Andreas Bausch. 2020. Intangible assets and SMEs' export behavior: a meta-analytical perspective. *Small Business Economics* 55: 727-760. https://doi.org/10.1007/s11187-019-00182-5

Mensah, Lord, Pat Obi, and Godfred Bokpin. 2017. Cointegration test of oil price and us dollar exchange rates for some oil dependent economies. *Research in International Business and Finance* 42: 304-311. https://doi.org/10.1016/j.ribaf.2017.07.141

Momani, Ghazi F., and Majed A. Alsharari. 2012. Impact of economic factors on the stock prices at Amman stock market (1992-2010). *International Journal of Economics and Finance* 4: 151-159. http://dx.doi.org/10.5539/ijef.v4n1p151

Moradi, Mahdi, Andrea Appolloni, Grzegorz Zimon, Hossein Tarighi, and Maede Kamali. 2021. Macroeconomic factors and stock price crash risk: do managers withhold bad news in the crisis-ridden Iran market? *Sustainability* 13: 3688. https://doi.org/10.3390/su13073688

Mugableh, Mohamed Ibrahim. 2018. A homoscedastic co-integration analysis of Malaysian financial market. *American Journal of Finance and Accounting* 5: 360-370. https://doi.org/10.1504/AJFA.2018.093632

Muhammed Al-Kassab, Mowafaq. 2022. The effect of some macroeconomic variables on stock market movement in Iraq. *Advances and Applications in Statistics* 73: 1-16.

Mukherjee, Tarun K., and Atsuyuki Naka. 1995. Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. *Journal of financial Research* 18: 223-237. https://doi.org/10.1111/j.1475-6803.1995.tb00563.x

Naama, Karim. 2022. Relation: National Security and Economic Development of the Republic of Iraq. *Социално-икономически анализи* 1: 58-68.

Nichita, Mirela Elena. 2019. Intangible assets–insights from a literature review. *Journal of Accounting and Management Information Systems* 18: 224-261.

Nwosa, Philip Ifeakachukwu. 2021. Oil price, exchange rate and stock market performance during the COVID-19 pandemic: implications for TNCs and FDI inflow in Nigeria. *Transnational Corporations Review* 13: 125-137. https://doi.org/10.1080/19186444.2020.1855957

Ocak, Murat, and Derya Fındık. 2019. The impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: evidence from Turkish listed firms. *Sustainability* 11: 5359. https://doi.org/10.3390/su11195359

Oliveira, Lídia, Lúcia Lima Rodrigues, and Russell Craig. 2010. Intangible assets and value relevance: Evidence from the Portuguese stock exchange. *The british accounting review* 42: 241-252. https://doi.org/10.1016/j.bar.2010.08.001

Omodero, Cordelia Onyinyechi, and Sunday Mlanga. 2019. Evaluation of the impact of macroeconomic variables on stock market performance in Nigeria. *Business and Management Studies* 5: 34-44. https://doi.org/10.11114/bms.v5i2.4208

Ongan, Serdar, Cem Işik, and Dilek Özdemir. 2017. The effects of real exchange rates and income on international tourism demand for the USA from some European Union countries. *Economies* 5: 51. https://doi.org/10.3390/economies5040051

Pandiangan, Saut Maruli Tua, Fida Oktafiana, Santi Rohdearni Panjaitan, and Mutiara Shifa. 2022. Analysis of public ownership and management ownership on the implementation of the triple bottom line in the plantation sector listed on the Indonesia Stock Exchange. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)* 5: 349-3497.

PH, Haritha, and Abdul Rishad. 2020. An empirical examination of investor sentiment and stock market volatility: evidence from India. *Financial Innovation* 6: 1-15.

Prabheesh, K. P., Rakesh Padhan, and Bhavesh Garg. 2020. COVID-19 and the oil price–stock market nexus: Evidence from net oil-importing countries. *Energy Research Letters* 1: 1-4.

Purnamawati, I. Gusti Ayu, Ferry Jie, Puah Chin Hong, and Gede Adi Yuniarta. 2022. Analysis of maximization strategy intangible assets through the speed of innovation on knowledge-driven business performance improvement. *Economies* 10: 149-169.

Qamri, Ghulam Muhammad, Muhammad Abrar Ul Haq, and Farheen Akram. 2015. The impact of inflation on stock prices: Evidence from Pakistan. *Microeconomics and Macroeconomics* 3: 83-88. https://doi.org/10.5923/j.m2economics.20150304.01

Qamruzzaman, Md, and Jianguo Wei. 2018. Financial innovation, stock market development, and economic growth: An application of ARDL model. *International Journal of Financial Studies* 6: 69-99. https://doi.org/10.3390/ijfs6030069

Raghutla, Chandrashekar, Thokala Sampath, and Arjun Vadivel. 2020. Stock prices, inflation, and output in India: An empirical analysis. *Journal of Public Affairs* 20: e2052. https://doi.org/10.1002/pa.2052

Rahman, Md Lutfur, and Jashim Uddin. 2009. Dynamic relationship between stock prices and exchange rates: Evidence from three South Asian countries. *International Business Research* 2: 167-174.

Rane, Halim, and Paul Mitchell. 2021. Islam-west relations in the era of Trump. Donald J. Trump: Notable or notorious, Queenland, Australia, 335-366.

Rasoulinezhad, Ehsan, and Liudmila Popova. 2017. An estimation of the impact of economic sanctions and oil price shocks on Iran-Russian trade: Evidence from a gravity-VEC approach. *Iranian Economic Review* 21: 469-497.

Ross, Stephen A. 1976. The arbitrage theory of capital assets pricing. *Journal of Economic Theory* 13: 341-360. https://doi.org/10.1142/9789814417358_0001

Roubaud, David, and Mohamed Arouri. 2018. Oil prices, exchange rates and stock markets under uncertainty and regime-switching. *Finance Research Letters* 27: 28-33. https://doi.org/10.1016/j.frl.2018.02.032

Satt, Harit, and Ahmed Tamek. 2017. Marketing intangible assets and credit ratings, evidence from MENA. *Risk Governance & Control: financial markets & institutions* 7: 88-98. http://dx.doi.org/10.22495/rgcv7i2c1p9

Setiawan, Satria Aji. 2020. Does macroeconomic Condition matter for Stock market? Evidence of Indonesia Stock market Performance for 21 years. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning* 4: 27-39. https://doi.org/10.36574/jpp.v4i1.105

Seyfi, Siamak, Colin Michael Hall, and Tan Vo-Thanh. 2022. The gendered effects of statecraft on women in tourism: Economic sanctions, women's disempowerment and sustainability? *Journal of Sustainable Tourism* 30: 1736-1753. https://doi.org/10.1080/09669582.2020.1850749

Shabbir, Malik Shahzad, and Iftikhar Muhammad. 2019. The dynamic impact of foreign portfolio investment on stock prices in Pakistan. *Transnational Corporations Review* 11: 166-178. https://doi.org/10.1080/19186444.2019.1616508

Sharif, Arshian, Chaker Aloui, and Larisa Yarovaya. 2020. COVID-19 pandemic, oil prices, stock market, geopolitical risk and policy uncertainty nexus in the US economy: Fresh evidence from the wavelet-based approach. *International review of financial analysis* 70: 101496. https://doi.org/10.1016/j.irfa.2020.101496

Shugliashvili, Teona. 2023. The Words Have Power: the Impact of News on Exchange Rates Exchange Rates. Available at SSRN 4447687. Working Paper, Prague University of Economics and Business, Prague, Czechia

Sim, Nicholas, and Hongtao Zhou. 2015. Oil prices, US stock return, and the dependence between their quantiles. *Journal of Banking & Finance* 55: 1-8. https://doi.org/10.1016/j.jbankfin.2015.01.013

Simbolon, Lentina, and Purwanto. 2018. The influence of macroeconomic factors on stock price: The case of real estate and property companies. In Global tensions in financial markets (pp. 19-39). Emerald Publishing Limited.

Singh, Tarika, Seema Mehta, and M. S. Varsha. 2011. Macroeconomic factors and stock returns: Evidence from Taiwan. *Journal of economics and international finance* 3: 217-227.

Singhal, Shelly, Sangita Choudhary, and Pratap Chandra Biswal. 2019. Return and volatility linkages among International crude oil price, gold price, exchange rate and stock markets: Evidence from Mexico. *Resources Policy* 60: 255-261. https://doi.org/10.1016/j.resourpol.2019.01.004

Solaymani, Saeed. 2021. A review on energy and renewable energy policies in Iran. *Sustainability*, 13: 7328. https://doi.org/10.3390/su13137328

Strycharz, Joanna, Nadine Strauss, and Damian Trilling. 2018. The role of media coverage in explaining stock market fluctuations: Insights for strategic financial communication. *International Journal of Strategic Communication* 12: 67-85. https://doi.org/10.1080/1553118X.2017.1378220

Su, Chi-Wei, Khalid Khan, Ran Tao, and Moldovan Nicoleta-Claudia. 2019. Does geopolitical risk strengthen or depress oil prices and financial liquidity? Evidence from Saudi Arabia. *Energy* 187: 116003. https://doi.org/10.1016/j.energy.2019.116003

Su, Kun, and Victor Song. 2022. Social trust, corporate governance, and stock price crash risk: Evidence from China. *Bulletin of Economic Research* 74: 965-994. https://doi.org/10.1111/boer.12328

Thum-Thysen, Anna, Peter Voigt, Beñat Bilbao-Osorio, Christoph Maier, and Diana Ognyanova. 2019. Investment dynamics in Europe: Distinct drivers and barriers for investing in intangible versus tangible assets? *Structural Change and Economic Dynamics* 51: 77-88. https://doi.org/10.1016/j.strueco.2019.06.010

Tiryaki, Ahmet, Reşat Ceylan, and Levent Erdoğan. 2019. Asymmetric effects of industrial production, money supply and exchange rate changes on stock returns in Turkey. *Applied Economics* 51: 2143-2154. https://doi.org/10.1080/00036846.2018.1540850

Wang, Qian, Xiang Li, and Qiaoying Liu. 2021. Empirical research of accounting conservatism, corporate governance and stock price collapse risk based on panel data model. *Connection Science* 33: 995-1010. https://doi.org/10.1080/09540091.2020.1806204

Wei, Yu, Songkun Qin, Xiafei Li, Sha Zhu, and Guiwu Wei. 2019. Oil price fluctuation, stock market and macroeconomic fundamentals: Evidence from China before and after the financial crisis. *Finance Research Letters* 30: 23-29. https://doi.org/10.1016/j.frl.2019.03.028

Wu, Kai, and Seiwai Lai. 2020. Intangible intensity and stock price crash risk. *Journal of Corporate Finance* 64: 101682. https://doi.org/10.1016/j.jcorpfin.2020.101682

Yang, Zheng, Anthony H. Tu, and Yong Zeng. 2014. Dynamic linkages between Asian stock prices and exchange rates: new evidence from causality in quantiles. *Applied Economics* 46: 1184-1201. https://doi.org/10.1080/00036846.2013.868590

Yazdanfar, Darush, and Peter Öhman. 2015. Debt financing and firm performance: an empirical study based on Swedish data. *The Journal of Risk Finance* 16: 102-118. https://doi.org/10.1108/JRF-06-2014-0085

Zhou, Xiaohua, Jinshi Wan, Yi Yang, and Xiangyu Gan. 2021. Management equity incentives and stock price crash risk:"Golden handcuffs" or "gold watch". *Plos one* 16: e0249900. https://doi.org/10.1371/journal.pone.0249900