-RESEARCH ARTICLE-

CROSS-COUNTRY ANALYSIS: EXPLORING THE IMPACT OF INTANGIBLE ASSETS AND MACROECONOMIC FACTORS ON STOCK PRICES IN IRAN, SAUDI ARABIA, AND IRAQ

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─**Abstract**─

This research investigates the correlation between firm-level and macroeconomic factors and stock prices in Iran, Saudi Arabia (KSA), and Iraq, countries characterised by volatile economic conditions. The sample consists of all companies that are publicly traded on the stock exchanges of the mentioned countries during the period from 2015 to 2019. This comprehensive dataset includes information from 154 Iranian firms, 82 firms from the Kingdom of Saudi Arabia (KSA), and 33 firms from Iraq. The application of a fixed effect model reveals compelling associations between firm-level and macroeconomic factors on the stock price (SP). The results suggest a statistically significant relationship between the Gross Domestic Product (GDP) of Iran and Iraq and their corresponding Social Progress (SP) scores, with a significance level of 1%. In the Kingdom of Saudi Arabia (KSA), there exists a positive and statistically significant association between Gross Domestic Product (GDP) and Social Progress (SP) at a significance level of 5%. Furthermore, it is worth noting that there exists a robust and statistically significant positive correlation between the inflation rate and the stock price index (SP) across all three countries. Furthermore, there exists a significant and positive

correlation between exchange rates and stock prices in the Kingdom of Saudi Arabia (KSA) and Iraq. However, in Iran, this correlation is found to be negative and statistically significant at the 1% level of significance.Moreover, it is observed that in the Kingdom of Saudi Arabia (KSA), there exists a positive and statistically significant correlation between oil prices and the stock market performance (SP). Conversely, in Iran, the relationship between these two variables is found to be negative at a significance level of 1%. Remarkably, there exists no discernible correlation between the cost of oil and the Iraqi Stock Exchange. In the context of intangible assets, their influence on stock prices in Iran and Saudi Arabia is minimal. In the context of Iraq, it is observed that there exists a statistically significant negative relationship at a significance level of 5%. This suggests that intangible assets have an adverse effect on the performance of the firm, specifically on its stock price. The aforementioned results shed light on the intricate relationship between macroeconomic variables, intangible assets, and stock performance in the countries under investigation. Policymakers and governments should prioritise the implementation of measures aimed at promoting sustainable economic growth, effectively managing inflation, and achieving exchange rate stability. These measures have the potential to enhance investor confidence and make a significant contribution to the overall growth and progress of the stock market.

Keywords: Intangible Assets, Macroeconomic Factors, Stock prices,

JEL: E6, H54, R53.

INTRODUCTION

In recent times, there has been a significant level of attention and interest among scholars and professionals in the capital market regarding sudden and unpredictable changes in stock prices. Consequently, a multitude of international research endeavours have been undertaken to investigate the impact of firm-level factors on stock prices. These factors can be categorised as either internal or external. Internal factors encompass various elements that have been extensively studied in academic literature. These factors include corporate tax avoidance (Blaufus, Möhlmann, & Schwäbe, 2019), the presence of opaque financial reports (Ding, Zhou, & Li, 2020), the application of accounting conservatism (Wang, Li, & Liu, 2021), the implementation of corporate social responsibility initiatives (Fiori, Di Donato, & Izzo, 2015), the influence of CEO overconfidence (Lee, Lu, & Wang, 2019), financial constraints, stock liquidity (Li & Luo, 2020), Furthermore, scholarly research has examined the influence of various external variables on stock prices, including religion (Callen & Fang, 2015), social trust (Su & Song, 2022), media sentiment and sensationalism (Strycharz, Strauss, & Trilling, 2018), individualism (An, Chen, Li, & Xing, 2018), political connections (Lee & Wang, 2017), trading behaviour and investor sentiment (PH & Rishad, 2020), and product market competition (Li & Luo, 2020). This study employs a novel methodology to examine the impact of both firm-specific and

macroeconomic factors on SP. Prior research has predominantly focused on factors at the firm level, overlooking the significance of intangible assets and social performance. While there have been a limited number of studies that have adopted a broader perspective by considering macroeconomic factors such as GDP, oil prices, inflation rates, and exchange rates, the overall body of research in this area remains relatively small. Hence, this research endeavour aims to address the existing disparity by concurrently examining firm-specific factors and macroeconomic indicators. By undertaking this approach, the objective is to offer a more comprehensive comprehension of the variables influencing SP.

As a consequence of the economic crisis in Iran, Saudi Arabia (KSA), and Iraq, these countries have encountered unfavourable economic interactions with European nations and the United States due to the imposition of severe economic sanctions. The economic repercussions of the sanctions imposed by the United States and various European nations on Iran have been significant, as noted in studies conducted by Ghodsi and Karamelikli (2022) and Ghomi (2022). The imposition of sanctions on critical sectors such as energy, finance, and trade has presented significant obstacles for Iran in engaging in global trade and gaining access to international markets (Mallard, Sabet, & Sun, 2020). The aforementioned circumstances have resulted in a decrease in international investment, a scarcity of accessible capital, and challenges pertaining to the importation of essential commodities in Iran (Majidi & Zarouni, 2016). While not reaching the same level as Iran, the Kingdom of Saudi Arabia (KSA) is also a notable oil producer and exporter and has faced its own set of economic challenges and uncertainties. The economic stability of the Kingdom of Saudi Arabia (KSA) has been impacted by the volatility of global oil prices, geopolitical tensions, and shifts in the energy markets (Alqahtani & Klein, 2021; Su, Khan, Tao, & Nicoleta-Claudia, 2019). Furthermore, the strained relationship between the Kingdom of Saudi Arabia (KSA) and certain Western nations has been exacerbated by a variety of factors, including human rights concerns, the assassination of journalist Jamal Khashoggi, and the ongoing conflict in Yemen (Rane & Mitchell, 2021). These aforementioned concerns have led to calls for limitations on the trade of weapons and specific economic connections, thereby introducing further economic instability for the Kingdom of Saudi Arabia (KSA). In addition, it is worth noting that Iraq possesses substantial oil reserves and exhibits promising prospects for economic growth. However, the nation has encountered various challenges, including political instability, corruption, and security apprehensions (Aljawareen, 2019). The ongoing conflicts and terrorist threats in Iraq, particularly during the war against ISIS, have had a detrimental impact on the country's economy and its capacity to attract foreign investment (Naama, 2022). The economy of Iraq has experienced significant repercussions as a result of its strained diplomatic ties with Western nations, particularly the United States. The invasion of Iraq by the United States in 2003, followed by its subsequent occupation, resulted in significant disruptions and pervasive economic uncertainty within the country. Furthermore, the economic connections between Iraq and Western nations have been impacted by the complex dynamics between the United States and Iran, alongside Iran's considerable

influence within Iraq. These factors potentially have implications for investor sentiment (Entessar, 2023). There is no doubt that the imposition of severe economic sanctions on Iran, the surveillance encountered by Saudi Arabia, and the challenges in Iraq's economic development have amplified the systemic risk and insecurity experienced by investors and lenders in these respective markets. These adverse economic relationships give rise to uncertainties and limitations that pose challenges for businesses in their operations and for investors in their ability to evaluate and address potential risks. In light of the prevailing conflicts, it is noteworthy that the Kingdom of Saudi Arabia (KSA) has experienced consistent growth in its Gross Domestic Product (GDP), as highlighted by Al-Tamimi and Venkatesha (2021). On the contrary, the economic conditions in Iran and Iraq have been characterised by significant challenges. In recent years, both Iran and Iraq have faced significant economic sanctions, leading to considerable financial challenges for numerous domestic enterprises (Laudati & Pesaran, 2023; Seyfi, Hall, & Vo-Thanh, 2022). The imposition of economic sanctions on Iran and Iraq has had a notable impact, leading to a substantial decrease in their Gross Domestic Product (GDP) and a continuous devaluation of their respective national currencies due to a significant rise in exchange rates (Rasoulinezhad & Popova, 2017). In light of adverse economic circumstances, the escalating costs of essential raw materials for enterprises have reached levels that render them unaffordable, consequently leading to an increase in product prices. The unchecked inflationary pressures have resulted in daily escalations in prices, gradually diminishing the purchasing capacity of individuals. Consequently, there has been a notable decline in the demand for manufactured goods in both the Iranian and Iraqi markets (Burhan Ismael et al., 2021). Firms are confronted with the dual challenge of being unable to recruit new employees as a result of elevated production expenses and diminishing sales volumes, while also being compelled to terminate a substantial portion of their workforce as a means of cost reduction. Consequently, there has been a rise in the unemployment rate. The confluence of escalating inflation, diminished purchasing power, diminishing sales, and heightened unemployment poses challenges for firms in obtaining financing through share issuance, potentially leading to a decrease in SP (Moradi et al., 2021). Moreover, given the adverse economic circumstances, creditors exhibit a reduced propensity to extend loans to companies experiencing diminished profitability. The aforementioned factors contribute to the exacerbation of financial challenges faced by companies operating in Iran and Iraq, thereby placing additional strain on their capacity to sustain operations and influencing their strategic positioning.

Furthermore, it is important to note that financial statements serve a vital function in mitigating information asymmetry. They accomplish this by offering precise numerical figures that act as indicators and accurately reflect the worth of a company (Cao, Nguyen, Nguyen, & Nguyen, 2023). The anticipated utilisation of the book value of equity, earnings value, and intangible assets value is expected to play a crucial role in facilitating effective communication between internal issuers and external parties (Le, Nguyen, & Vo, 2023). Through the provision of precise and relevant data, these values empower individuals who

invest in the public domain to make well-informed decisions regarding their investments. Contemporary businesses heavily depend on their intangible assets to generate value, which are crucial components of their innovation capabilities and serve as the foundation for enhancing a firm's strategic performance (Ferdaous & Rahman, 2019). In the contemporary, highly competitive marketplace, enterprises are progressively dependent on intangible assets, such as patents, as a fundamental basis for augmenting their competitiveness and operational efficacy (Purnamawati, Jie, Hong, & Yuniarta, 2022). The examination of the impact of these intangible assets has garnered the attention of scholars and practitioners in academia and the business community. Nevertheless, a comprehensive analysis of the current body of literature pertaining to the impact of intangible assets exposes notable deficiencies. The existing body of research has primarily focused on developed nations (Mansion & Bausch, 2020; Ocak & Fındık, 2019), resulting in a dearth of studies conducted on developing countries. Hence, the objective of this research is to analyse the impact of macroeconomic variables, namely GDP, oil prices, inflation rates, and exchange rates, as well as firm-level factors, particularly intangible assets, on stock prices in emerging economies, specifically focusing on the Kingdom of Saudi Arabia, Iran, and Iraq. This study is based on the theoretical frameworks of the Arbitrage Pricing Theory (APT) and the Signalling Theory. These theories serve as the basis for comprehending the connections between macro and micro factors and their impact on the stock price (SP). This research utilises a comprehensive sample comprising all companies that were listed on the Stock Exchanges of Iran, KSA, and Iraq during the period from 2015 to 2019. The sample consisted of 154 Iranian firms, 82 KSA firms, and 33 Iraqi firms, resulting in a total of 815 observations for Iran, 385 observations for KSA, and 165 observations for Iraq.

This comprehensive analysis employs a fixed effect model to demonstrate the intricate relationships between firm-level, macroeconomic factors, and stock prices in Iran, Saudi Arabia (KSA), and Iraq. To begin with, a statistically significant positive correlation has been observed between the Gross Domestic Product (GDP) of Iran and Iraq, as well as their Social Progress (SP) indicators, at a significance level of 1%. Similarly, a statistically significant positive relationship exists between Gross Domestic Product (GDP) and Social Progress (SP) in the Kingdom of Saudi Arabia (KSA), albeit only at a significance level of 5%. Additionally, a robust and favourable correlation exists between the inflation rate and stock prices in all three nations. Additionally, the data presented indicates a positive and statistically significant correlation between exchange rates and stock prices in the Kingdom of Saudi Arabia (KSA) and Iraq. The relationship between exchange rates and the stock market performance (SP) holds significance in Iran. However, based on statistical analysis at a 1% significance level, the observed trend indicates a negative correlation. The study reveals a statistically significant association between oil prices and the stock market performance in the Kingdom of Saudi Arabia (KSA), with a significance level of 5%. In the context of Iran, it is observed that there exists a statistically significant inverse association between oil prices and the stock price (SP) at a significance level of 1%. The absence of a discernible

impact of oil prices on the stock market in Iraq is a notable and unexpected observation. Moreover, it is observed that intangible assets have a limited impact on stock prices in Iran and Saudi Arabia. At a statistically significant level of 5%, a significant negative association has been observed between intangible assets and stock performance in Iraq. This study significantly enhances the existing body of literature. By conducting an analysis of the influence of macroeconomic and firm-level factors on systematic risk, this research contributes to our understanding of the factors that determine systematic risk. It is contended that these factors play a significant role in influencing the behaviour of the stock market, particularly in times of economic uncertainty characterised by stringent sanctions and heightened systemic risk. Under such circumstances, managers may be inclined to hide unfavourable information.

The subsequent sections of the study are organised in the following manner. This section presents a theoretical framework, formulates hypotheses, and reviews relevant literature. The study methodology is presented in section 3. In the fourth section, an examination of the primary outcomes derived from our statistical analyses is presented. The conclusive findings of the study were presented in Section 5.

2. REVIEW OF LITERATURE AND DEVELOPMENT OF HYPOTHESES

In the contemporary era characterised by the prevalence of technology and data, enterprises are progressively acknowledging the importance of intangible assets and adopting digital transformation. The organisation is allocating resources towards the acquisition of patents, intellectual property rights, software, human capital (in terms of skills and knowledge), brands, research and development, artificial intelligence, consumer loyalty, and other intangible assets associated with information technology. In the current epoch of information technology, intangible assets are widely acknowledged as substantial contributors to a firm's value, owing to their inherent worth. Significantly, there exists a robust and statistically significant relationship between the disclosure of goodwill and other intangible assets and the stock price performance (SP). This implies that the recognition and assessment of these intangible assets by companies have a significant impact on the stock price and the perception of the firm's overall worth. The significance placed on intangible assets underscores the evolving paradigm of value generation in the digital era, wherein a firm's intangible assets assume paramount significance and substantially contribute to its overall worth. The theory of signalling posits that a firm's communication of intangible assets can function as a means of conveying information to investors regarding the firm's value and future growth potential (Giovanni & Santosa, 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. However, it has been argued by Mandala et al. (2023) that in addition to firm-specific variables, strategic performance (SP) is also influenced by broader macroeconomic

conditions, as suggested by the APT. The macroeconomic variables encompassed in this analysis may comprise of indicators such as GDP growth, inflation rates, interest rates, exchange rates, and other relevant factors. The initial exposition of the Arbitrage Pricing Theory (APT) was provided by Ross (1976). The APT posits that multiple factors, encompassing macroeconomic conditions, exert influence on stock prices (SP). Fama (1981) demonstrated a significant correlation between the APT model and various macroeconomic variables, including industrial production, yield curve, interest rate (IR), inflation, and risk premium, in relation to the SP. Based on the theoretical foundations outlined, a considerable body of research has been undertaken to examine the impact of macroeconomic factors on SP. This has been evidenced by studies conducted by Ajaz, Nain, Kamaiah, and Sharma (2017), Hunjra, Chani, Ijaz, and Farooq (2014), Huy, Loan, and Pham (2020), and Wei et al. (2019). Numerous studies have substantiated the significant impact of macroeconomic factors on SP.

This study employed the Signalling Theory to examine the relationship between firm-level factors, specifically intangible assets, and SP. On the other hand, the Asset Pricing Theory (APT) was utilised to gain an understanding of the influence of macroeconomic factors on stock prices (SP). Through the utilisation of these theoretical frameworks, our objective was to gain a deeper understanding of the interconnected relationship between intangible assets and macroeconomic factors in their influence on stock prices. The present study formulates hypotheses in the subsequent sub-section in order to examine the associations between intangible assets, macroeconomic variables, and SP. The hypotheses presented in this study are derived from established theoretical frameworks and are informed by prior research findings.

2.1 Intangible Assets and SP

The conventional accounting principles, which primarily utilise historical cost and accounting conservatism, possess certain constraints in the context of firms that possess significant intangible assets (Biondi & Rebérioux, 2012; Brynjolfsson, Hitt, & Yang, 2002; Lim, Macias, & Moeller, 2020). In contrast to tangible assets such as real estate or financial instruments, intangible assets do not possess a physical form, thereby posing challenges in accurately quantifying their profitability. The process of assigning value to intangible assets often necessitates the exercise of managerial subjectivity, thereby compounding the challenges involved. The presence of information asymmetry, as posited by the signalling theory, arises from discrepancies in the information that is communicated to management and other stakeholders (Bae, Masud, & Kim, 2018). In order to narrow the divide and enhance the understanding of issuers among public investors, businesses make efforts to disclose relevant information pertaining to their products, financial status, and potential for growth. Financial statements play a crucial role in mitigating information asymmetry, as the specific figures contained within these statements function as signals that accurately reflect the worth of a company

(Armstrong, Guay, & Weber, 2010). The anticipated utilisation of book value of equity, earnings value, and intangible asset value is expected to play a crucial role in facilitating effective communication between internal issuers and external parties. Through the effective dissemination of precise and pertinent data, these principles enable individuals who invest in the public domain to make informed and prudent decisions regarding their investments. It is likely that the trading volume and price of securities will mirror alterations in decision-making that are influenced by the signals provided. Estimating the fair value of intangible assets can pose challenges in the absence of a functioning exchange market for such assets (Maigoshi, Latif, & Kamardin, 2018).

The valuation of intangible assets is additionally impeded by the challenge of assessing the probability of enduring failure over an extended period of time. Dahmash, Durand, and Watson (2009) assert that the reliability of accounting information pertaining to intangible assets is questionable. Multiple scholarly investigations have been conducted on the relationship between intangible intensity, asymmetric information, and financial reporting quality. Notably, Wu and Lai (2020) have contributed to this body of research. The study conducted by Baboukardos and Rimmel (2016) revealed that companies with a high reliance on intangible assets tend to attract a larger pool of analysts. However, the researchers also found that investors face challenges in accurately assessing the fair value of these intangible assets due to the presence of biased information. The insufficient examination of the impact of intangible assets on the stock performance of publicly listed firms is a notable gap in the existing research, despite the growing significance of these assets in the overall economy. Intangible assets, such as intellectual property, brand value, and human capital, have become crucial factors for driving growth and gaining a competitive advantage. Nevertheless, conventional accounting and valuation frameworks have predominantly focused on tangible assets, leading to the comparatively neglected consideration of intangible assets in the dynamics of the stock market.

A recent empirical investigation has examined the correlation between firm innovation and the likelihood of stock market downturns, resulting in conflicting outcomes. In a study conducted by Jia (2018), the impact of corporate innovation strategy on the risk of stock price crashes was examined. The findings revealed that firms with an exploration-oriented approach are more prone to experiencing a heightened risk of stock price crashes compared to firms with an exploitative-oriented approach. The reason for this phenomenon can be attributed to the comparatively higher ratio of failures to successes experienced by exploratory firms. As a result, these firms are less inclined to reveal interim negative information pertaining to their innovation endeavours. Ben-Nasr, Bouslimi, Ebrahim, and Zhong (2020) have identified a negative correlation between firm innovation and the risk of strategic partnership failure. It is posited that the presence of granted patents and patent citations can potentially lower the cost associated with commercial information and enhance investor self-assurance through the transmission of favourable market signals. Significantly, the aforementioned studies

primarily concentrated on patent citations, R&D expenditures, and patent applications as indicators of innovation output, rather than directly assessing intangible assets. Previous studies have predominantly focused on examining the correlation between intangible assets and the valuation of firms (Ferdaous & Rahman, 2019; Gamayuni, 2015; Satt & Tamek, 2017) corporate disclosure (Kim & Zhang, 2016), and financial reporting (Ertugrul, Lei, Qiu, & Wan, 2017; Feng, Goodell, & Shen, 2022; Jin & Myers, 2006). Nevertheless, there has been a notable dearth of scholarly focus directed towards the correlation between intangible assets and stock performance. Consequently, to address this research gap, the present study proposes the following hypotheses.

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 have a significant impact on the stock market's prices in Iraq*

2.2 GDP and SP

A multitude of scholarly investigations have examined the association between the gross domestic product (GDP) and SP, yielding diverse outcomes. Several studies have suggested a correlation between the gross domestic product (GDP) and SP (El-adaway, Ali, Abotaleb, & Barber Jr, 2020; Idan, 2022). Nevertheless, the study conducted by Hunjra, Chani, Ijaz, and Farooq (2014) revealed a lack of correlation between Pakistan's Gross Domestic Product (GDP) and the stock market index. Singh, Mehta, and Varsha (2011) established a noteworthy correlation between the Gross Domestic Product (GDP) and stock market returns in Taiwan. Furthermore, Momani and Alsharari (2012) established a statistically significant correlation between the level of national production and the fluctuations in share prices. In contrast, the study conducted by El-Nader and Alraimony (2013) revealed a negative relationship between nominal GDP and the stock market development in Jordan. There is a positive correlation between the increase in GDP growth rate and the corresponding rise in SP (Basher, Haug, & Sadorsky, 2012; Simbolon & Purwanto, 2018). According to the study conducted by Jayasundara, Rathnayake, and Fernando (2019), it was observed that there exists a positive correlation between the real Gross Domestic Product (GDP) and the All Share Price Index (ASPI) in emerging markets. Qamruzzaman and Wei (2018) underscored the impact of stock market development on economic growth, while Hossin and Hamid (2021) discerned a unidirectional relationship between the stock market and GDP. In their study, Gurloveleen and Bhatia (2015) conducted an analysis to examine the impact on the BSE 500 manufacturing companies and found no statistically significant correlation. In their study, Tiryaki, Ceylan, and Erdoğan (2019) identified a significant association between the fluctuations in stock market returns and the performance of industrial production. Furthermore, the study conducted by Balagobei and Bandara (2022) revealed a significant and positive correlation between industrial production and share prices in the context of Sri Lanka over an extended period of time. Based on conflicting results and APT, the following hypotheses are put forth by the current study.

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 has a significant impact on the stock market's prices in Iraq*

2.3 Inflation Rate and SP

There is a lack of a consistent correlation between inflation and stock market performance. Multiple studies have revealed an inverse correlation between the inflation rate and the stock market performance (Fama, 1981; Mukherjee & Naka, 1995). The reason for this negative association arises from the impact of inflation on the uncertainty surrounding future inflation rates, leading investors to require higher risk premiums. A decrease in SP occurs as a result (Malkiel, 1979). An additional rationale for the inverse correlation may stem from the fact that elevated levels of inflation lead to heightened production expenses, thereby diminishing the cash flows of corporations and subsequently causing a decrease in stock prices. However, a considerable body of research has revealed a robust correlation between SP (short for "specific variable") and inflation. Ongan, Işik, and Özdemir (2017) identified explicit co-integration between stock prices (SP) and inflation in several European countries, including Germany, the United Kingdom, Switzerland, the Netherlands, Italy, and France. Mugableh (2018) conducted a study on the Malaysian stock exchange and reported comparable results. Numerous subsequent empirical studies have examined the relationship between inflation and the stock market index known as the S&P (Acikalin, Aktas, & Unal, 2008; Qamri, Haq, & Akram, 2015; Raghutla, Sampath, & Vadivel, 2020). Laichena and Obwogi (2015) conducted a study which revealed that there exists a significant relationship between inflation and stock returns. However, the impact of inflation on stock returns is contingent upon prevailing economic conditions and investor perceptions. Specifically, the researchers observed that the nature of this relationship is influenced by whether inflation is perceived as positive or negative news. Furthermore, Delgado, Delgado, and Saucedo (2018) conducted a study to examine the correlation between inflation and social progress (SP) and determined that inflation has an adverse effect on SP. In contrast, Chang and Rajput (2018) identified a statistically significant correlation between the Industrial Production Index (IPI) and the Stock Price (SP). The following hypotheses are put forth by the present study based on the aforementioned research and the APT 21 model.

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

Multiple scholarly investigations have demonstrated that the volatility in currency exchange rates exerts a substantial impact on the overall performance of the stock market

(Khan, 2019; Setiawan, 2020; Singhal, Choudhary, & Biswal, 2019). According to Nwosa (2021), the devaluation of currency has the potential to enhance the performance of the domestic stock exchange. When the local currency depreciates, domestic products gain a competitive edge in the global market. This advantage is attributed to increased export volumes, improved company cash flows, and ultimately, a rise in stock prices. Furthermore, an elevated exchange rate serves as a catalyst for increased foreign portfolio investments, thereby facilitating the growth of the domestic economy. Nevertheless, it should be noted that there is not a unanimous consensus among studies regarding the existence of a consistent correlation between exchange rates and stock prices. In the context of Bangladesh, India, and Pakistan, Rahman and Uddin (2009) conducted a study and determined that there is no significant long-term or causal association between exchange rates and the stock market performance (SP). Similarly, Yang, Tu, and Zeng (2014) identified a reciprocal association between exchange rates and stock prices within the framework of Malaysia, Indonesia, Singapore, Thailand, the Philippines, Japan, India, Korea, and Taiwan. The findings of Ajaz, Nain, Kamaiah, and Sharma (2017) and Delgado, Delgado, and Saucedo (2018) indicate a noteworthy correlation between exchange rates and SP. Delgado, Delgado, and Saucedo (2018) conducted a study that revealed a noteworthy finding regarding the relationship between exchange rates and SP in Mexico. Their research demonstrated that there exists a negative and statistically significant influence of exchange rates on SP, implying that as the currency appreciates, SP tends to increase. Roubaud and Arouri (2018) employed both vector autoregressive (VAR) models and multivariate Markov switching VAR models to establish a nonlinear relationship between exchange rates and stock prices (SP). Additionally, a significant correlation between exchange rates and stock prices was observed by Akbar, Iqbal, and Noor (2019). 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 influence of oil prices on the stock market index known as the S&P has garnered significant scholarly interest in the past few years (Liu, Umair, & Gao, 2023). Investors make decisions regarding their investments by considering not only the fundamental information available from stock markets, but also by incorporating data related to the oil market (Pandiangan, Oktafiana, Panjaitan, & Shifa, 2022). There is a prevalent consensus among scholars that an escalation in oil prices is associated with a decrease in stock prices (He, Sun, Zhang, & Li, 2020; Herrera, Karaki, & Rangaraju, 2019). Numerous scholarly investigations have been conducted to explore the correlation between oil prices and stock markets (Ligocká & Stavárek, 2019; Prabheesh, Padhan,

& Garg, 2020; Singhal, Choudhary, & Biswal, 2019). However, it is important to note that these studies have faced criticism due to the absence of a consensus regarding the causal relationship between oil prices and stock prices, variations observed across different countries, and the lack of empirical evidence supporting these claims (Sharif, Aloui, & Yarovaya, 2020). Several studies argue that a linear methodology may not effectively capture the intricacy and nonlinearity of the relationship between oil and stock markets (Afshan, Sharif, Loganathan, & Jammazi, 2018; Dutta, 2017). Sim and Zhou (2015) found that there is an asymmetric reaction of the stock market to oil price disruptions, and the response of exchange rates to positive and negative oil price shocks may exhibit variability. Extensive scholarly research has been conducted on the correlation between oil prices and the performance of the S&P (Czech & Niftiyev, 2021). For instance, Czech and Niftiyev (2021) observed that an escalation in real oil prices is associated with a more pronounced devaluation of currencies in nations heavily dependent on oil. In a similar vein, Jain and Biswal (2016) presented empirical evidence indicating a causal relationship between increasing oil prices and the depreciation of the Indian rupee. In their study, Mensah, Obi, and Bokpin (2017) identified a negative correlation between oil prices and oil prices within the G20. Based on past literature and APT, the present study proposes the following hypotheses.

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

The sample for this study comprises all companies that were listed on the stock exchanges of Iran, KSA, and Iraq during the period from 2015 to 2019. The study encompassed a total of 154 Iranian companies, 82 companies from the Kingdom of Saudi Arabia (KSA), and 33 companies from Iraq. Consequently, the datasets obtained consisted of 815 observations for Iranian companies, 385 observations for KSA companies, and 165 observations for Iraqi companies. The firms were chosen based on the following criteria: 1) It was necessary for firms to adhere to a consistent fiscal year throughout the designated time periods. 2) Firms were obligated to maintain continuous activity during the duration of the study and ensure that their stocks were actively traded. 3) The availability of all essential financial data for the study period spanning from 2010 to 2019 was a prerequisite. 4) Firms included in the sample belonged to productive industries, which facilitated the implementation of standardised reporting procedures and improved comparability. The utilisation of these specific criteria ensures the integrity and relevance of the data employed in the study.

3.2 Panel Data Regression Analysis

This study utilised panel data analysis to examine the relationship between Intangible Assets and macroeconomic factors on the Stock Price (SP) of companies listed on the Stock Exchanges of Iran, KSA, and Iraq. Panel data presents several notable advantages when compared to cross-sectional or time-series datasets. The utilisation of panel analysis enhances the accuracy of parameter estimates by augmenting the degrees of freedom and sample variability in the estimation process (Jamaludin, Ismail, & Ab Manaf, 2017). Furthermore, the utilisation of panel analysis, as opposed to cross-sectional data, affords researchers enhanced flexibility in discerning fluctuations in the behaviour of panel members (Greene & Hensher, 2010). In a nutshell panel analysis is considered to be a more dependable method compared to time-series and cross-sectional data due to its ability to track individual-specific characteristics and facilitate the simultaneous investigation of Granger causality across variables (Kunst, 2010). The regression analysis in this study employed the Stata software and incorporated fixed-effect, random-effect, and ordinary least squares (OLS) models. Moreover, the data pertaining to the chosen firms in this research was gathered from diverse sources, encompassing annual reports, websites of Central Banks, and the World Bank. The research collected firm-level data by extracting information from the annual reports of the companies. In contrast, the macroeconomic indicators were obtained from the official websites of the respective countries' Central Banks as well as the World Bank.

3.3 Variables Measurement

Dependent Variable

Shareholder performance (SP) serves as a dependable measure of firm performance. The term "performance" in this context pertains specifically to the company's stock price over a period of several years, with a focus on long-term patterns. In accordance with the research conducted by Ewens, Peters, and Wang (2019), the study examined the firm's strategic positioning (SP) within a defined temporal scope encompassing the years (t, t+1, t+2). Here, "t" denotes the present year, "t+1" signifies the subsequent year, and "t+2" represents the subsequent year thereafter. The research employed the natural logarithm of the 3-year standard deviation of the SP index to quantify the level of volatility or dispersion exhibited by the SP index over a span of three years. The standard deviation is a statistical measure that quantifies the degree of variation or dispersion within a specific dataset. In this specific instance, the calculation determines the disparity between the stock price of the company and its mean value observed during a span of three years. The utilisation of the natural logarithm of the standard deviation is expected to enhance the stability of the SP variance and facilitate the interpretation of results, especially in scenarios involving potentially significant SP variations.

Independent Variables

Intangible assets

Intangible assets refer to assets that lack physical substance and are unable to be easily quantified or physically perceived, yet they possess the capacity to enhance the value of a firm. The assets in question encompass a range of valuable intangible resources, including intellectual property, brand recognition, patents, copyrights, trademarks, and benevolence, among other notable examples. Numerous enterprises heavily depend on intangible assets as they often exert a substantial influence on revenue generation, cultivation of consumer loyalty, and establishment of a competitive advantage. In accordance with the research conducted by Ewens, Peters, and Wang (2019), the present study employed the utilisation of the ratio between intangible assets (including specific intangible assets and goodwill) and the total assets of the firm.

Macroeconomic Indicators

This study additionally utilises a range of macroeconomic indicators to evaluate the firm's stock performance. In addition to Gross Domestic Product (GDP), this study examines the inflation rate, exchange rate, and oil price as noteworthy indicators. The calculation of the GDP involves dividing the percentage change between the GDP of the current year and the GDP of the previous year by the GDP of the previous year (Engelberg, Manski, & Williams, 2009). The inflation rate (referred to as Infl) used in this study is the officially reported inflation rate sourced from the World Bank (Alshamsi & Azam, 2015). The variable denoting the exchange rate, denoted as "Exch," is expressed as the logarithm of the exchange rate, specifically the natural logarithm. This representation is derived from the central bank data pertaining to each individual firm, as stated by Shugliashvili (2023). Finally, the Oil Price Indicator was calculated by determining the ratio of the percentage difference between the current year's oil price and the previous year's oil price to the previous year's oil price (Wei et al., 2019).

Control variables

This study incorporated control variables, namely profitability, earnings per share (EPS), firm size, and leverage. These variables serve the purpose of accounting for additional factors that may potentially exert an influence on the relationship under analysis. The metric of profitability (Prof) was employed as an indicator of a company's financial viability. The calculation involves determining the ratio between net profit and total assets, as stated by Dong and Su (2010). The concept of earnings per share (EPS) pertains to the division of a company's earnings among its outstanding shares of stock. The calculation is derived from the net profit at the

end of the fiscal year (Majanga, 2015). Additionally, the measurement of firm size (Size) is determined by the total assets of the company, which are obtained from the balance sheet (Husna & Satria, 2019). The financial metric referred to as Leverage (LEV) is represented by the debt ratio, which is computed by dividing a company's total liabilities by its total assets (Yazdanfar & Öhman, 2015). This variable offers valuable insights into the degree to which a company depends on debt financing.

3.4 Model Specification

In this study, an analytical model was employed to examine the correlation between intangible assets and macroeconomic factors on the stock prices of firms listed on the stock exchanges of Iran, KSA, and Iraq. The model utilised variable code names and descriptions to facilitate the investigation. The variables utilised in models 1 and 2 are outlined in Table 3.2.

$$
\begin{aligned}
Stp_{it} = \alpha_0 &+ \beta_1 \text{inta}_{it} + \beta_2 \text{gdp}_{it} + \beta_3 \text{inf}_{it} + \beta_4 \text{exch}_{it} + \beta_5 \text{oil}_{it} + \beta_6 \text{prof}_{it} \\
&+ \beta_7 \text{eps}_{it} + \beta_8 \text{size}_{it} + \beta_8 \text{size}_{it} + \lambda_{it} + \eta_t + \varepsilon_{it}
\end{aligned}
\tag{1}
$$

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, λ_{it}= Country effect, η_t = Time effect, ε = error term.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The Tables 3.1. 3.2 and 3.3 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. In Iran, the average SP (stp) is approximately 7.94, whereas it is 10.93196 in KSA and 6.973237 in Iraq (see Tables 3.1. 3.2 and 3.3). Based on 815 observations, the minimal and maximum SP in Iran are 6,378 and 9,586, respectively. Based on 385 observations, KSA has a minimum of 0.8196 and a maximum of 46.6179. Based on a dataset comprising 165 observations, the statistical parameter (SP) of Iraq exhibits a range spanning from a minimum value of 1.3980 to a maximum value of 10.3254. Furthermore, the variable "Intangible Assets" (inta) indicates that Iran has an average value of approximately 0.005, the Kingdom of Saudi Arabia (KSA) has an average value of approximately 1.190, and Iraq has an average value of approximately 0.041. This finding suggests that the Kingdom of Saudi Arabia (KSA) exhibits the highest mean value among the three countries. In Iran, the range of intangible assets is between 0 and 0.0587, while in KSA it is between 0 and 9.96 and in Iraq, it is between 0.00006 and 0.4236.

When considering Gross Domestic Product (GDP), Iran exhibits an average of around 0.065, while KSA demonstrates a mean of 0.131, and Iraq showcases an average of 0.115. Among these three nations, KSA boasts the highest mean GDP. Specifically, Iran's GDP spans from 0.0159 to 0.1251, whereas KSA's GDP ranges from 0.0115 to 0.2690. In contrast, Iraq's GDP fluctuates between 0.0012 and 0.2697. Shifting focus to inflation rates, Iran's average stands at approximately 0.460, KSA's at around 1.942, and Iraq's at about 0.821. Among these countries, KSA maintains the highest average inflation rate. The variable representing inflation rate (inf) spans from 0.1290 to 1.0194, with KSA's range extending from 0.1852 to 6.5, and Iraq's ranging between 0.3636 and 1.5.

Speaking about exchange rates, Iran records an approximate mean of 10,423, KSA showcases an average of about 1,927, and Iraq displays a mean value of around 7,087. The highest average exchange rate among the three nations is observed in Iraq. KSA's exchange rate varies within the range of 10.2344 to 10.6454, while Iraq's exchange rate fluctuates between 1.3218 and 2.5314.

The mean value of oil prices for Iran, KSA, and Iraq remains roughly at 0.274. Within this context, KSA's oil prices fluctuate between 0.0798 and 0.4870, with Iraq's range being identical. Shifting focus to profitability, Iran demonstrates an average of 0.143, KSA displays a mean of 2.26, and Iraq exhibits a mean value of 0.127. The highest average value for the profitability variable is seen in KSA among the three countries. The profitability range for Iran extends from 0 to 6,206, while Iraq's range spans from 0 to 1,3592.

In terms of earnings per share, Iran's mean value is approximately 0.042, KSA has an average of 3.031, and Iraq showcases a mean value of 3.597. The greatest average earnings per share among the three countries is found in Iraq. Iran's range for earnings per share lies between 0 and 9.806, while KSA's range extends from 0 to 32.58. Iran's "prof" variable ranges from 0 to 1.3592.

When considering firm size, Iran's range spans from 0 to 114.4333, with an approximate mean of 14,633. In comparison, KSA's firm size range lies between 0 and 25.4967, with a mean of 21.365. Remarkably, Iraq boasts the largest average firm size among the three countries, with a range extending from 11.1977 to 20.1834 and an average of 22.465. Shifting the focus to leverage, Iran demonstrates a mean of roughly 0.556, KSA showcases a mean of about 0.448, and Iraq displays a mean of around 1.321. Notably, Iraq exhibits the highest average leverage among these three nations. The leverage variable for Iran varies between 0.0139 and 1.3634, while KSA's leverage ranges between 0 and 4.124157, and Iraq's varies from 0.000419 to 47.88309.

Table 3.1: Iran descriptive statics

Variable	Obs	Mean	Std. Dev.	Min	Max
Stp	815	7.939575	0.963769	6.378492	9.585776
Inta	815	0.004948	0.008214	0	0.057732
Gdp	815	0.065274	0.040745	0.015886	0.125105
Inf	815	0.460382	0.300711	0.129032	1.019355
Exch	815	10.42381	0.14902	10.23441	10.64542
Oil	815	0.274266	0.139388	0.079756	0.487034
Prof	815	0.14266	0.244485	0	6.206
Eps	815	0.041712	0.509922	0	9.806
Size	815	14.63277	1.571977	11.19767	20.18339
Lev	815	0.555646	0.216149	0.013863	1.363412

Table 3.1: KSA descriptive statics

Variable	Obs	Mean	Std. Dev.	Min	Max
Stp	385	10.93196	7.80845	0.819644	46.61787
Inta	385	1.190237	2.324591	0	9.96
Gdp	385	0.130541	0.099774	0.011522	0.269031
Inf	385	1.942385	2.319311	0.185185	6.5
Exch	385	1.926556	0.428215	1.321756	2.531356
Oil	385	0.274266	0.139483	0.079756	0.487034
Prof	385	2.265604	16.79254	0	186.365
Eps	385	3.031042	5.29532	0	32.58
Size	385	21.36491	1.895091	0	25.49671
Lev	385	0.447615	0.37293	0	4.124157

Table 3.1: Iraq descriptive statics

Variable	Obs	Mean	Std. Dev.	Min	Max
Stp	165	6.973237	2.194511	1.397976	10.32537
inta	165	0.04121	0.058848	5.95E-05	0.423559
gdp	165	0.115277	0.092231	0.001199	0.269702
inf	165	0.821299	0.396891	0.363636	1.5
exch	165	7.086716	0.006743	7.07327	7.090077
oil	165	0.274266	0.139726	0.079756	0.487034
prof	165	0.126912	0.193672	0	1.359174
eps	165	3.597184	14.82622	0	114.4333
size	165	22.46505	1.476415	17.45666	26.72351
lev	165	1.320668	5.269484	0.000419	47.88309

4.2 Correlation Matrix

Multicollinearity pertains to a substantial correlation observed among independent variables, thereby posing challenges in statistical analysis, particularly in regression models. The correlation coefficients for the explanatory variables in Iran, KSA, and Iraq are presented in Tables 3.3, 3.4, and 3.5, respectively. The coefficients of correlation serve to quantify both the strength and direction of the linear association between two variables. Within this particular context, they play a role in assessing the extent of multicollinearity among the independent variables. The data presented in the tables demonstrate that the correlation coefficients among the explanatory variables in Iran, KSA, and Iraq are all below 0.90. This observation suggests that there is a lack of substantial multicollinearity among the independent variables. The presence of multicollinearity can also be observed through the use of the Variance Inflation Factor (VIF). The Variance Inflation Factor (VIF) is frequently employed as a means of assessing multicollinearity in regression analysis. The Variance Inflation Factor (VIF) is a statistical measure utilised to quantify the extent to which multicollinearity amplifies the variance of estimated regression coefficients. The Variance Inflation Factor (VIF) values for all explanatory variables are below 10, suggesting the absence of multicollinearity among these variables.

Table 3.3: Correlation Matrix of Iran

	inta	gdp	inf	exch	oil	prof	eps	size	lev
inta	1.0000								
gdp	-0.0122	1.0000							
	0.727								
inf	-0.0467	0.5716*	1.0000						
	0.1825	0.000							
exch	-0.0508	0.3190*	0.7543*	1.0000					
	0.1471	0.000	0.000						
oil	0.0269	-0.8609*	-0.6939*	-0.6334*	1.0000				
	0.4429	0.000	0.000	0.000					
prof	-0.0264	0.0104	0.1112*	0.1024*	-0.0409	1.0000			
	0.452	0.7662	0.0015	0.0034	0.2433				
eps	-0.0181	0.0385	0.0999*	0.0944*	-0.0669	0.0333	1.0000		
	0.6059	0.2718	0.0043	0.007	0.0561	0.3424			
size	-0.0284	0.0613	0.1546*	0.1803*	-0.1182*	0.0797*	0.2378*	1.0000	
	0.4188	0.0805	0.000	0.000	0.0007	0.0229	0.000		
lev	0.0933*	-0.0335	-0.1115*	-0.1086*	0.0661	-0.2291*	-0.0453	0.0044	1.0000
	0.0077	0.3393	0.0014	0.0019	0.0591	0.000	0.1963	0.8998	

Table 3.2: Correlation Matrix of Iran KSA

	inta	gdp	inf	exch	oil	prof	Eps	size	lev
inta	1.0000								
gdp	-0.0612	1.0000							
	0.2311								
inf	-0.0339	0.3118*	1.0000						
	0.5069	0.000							
exch	0.0209	0.3828*	0.5075*	1.0000					
	0.6825	0.000	0.000						
oil	0.0559	0.9418*	0.1083*	0.6605*	1.0000				
	0.2742	0.000	0.0337	0.000					
prof	0.0652	0.0538	0.0128	-0.0039	0.0449	1.0000			
	0.2015	0.2922	0.8018	0.9389	0.3793				
eps	0.0968	-0.0145	0.004	0.0286	-0.0224	0.2501*	1.0000		
	0.0577	0.7768	0.9378	0.5759	0.6619	0.000			
size	0.2073*	-0.0218	-0.0739	-0.039	-0.007	0.1601*	0.0431	1.0000	
	0.000	0.6699	0.1479	0.4449	0.8904	0.0016	0.3995		
lev	-0.1872*	-0.0223	-0.0407	0.0024	-0.0254	-0.0194	-0.0785 lev	0.1253*	1.0000
	0.0002	0.6629	0.4264	0.9627	0.6192	0.7039	0.124	0.0138	

Table 3.2: Correlation Matrix of Iraq

	inta	gdp	inf	exch	oil	prof	Eps	size	LEV
inta	1.0000								
gdp	-0.0183	1.0000							
	0.8154								
inf	0.1248	0.5656*	1.0000						
	0.1101	0.000							
exch	0.0057	0.8397*	0.5783*	1.0000					
oil	-0.0604	0.8924*	0.7339*	0.7637*	1.0000				
	0.441	0.000	0.000	0.000					
prof	0.2473*	0.0915	-0.0691	-0.033	0.0953	1.0000			
	0.0014	0.2425	0.3776	0.6741	0.2234				
eps	-0.0304	-0.0256	0.0483	0.0371	-0.0315	0.0059	1.0000		
	0.6984	0.7445	0.5379	0.6361	0.6878	0.9402			
size	-0.3959*	0.0019	-0.0067	-0.0054	-0.001	0.2333*	0.5379*	1.0000	
	0	0.9806	0.932	0.9447	0.9898	0.0026	0		
lev	0.0457	-0.0499	0.0851	0.0641	-0.0341	0.1973*	-0.0534	-0.2932*	1.0000
	0.5597	0.5246	0.2769	0.4133	0.6633	0.0111	0.4958	0.0001	

4.3 Results and Discussion

Table 4.3 presents the fixed effects models pertaining to Iran, the Kingdom of Saudi Arabia (KSA), and Iraq. The preliminary analysis encompassed a total of 815 observations for Iran, 385 observations for the Kingdom of Saudi Arabia (KSA), and 165 observations for Iraq. In the process of model estimation, the Cook's distance test was employed for the purpose of detecting outliers, as proposed by Cook (1977). By employing the "cut-off = 1" command, the system effectively eliminated a group of anomalous data points from the estimation process in an automated manner. Hence, the fixed effects models were computed based on a sample size of 780 observations for Iran, 365 observations for KSA, and 156 observations for Iraq. The diagnostic test conducted on the models in Iran, KSA, and Iraq yielded mean values of 3.17, 1.44, and 3.3, respectively. This observation suggests that the variance inflation factor (VIF) values were found to be below the designated threshold, signifying the absence of multicollinearity among the independent variables.

The study's findings indicate that the impact of intangible assets on shareholder performance (SP) in Iran and Saudi Arabia (KSA) is not statistically significant. However, in Iraq, a statistically significant negative relationship is observed at a 5% level of significance. There exist multiple justifications for the limited influence of intangible assets on stock performance in Iran and Saudi Arabia. The initial process of valuing and acknowledging intangible assets can be characterised by subjectivity and complexity. The existence of diverse accounting standards and regulations across different countries may result in inconsistencies and difficulties when assessing the influence of intangible assets on SP (Oliveira, Rodrigues, & Craig, 2010). Moreover, due to the unique nature of intangible assets in different firms and industries, it becomes challenging to make broad generalisations about their impact across various industries and firms (Bryan, Rafferty, & Wigan, 2017). Furthermore, the performance of the stock market index, specifically the S&P, is influenced by various factors such as macroeconomic indicators, market sentiment, prevailing interest rates, and investor expectations (Moradi et al., 2021). The presence of these factors has the potential to diminish the impact of intangible assets on stock prices, leading to a relationship that is deemed statistically insignificant. In these countries, it is plausible that other fundamental factors, such as earnings, revenue growth, and financial performance, might exert a more substantial influence on the stock price (SP). Furthermore, the observed inverse correlation between intangible assets and stock prices (SP) in Iraq, which is statistically significant, implies that these assets exert a noticeable impact on the Iraqi stock market. Multiple factors could have potentially influenced this discovery. Over the recent years, Iraq has encountered a series of challenges including political instability, security issues, and economic hardships (Alzuwaini et al., 2019). The presence of such conditions has the potential to create an atmosphere of unpredictability and a tendency to avoid taking risks among individuals who invest capital, leading to a

pessimistic evaluation of the worth of intangible resources. The inverse correlation observed between intangible assets and stock prices may be attributed to investors' perception of volatility and diminished trust (Thum-Thysen et al., 2019). The relationship between Iraq's industries and sectors may also be influenced by their composition. Certain sectors in Iraq, such as the energy and natural resources sectors, exhibit a higher degree of reliance on tangible assets, specifically oil deposits and physical infrastructure. Hence, it is plausible that the impact of intangible assets on stock performance within these industries could be attenuated, leading to a negative correlation.

The analysis uncovers noteworthy correlations between macroeconomic indicators and stock prices in Iran, Saudi Arabia, and Iraq. The analysis demonstrates a statistically significant and positive correlation between the macroeconomic variable GDP and SP in Iran and Iraq, with a significance level of 1%. In the context of Iran, there exists a positive correlation between a one-unit increase in GDP and an average increase of 9,557 units in SP, as evidenced by the coefficient of 9.557. In a similar vein, it can be observed that a rise of one unit in Iraq's Gross Domestic Product (GDP) is associated with an average increase of 2.400 units in the Stock Price (SP). This discovery implies that the overall economic performance, as quantified by GDP, exerts a notable influence on the stock prices in Iran and Iraq. When the economy experiences growth, as evidenced by an increase in GDP, it can create a conducive atmosphere for businesses, leading to heightened investor confidence and an upsurge in stock demand. A resilient and growing economy often signifies positive business prospects, heightened corporate profits, and market confidence, all of which can lead to a rise in stock prices. However, it is worth noting that there exists a statistically significant relationship between the Gross Domestic Product (GDP) and Social Progress (SP) in the Kingdom of Saudi Arabia (KSA) at a significance level of 5%. This relationship is characterised by a coefficient of 036.17. This finding suggests that a marginal increase of one unit in GDP is statistically linked to an average increase of 036.17 units in SP. While the correlation between GDP and SP in Saudi Arabia (KSA) may not be as pronounced as in Iran and Iraq, it nevertheless suggests a positive association between these variables. The significance of this relationship aligns with the results of prior research that has investigated the influence of macroeconomic indicators, such as GDP, on SP (Barrett, Reardon, Swinnen, & Zilberman, 2019; Omodero & Mlanga, 2019). An expanding body of scholarly literature indicates that economic indicators, such as the Gross Domestic Product (GDP), can offer significant insights into the fluctuations of the stock market (Asafo-Adjei et al., 2021). Secondly, a positive and statistically significant correlation exists between the inflation rate and stock prices in all three countries. In the context of Iran, there exists a positive correlation between a one-unit increase in the inflation rate and an average increase of 1.585 units in the SP (Standardised Performance). In a similar vein, it can be observed that a rise of one unit in the inflation rate in the Kingdom of Saudi Arabia (KSA) is linked to an average increase of 0.233

units in the standard of living (SP). Conversely, a comparable increase in Iraq corresponds to a 0.838% increase. This implies that there is a positive correlation between higher inflation rates and higher stock prices. This relationship can be explained by factors such as increased corporate revenues, improved profitability, and investor anticipation of future earnings growth.

Thirdly, at a significance level of 5%, the findings suggest a statistically significant and positive correlation between inflation rates and stock prices in the Kingdom of Saudi Arabia (KSA) and Iraq. In the Kingdom of Saudi Arabia (KSA), there is a positive correlation between a one-unit increase in the inflation rate and an average increase of 4.864 units in the standard price (SP). Conversely, in Iraq, this correlation is significantly higher, with a one-unit increase in the inflation rate corresponding to an average increase of 62.24 units in the standard price. This suggests that a currency that is stronger in comparison to other currencies can yield a favourable impact on the stock market performance, as it enhances the competitiveness of industries focused on exporting goods and services and entices foreign investors. These findings are consistent with the findings reported by Shabbir and Muhammad (2019). In addition, it is worth noting that there exists a statistically significant and negative correlation between exchange rates and the stock price index (SP) in Iran. This correlation has been observed at a significance level of 1%. This implies that an appreciating Iranian currency could potentially have adverse implications for SP, as it has the potential to erode the competitiveness of Iranian exports and dampen the appeal for foreign investors. Additionally, the volatility of exchange rates can engender a sense of unpredictability for enterprises and stakeholders, thereby potentially exerting an adverse impact on stock performance. These findings are in line with previous research (Adebayo, Akadiri, & Rjoub, 2022; Chen et al., 2022).

Lastly, The analysis conducted with a significance level of 5% and a coefficient of 34.89 indicates a statistically significant and positive association between oil prices and the stock market performance in the Kingdom of Saudi Arabia (KSA). The heavy reliance of the Kingdom of Saudi Arabia (KSA) on the energy sector implies a positive correlation between elevated oil prices and increased stock prices (SP). In the context of Iran, it is observed that the relationship between the variables is characterised by a statistically significant negative association at the 1% level. The coefficient value of 2.94 further supports this finding. This implies that the increase in oil prices could potentially have an adverse impact on the stock market performance in Iran. This could be attributed to specific macroeconomic imbalances, governmental interventions, or market dynamics that are unique to the country. The analysis reveals that there is no significant correlation between oil prices and the stock price (SP) in Iraq. This implies that there are likely other influential factors that exert a stronger influence on the stock price in Iraq. The findings presented align with previous studies that have investigated the associations between macroeconomic factors and the stock market performance (Huy, Loan, & Pham, 2020; Kumar, 2019).

Table 4.3: Panel Regression Analysis

Variables	Fixed effect model (Iran)	Fixed effect model (KSA)	Fixed effect model (Iraq)
_cons	24.66***(0.000)	38.08**(0.003)	416.6*(0.029)
inta	2.652(0.499)	0.0104(0.900)	-4.154(0.074)
gdp	9.557***(0.000)	036.17*(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)	62.24*(0.021)
oil	-2.949***(0.000)	34.89**(0.009)	-0.00360(0.996)
Profitability	3.281***(0.000)	0.000250(0.988)	-0.395(0.253)
eps	-0.158(0.489)	-0.0169(0.706)	0.0150*(0.031)
size	0.0307(0.107)	-1.326*(0.026)	1.496**(0.001)
lev	0.868***(0.000)	-0.736(0.317)	0.0141(0.627)
No. of observations	780	366	156
R-sq	0.3787	0.413	0.447
Vif (mean)	3.17	1.44	3.3
Wooldridge test	Prob > F = 0.0000		
Modified Wald test	Prob > X2 = 0.0000		
Breusch & Pagan	Prob > chibar2 = 0.0000		
Hausman fixed	Prob>X2= 0.0000		

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

5. CONCLUSION

In recent times, emerging nations such as Iran, Iraq, and Saudi Arabia (KSA) have encountered substantial challenges due to the imposition of severe sanctions by the United States and Western nations aimed at curbing their nuclear activities. The implementation of stringent economic sanctions has had a detrimental impact on the markets of Iran, Iraq, and Saudi Arabia, leading to a multitude of financial challenges for businesses operating within these countries. The imposition of sanctions exerts an influence on trade operations, encompassing both imports and exports, thereby exerting an impact on exchange rates. Consequently, the capital markets of these emerging countries have witnessed a decline in confidence from both foreign and domestic investors, leading to a reluctance among creditors to provide financing to companies with an elevated risk of insolvency. The reduced availability of capital has posed challenges for businesses in obtaining the required financial resources. The nations under consideration are experiencing heightened levels of instability, insecurity, and economic uncertainty, which have been further

intensified by the significant fluctuations observed in macroeconomic variables within these markets. Therefore, the primary aim of the study was to examine the influence of intangible assets and macroeconomic factors on stock performance. This study aims to offer a comprehensive comprehension of the factors influencing SP movements within the examined countries by analysing these two primary dimensions. The significance of intangible assets is increasing within the contemporary business landscape. Organisations are increasingly acknowledging the significance and inherent possibilities associated with intangible assets, including intellectual property, brand reputation, and human capital, as crucial drivers of competitive advantage and sustained financial success. It is imperative for investors, analysts, and policymakers to comprehend the correlation between intangible assets and stock prices. Furthermore, it is worth noting that macroeconomic factors exert a substantial influence on the broader economic landscape, thereby impacting stock markets. The influence of variables such as GDP growth, inflation rates, exchange rates, and oil prices on investor sentiment, market dynamics, and the perception of stock value has been widely acknowledged.The primary objective of this study is to enhance our understanding of the intricate connections present within these dynamic markets. This will be achieved through an examination of the interplay between macroeconomic factors and the stock market performance (SP). This research investigates the correlations among macroeconomic indicators, intangible assets, and stock performance in the countries of Iran, Saudi Arabia, and Iraq. The sample comprises all companies that were listed on the Stock Exchanges of Iran, KSA, and Iraq between the years 2015 and 2019. Specifically, the sample includes 154 companies from Iran, 82 companies from KSA, and 33 companies from Iraq. The analysis employs a model incorporating fixed effects to reveal noteworthy associations between macroeconomic variables and stock prices in the three countries. At a significance level of 1%, the APT model reveals a statistically significant and positive correlation between the Gross Domestic Product (GDP) and Stock Prices (SP) in Iran and Iraq. The statistical analysis reveals a significant correlation between the Gross Domestic Product (GDP) of the Kingdom of Saudi Arabia (KSA) and the Stock Price (SP) at a significance level of 5%. Additionally, a noteworthy and statistically significant association exists between the inflation rate and stock prices in all three countries. Thirdly, the results indicate a statistically significant positive correlation between exchange rates and stock prices in the Kingdom of Saudi Arabia (KSA) and Iraq, with a significance level of 5%. At a significance level of 1%, the observed correlation between exchange rates and the stock prices (SP) in Iran is found to be statistically significant, exhibiting a negative relationship. The results indicate a statistically significant positive relationship between oil prices and the stock market performance in the Kingdom of Saudi Arabia (KSA), at a significance level of 5%. In Iran, the observed relationship exhibits a statistically significant negative association at a significance level of 1%. There is a lack of substantial correlation

observed between oil prices and the Standard & Poor's (SP) index in Iraq. The study's findings indicate that the influence of intangible assets on stock performance in Iran and Saudi Arabia is minimal. In the context of Iraq, it is noteworthy that a statistically significant negative relationship exists at a significance level of 5%. The aforementioned findings offer significant contributions to our understanding of the intricacies of strategic planning (SP) and the influence of macroeconomic factors and intangible assets within the countries under investigation. The significance of maintaining economic stability is underscored by the positive correlations observed between macroeconomic variables, including gross domestic product, inflation rate, and exchange rate, and the stock market performance (SP). It is important for governments and policymakers to give precedence to the adoption of strategies aimed at promoting sustainable economic growth, effectively controlling inflation, and achieving stability in exchange rates. This phenomenon has the potential to enhance investor confidence and make a positive contribution to the overall performance of the stock market. The findings indicate that it is imperative for policymakers to take into account the influence of macroeconomic factors on social welfare when developing economic policies. The proficient administration of GDP growth, inflation rates, and exchange rates can exert a significant influence on the dynamics of the stock market. It is imperative for policymakers to diligently observe and address these variables in order to mitigate volatility and foster an environment conducive to investment. Considering the observed correlation between oil prices and the stock market performance (SP) in Saudi Arabia (KSA) and Iran, it is imperative for policymakers in these nations to diligently monitor and effectively manage the fluctuations in oil prices. The implementation of economic diversification strategies aimed at reducing dependence on oil can serve as a mitigating factor in minimising the impact of volatile oil prices on the stock market. This may involve allocating resources towards alternative sectors, fostering the growth of non-oil industries, and implementing efficient strategies for the management of resources. Future research studies that encompass a broader range of countries can provide a more comprehensive analysis of the relationships among macroeconomic variables, intangible assets, and stock prices. Enhancing the applicability of the findings could be achieved through conducting further research encompassing diverse markets characterised by varying economic and political factors. In order to gain insights into the impact of macroeconomic variables and intangible assets on stock values across various industries, it is advantageous to undertake a sector-specific analysis. Consequently, governmental interventions and investment plans may be customised to specific sectors. To gain insight into the enduring patterns of macroeconomic variables, intangible assets, and stock prices, it is necessary to analyse the interconnections among these factors over an extended period. A more profound understanding of the intrinsic mechanisms of the stock market can be acquired by scrutinising enduring patterns and variations over an extended period.

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