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Dedication

It is our pleasure and great privilege to present the fifty-seventh issue of the Academic Journal of Research and Scientific Publishing to all researchers and doctors who published their research in the issue, and we thanks and appreciate to all contributors and supporters of the academic journal and those involved in the production of this scientific knowledge edifice.

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Macroeconomic Factors of Stock Market Development (The Case of Saudi Arabia)

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Abstract

Most economists recognize that a healthy capital market can enhance economic growth. In 2016, Saudi Arabia launched Vision 2030, and the Financial Sector Development Program is part of the Vision. The program aims to achieve economic diversification, reduce oil dependence, and trigger economic growth. Capital market development has an integral part to play in achieving Vision 2030 goals. For this reason, it is essential to investigate the factors that could influence it. The literature on the impact of macroeconomic factors on the stock market development is inconclusive; thus, it is difficult to generalize the outcome of previous studies. This research investigates the macroeconomic and institutional determinants of stock market development in Saudi Arabia from 2008 to 2021 by using a multiple linear regression approach. Following previous research, our analysis explores the impact of several factors, including Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Private capital flows, Financial intermediary development, Economic Development, Domestic Savings and investment. Among the nine evaluated factors, only four were significant. We find that the determinants of stock market development in Saudi Arabia are Economic Development, Income level, Control of corruption, and Market Depth.

Keywords: Stock market development, Macroeconomic Factors, Economic Growth, Saudi Arabia, Vision 2030

1. Introduction

Stock markets are essential to developing a country's financial system since the market acts as an investment channel that mobilizes the accumulated savings toward different instruments. A well-developed market fosters risk sharing among economic agents. Actually, stock markets improve capital allocation, provide liquidity, and reduce risk. Stock market development is essential to sustainable economic growth, and most economists recognize that a healthy capital market plays a vital part in a well-functioning financial system and can enhance economic growth. This view is supported by Levine & Zervos (1998), who argue that the development of the financial sector, particularly the stock market development, enhances economic growth. Numerous fundamental studies, such as (Mckinnon, 1973; Shaw, 1973; Roubini & Sala-I-Martin, 1992; King & Levine, 1993a; King & Levine, 1993b) have linked stock market development and long-run and short-run economic growth. The authors have documented a positive and statistically significant association. Therefore, the development of the overall financial sector within a country and the advancement of the performance of the stock markets is a strategic goal for developing and emerging countries, and Saudi Arabia is no exception.

In 2016, Saudi Arabia announced the Financial Sector Development Program, which is part of the Saudi Vision 2030. The Vision aims to achieve economic diversification and reduce oil dependence. In fact, capital market development is integral to achieving the Vision 2030 goals, and the plan consists of forming an advanced capital market with diversified asset classes. Over the past few years and since the announcement of the Saudi Vision, the Saudi Arabian capital market has been developing following the Vision's outlined plan. Sarah Al-Suhaimi, Saudi Tadawul Group's chairperson, states, "The future of the capital markets needs to be built, not to be anticipated." For this reason, it is essential to investigate and understand macroeconomic factors that contribute to stock market development in the context of Saudi Arabia. This can support policymakers in their decision-making process, as they will have a clear guide to creating necessary policies to enhance stock market development, which will trigger economic growth.

A considerable amount of literature has investigated the relationship between several macroeconomic factors and the developments of the stock market in developed and emerging economies around the world (for example, Forti et al., 2011; Phan & Vo, 2012; El-Nader & Alraimony, 2013; Shahbaz et al., 2016; Acquah-Sam, 2016; Thanh et al., 2017; and Batayneh et al., 2021).

However, researchers have no complete consensus on the robust determinants of stock market development. This implies that no specific universal set is known to enhance the development of stock markets.

Many investigated the impact of factors such as economic development, market stability, interest rate, exchange rate, stock market liquidity, and foreign direct investment. However, as discussed, the literature on the relationship between macroeconomic factors and the stock market is largely inconclusive. Therefore, it is difficult to generalize the findings of previous studies since different countries have different backgrounds, economic environments, social environments, rules, and regulations. Thus, outcome generalizing is difficult or impossible.

Although intensive research has been conducted on the determinants of stock market developments, there has been relatively little literature focusing on the development of stock markets in Saudi Arabia. In fact, to our knowledge, most available literature on the context of Saudi Arabia Investigates the long-run and the short-run relationship between Macroeconomic Forces and Saudi stock market returns, such as Al Rasasi et al. (2019), Alshogeathri (2011), Kalyanaraman & Al Tuwajri (2014), and Mohanty et al. (2018).

This paper aims to conduct a detailed analysis and identify the most important determinants of stock market development in Saudi Arabia. We aim to test the statistical relationship between numerous macroeconomic factors and stock market development. The significance of this study is clear because it attempts to fill the gap in the literature and answers whether the most commonly investigated macroeconomic and institutional factors produce “positive” or “negative” effects on the development of the stock market in Saudi Arabia. We investigate the impact of several macroeconomic variables on the stock market development. The factors include Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Financial intermediary development, Economic Development, Private capital flows, and Domestic Savings and investment. This research paper answers the following essential questions:

- Whether current laws and legislation in Saudi Arabia support the stock market development?
- What are the macroeconomic determinants of stock market Development?
- What are the institutional determinants of stock market Development?
- What are the most important determinants of stock market development in Saudi Arabia?

To answer these questions, we use the (MLR) multiple linear regression model to analyze the adopted set of macroeconomic and institutional variables and investigate its impact from 2008 to 2021.

As for the research structure, this research paper is structured as follows: In section 2 we review previous literature and cover the theoretical framework that links the selection of variables to established economic theories. In section 3, we report the sample of data collected and the technique used to answer the research questions. Section 4 discusses the Descriptive statistics of the study variables and other performed tests. Finally, in section 5, we show and discuss our empirical evidence and conclude the research paper in section 6.

2. Literature Review

A considerable amount of literature has investigated the effects of macroeconomic and institutional factors on the stock market development in developed and emerging economies. Ho et al. (2017) summarize existing literature investigating stock market developments and the factors that could influence the development in numerous countries. The study classifies the determining factors of stock market development into (i) factors at the macroeconomic level and (ii) factors at the institutional level. As for the first group(i), they state that an increase in variables such as real income and income growth rate, interest rate, and private capital can enhance the development of the stock market. Meanwhile, market stability and exchange rates have a negative impact on stock market development. As for the second group (ii), numerous studies suggest that the development of stock markets is enhanced by providing legal protection for investors, trade openness, and financial liberalization.

Ho (2019) investigated the development of the stock market in South Africa. To better understand the determinants that could enhance market development, the author employed an ARDL bounds testing procedure. Their dataset incorporates information covering the period from 1975 to 2015. The researcher analyses the long-run associations between several factors at the macroeconomic level and the development of the stock market. They analyze the "banking sector development, interest rate, economic development, inflation rate, and trade openness." The study findings confirm that factors such as "the development of the banking sector and higher economic growth" contribute to an increase in stock market development. On the other hand, factors such as the inflation rate and real interest rate constrain stock market development. Contrary to expectations,

this research shows that trade openness significantly and negatively impacts stock market development.

Similarly, others, such as Forti et al. (2011), report that trade openness can negatively impact the stock market development. The study examines factors affecting the stock market development in a unique sample of 50 Developed and emerging economies. The study is divided into two different phases: in the first phase, the researchers examined 60 potential determinants, while in the second phase of the analysis, they narrowed the list down to 12 factors. To achieve the study objectives, the researchers employed MLS multiple regression. They report a positive and significant impact of variables such as Stock Market Efficiency and Management Practices on the stock market development.

Thanh et al. (2017) investigated the determinants of stock market development in Vietnam and 36 other developing countries from 2003 to 2013. The researchers completed their investigation using two away Generalized methods of moments. They report a positive association between stock market development and economic growth, domestic credit, stock market liquidity, government effectiveness, and rule of law. However, they found that money supply and corruption negatively influence the development of stock markets.

El-Nader et al. (2013) investigated the stock market development in Jordan, and their analysis covered the period between 1990 and 2011. In order to achieve the study objectives, the authors employed a "multivariate cointegration and variance decomposition analysis." The researcher concludes that many variables positively impact the development of the stock market, namely money supply, market liquidity, inflation, gross capital formation, and credit to the private sector. Contrary to expectations, the researcher argues that the gross domestic product (GDP) has a statistically negative impact on the development of Jordan's stock markets.

Likewise, Batayneh et al. (2021) investigated the factors impacting the development of the financial sector in Jordan from 1993 to 2018. They analyze the long-run along with the short-run impacts of inflation and economic growth. In their analysis, the authors adopt an "auto-regressive distributed lag-bound testing approach." Their results confirm that higher inflation is negatively associated with the financial sector development in the long- and short-run. On the other hand, they conclude that there is a statistically significant association between economic growth and the financial sector performance in the long- and short-run.

Others, such as Matadeen (2017), build on previous research and contribute to the existing literature by examining the macroeconomic factors that contribute to the development of the stock market in Sub-Saharan Africa. The researcher employed a dynamic Panel Vector Error Correction Model. The study concludes that "economic growth, banking sector development, stock market liquidity, and market stability" are essential to the development of the stock market in sub-Saharan Africa.

In general, theories do not provide a clear path regarding selecting variables to be included in economic models. Several theories suggest diverse factors that influence stock market development. The most common factors under investigation are economic development, market stability, interest rate, exchange rate, stock market liquidity, foreign direct investment, domestic investment, money supply, Control of corruption and global trade openness (Greenwood & Smith, 1997; Boyd et al., 2001; Jeffus, 2004; Ake, 2010; Forti et al. 2011; Niroomand et al. 2014; Şükrüoğlu et al. 2014; Fufa & Kim, 2018; and Ho et al. 2017; Ho, 2018).

With respect to economic development, in theory, there is a positive relationship between stock market development and economic growth. The establishment of capital markets depends on economic growth. Researchers believe that the real GDP level and its growth positively impact financial market development. When financial intermediaries are created, huge fixed costs are incurred. However, an increase in economic development will reduce these costs, leading to an increase in the number of market participants. This indicates that more people and investors can benefit from the services (Greenwood & Smith 1997; Boyd & Smith 1998).

A considerable amount of literature has been published on the link between the Stock market development and economic growth. There is a general consensus among researchers that a positive reciprocal association exists between the variables. Several studies have revealed a significantly positive association *(*Atje & Jovanovic, 1993; Levine & Zervos, 1998b; Arestis et al., 2001; Enisan & Olufisayo, 2009; Shahbaz et al., 2008; Adjasi & Biekpe,2006; Akinlo & Akinlo, 2009; Ake, 2010; Forti et al., 2011; Ngare et al., 2014; Fufa & Kim, 2018; and Ho, 2018; Batayneh et al., 2021).

As for the private capital inflow that is represented by Foreign direct investment, there are two contrasting views. Hausmann & Fernández-Arias (2000a) and Hausmann & Fernández-Arias (2000b) support the view that Foreign direct investment can act as a substitute for stock markets,

particularly in weak financial markets. FDI inflows are higher in underdeveloped and riskier economies. Thus, this implies that a negative association exists between FDI and stock market development. Others, such as Raza & Jawaid (2014) and Wang (2009) support this view.

On the other hand, Claessens et al. (2001) argue that FDI promotes stock market development. Foreign direct investment inflows are higher in developed and institutionally strong economies. Several studies, such as (Abdul Malik & Amjad, 2013; and Raza et al., 2015), have documented the positive relationship between Foreign Investment and stock market development.

Similar to Private capital flows, the literature on the link between Financial intermediary development and the stock market development is mixed. Authors argue that as a financial intermediary develops, it can act as a substitute for stock markets. Others, on the other hand, support the view that the financial intermediary's development is essential to the development of the stock market since it is a crucial component of the overall financial system.

As for domestic saving and investment, several theoretical studies have documented that domestic savings and investment positively impact stock market development. As domestic savings increase, more capital will be mobilized through stock markets toward projects (Garcia & Liu, 1999).

Moreover, when we talk about the income level, several theoretical studies have documented that financial market development increases as the income level increases within a country. A general consent exists in the existing literature, arguing that the real income level has a positive impact on financial market development (Garcia & Liu,1999; Yartey, 2010; and Dinh et al., 2017).

With respect to trade openness, several studies have documented a positive. It is expected that trade openness enhances the developments in stock markets. According to Levine & Zervos (1998a), the liquidity of stock markets tends to increase with fewer restrictions. When restrictions are eased, stock markets tend to grow larger and become internationally integrated. Trade openness benefits the development of stock markets through both the demand side and the supply side. Studies investigating the impact of market openness yield mixed results. Studies such as Niroomand et al. (2014) and Vazakidis & Adamopoulos (2009) report a positive impact. Others, such as Forti et al. (2011) and Ho (2019), found that trade openness negatively impacts stock market development.

Regarding the market depth, it measures how liquid a market is. It measures the speed by which an investor can turn his investment into cash (Garcia & Liu, 1999). Same as financial intermediaries, stock markets connect savings to investment. Liquid markets are expected to improve the process of capital allocation and investment in the long run (Levine & Zervos, 1996). A liquid stock market reduces the risk and costs associated with investment portfolios, allowing investors to change their portfolios quickly and without delay (Garcia & Liu, 1999). Thus, increased liquidity in the stock market can lead to stock market development.

As for macroeconomic stability, the theoretical prediction indicates that higher instability negatively impacts the market. Higher inflation rates tend to reduce the market size and liquidity; therefore, higher inflation is associated with smaller markets. According to Boyd et al. (2001), the real rate of return is reduced by higher rates of inflation; in turn, agents are less willing to lend and more likely to borrow. This will reduce the amount of loanable funds and will lead to an increase in credit market frictions. This means fewer loans, inefficient resource allocation, and reduced capital investment. In the end, this will negatively impact the market performance. Numerous studies have found that the inflation rate has a negative and significant effect on the development of financial markets (Batayneh et al., 2021; Huybens & Smith, 1998; Huybens & Smith, 1999; Azariadas & Smith, 1996; Choi et al., 1996; Boyd et al. 2001).

Many developed and emerging countries usually embark on privatization, market deregulation and global trade openness to improve market outcomes. However, corruption, such as illegal payments, can act as a barrier to market efficiency (Bardhan, 1997). A high level of corruption is associated with operational inefficiencies. Chowdhury et al. (2023) state that "corruption forces firms to incur an additional fixed cost before they can operate and list on the stock market, a cost that could be thought of as necessary to pay bribes or overcome excessive red tape." According to Chowdhury et al. (2023), who use a panel data set of 87 countries from 1995 to 2017, a reduced level of corruption increases the stock market development, especially in developed economies; however, the relationship is insignificant in developing countries. Corruption could affect various aspects of the stock market. For example, according to Lakshmi et al. (2021), increased corruption in Brazil reduces stock market returns.

An opposing view supports that corruption improves investment activity, particularly when the quality of economic institutions are weak and the growth potentials are high (Huntington, 1968). In general, encouraging investment activity and attracting potential investors is essential for the

stock market and economic development. In fact, corruption could hasten private capital mobilization. When the legal framework is weak, corruption can aid in avoiding delays in required business practices, for example, obtaining permissions and licensing activities (Leff, 1964; Lui, 1985). Studies such as Krammer (2019) have lent support to this argument.

As discussed, the results in previous studies are still inconclusive since different countries have different backgrounds, economic environments, rules, and regulations. Thus, one cannot generalize the findings of previous studies. Therefore, it is essential to understand what actually are the determining factors of stock market development in Saudi Arabia. Thus, we need to bridge this gap by examining the impact of several factors at both the macroeconomic level and the institutional level in Saudi Arabia.

3. Data and Research Methodology

Due to the nature of the study problem, we rely on historical data in our analysis. A comprehensive dataset has been collected to understand the macroeconomic factors of the stock market development in Saudi Arabia. The data analysis is executed using Stata statistical software. The sample incorporates annual time series information covering ten variables between 2008 and 2021. The selection of variables and the study period have been dictated by data availability. Apart from availability, we rely on variables identified in previous research. The macroeconomic determining factors of Stock Market development have been assembled using three sources: (i) UNCTAD, (ii) the World Development Indicators of the World Bank, and (iii) the Saudi Central Bank (SAMA) statistical report. A summary of the descriptive statistics for the sample under investigation can be found in **Table 2.**

Numerous studies investigating the Macroeconomic factors of stock market development employ a cross-sectional approach to assess the relationship, and the equation can be written in the following form:

$$\boldsymbol{Y_i = \alpha + \sum_{i=1}^{n} \beta_i X_i + \varepsilon_i}, \qquad \textbf{(1)}$$

where Y_i the dependent variable vector that refers to the Stock Market Development, X_i refer to the list of explanatory variables under examination, β_i denotes the coefficients on the explanatory variables, i denoted countries, α is a constant and ε is the error term.

Studies such as (Forti et al., 2011; El-Nader et al., 2012; La Porta et al., 1997, 1998) used multiple regression to investigate factors impacting the stock market development. Various methods have been proposed to address this problem, such as (ARDL bounds testing procedure and Time-series VAR model). However, in this research paper, we adopt an MLR multiple linear regression model to analyze the set of macroeconomic variables. We use equation 1 to explain factors that enhance the stock market development. In our analysis, we follow studies such as (Forti et al. 2011; El-Nader et al. 2012).

The theoretical and empirical literature guide the model specification. The variables included in this study have been investigated in previous literature that focuses on emerging and developed markets. The robustness of those variables has already been established, but not in the context of Saudi Arabia. Thus, in this study, we examine the impact of 9 factors on the development of the Stock market in Saudi Arabia. In connection with the previous discussion, the empirical model is expressed as follows:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \beta_4 X_{i4} + \beta_5 X_{i5} + \beta_6 X_{i6} + \beta_7 X_{i7} + \beta_8 X_{i8} + \beta_9 X_{i9} + \varepsilon_i$$

Where,

Y_i: Stock Market Development

X_{i1}: Global Trade Openness

X_{i2}: Stock Market Depth

X_{i3}: Macroeconomic stability

X_{i4}: Control of corruption

X_{i5}: Income level

X_{i6}: Private capital flows

X_{i7}: Financial intermediary development (Money supply)

X_{i8}: Economic development

X_{i9}: Domestic Saving and investment

In the multiple regression model, Stock Market Development SMD is the dependent variable, while the remaining variables are explanatory. The variables under examination are Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Private capital flows, Financial intermediary development, Economic Development, Domestic Savings

and investment. Following Yartey (2008), we use market capitalization as a percentage of GDP as the dependent variable and a proxy for the Stock Market development. This measure is considered a good proxy since it consists of stock market size and liquidity. Whereas Table 1 presents the set of explanatory variables under examination.

Table 1: List of Explanatory Variables

Variable	Expected Relationship	Definition
Global Trade Openness	**(+)**	It is measured by exports plus imports over GDP.
The Market Depth	**(+)**	Refers to the market depth and liquidity and refers to the capability to buy and sell shares quickly. It is measured by the total value of shares traded in percentages of GDP
Macroeconomic Stability	**(-)**	This is measured by the inflation rate.
Control of Corruption	**(+)**	Corruption estimates of a country. Refer to regulations to control corruption, corruption refers to the degree by which power is exercised for private gain.
Income level	**(+)**	It is measured by gross domestic product divided by population. GDP Per capita refers to the income level earned.
Private capital flows	**(+)**	Measured by Foreign direct investment inflows (FDI)
Financial intermediary development	**(+)**	It is measured by domestic credit to the private sector and broad money supply.
Economic Development	**(+)**	It is measured by the GDP. Refer to the profitability and productivity of a country.
Domestic Savings and investments	**(+)**	Measured by Gross domestic savings and investment

4. Descriptive Statistics of the Study Variables

A summary of the descriptive statistics for the entire sample under investigation is clearly presented in Table 2. The table reports statistics for all variables under examination (Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Private capital flows, Financial intermediary development, Economic Development, Domestic Savings and investment.), along with means, min, max and Kurtosis and Skewness. The descriptive statistics, as seen in Table 2, indicate that there is no randomness in the data. Moreover, unit root tests are performed (Dickey and Fuller, 1979; 1981) before Ordinary Least Square (OLS) regression. Table 3 shows the results for the augmented Dicky fuller test, and it indicates that the null hypothesis is rejected and all data are stationary. Thus, we can proceed with our analysis and investigate the impact of the macroeconomic factors on the stock market development using multiple regression.

Table 2: Descriptive Statistics for the stock Market Development and macroeconomic variables

Variable	Mean	Kurtosis	Skewness	Minimum	Maximum
Stock market development	113.6585746	0.628327184	1.573249799	47.43007827	330.818153
Global Openness	274530.6571	-1.364504246	0.172154576	173864	388369.6
The Market Depth	55.7817178	-0.508566035	0.332454748	26.32864566	100.679085
Macroeconomic Stability	3.145604518	1.479812362	0.448792976	-2.093333333	9.87024791
Control of Corruption	0.109154827	-0.055609315	-0.468893219	-0.312528074	0.3592267
Income level	80279.68051	0.230229491	-0.873906132	56492.3673	90658.4367
Financial intermediary development	60.24185293	-1.186264339	0.039998932	48.10371	72.3704423
Economic Development	6.96753E+11	-0.01735685	-0.729850864	4.29098E+11	8.6859E+11

Private capital flows	14358589710	0.110505786	1.157728186	1418843614	3.9456E+10
Domestic Savings and investment	2.8038E+11	-1.264093783	-0.032754771	1.76077E+11	3.8486E+11

Table 3: The Results of Unit Root Test for macroeconomic variables

Variable	ADF Unit Root test
Global Openness	-2.774
Stock Market Depth	-3.109
Macroeconomic Stability	-4.058
Income level	-4.208
Private capital flows	-6.478
Financial intermediary development	-2.513
Domestic Savings and investment	-3.536
Economic Development	-3.330

Note: MacKinnon's (1996) critical values of 1%, 5% & 10% for ADF are -2.5742 and -1.9410 and -1.6164, respectively.

5. Empirical Evidence and Discussion

Table 4 summarizes statistics for all variables under examination, including Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Private capital flows, Financial intermediary development, Economic Development, Domestic Savings and investment, along with R-squared, Adjusted R-squared and Durbin Watson statistics.

It is apparent from Table 4 that the Durbin-Watson statistic is equal to 2.4, which is within the acceptable range of 1.5 to 2.5; therefore, the OLS estimation is efficient. Moreover, it is evident that only four were significant among the nine evaluated factors. Overall, our study findings reveal that the determinants of stock market development in Saudi Arabia are Economic Development, Income level, Control of corruption, and Market Depth. The calculated coefficients of Economic Development, Income level, Control of corruption, and Market Depth are significant at 1%, 5%, and 10%, respectively, While the remaining variables are insignificant.

The results, as shown in Table 4, indicate that there is a positive correlation between Economic growth and stock market development. It is evident that the coefficients are positive and highly significant at the 1% level. The positive coefficient indicates that as GDP increases in Saudi Arabia, the stock market development increases as well. As the economy grows, investors and firms increase their participation in the stock markets. Our findings are consistent with the findings of numerous studies (Atje & Jovanovic, 1993; Levine & Zervos, 1998b; Arestis et al., 2001; Enisan & Olufisayo, 2009; Shahbaz et al., 2008; Adjasi & Biekpe,2006; Akinlo & Akinlo, 2009; Ake, 2010; Forti et al., 2011; Ngare et al., 2014; Matadeen, 2017; Fufa & Kim, 2018; Ho, 2018; and Batayneh et al., 2021)

As for trade Openness, the results obtained are contrary to our expectations. The results show a negative, insignificant association between trade openness and development in the Saudi stock market. Our findings are consistent with Forti et al. (2011) and Ho (2019). The negative coefficient validates the economic protectionism approach (Aaken & Kurtz, 2009; Hill, 2010) and contradicts the free trade theory (Smith, 1776; Ricardo, 1817; and Leamer, 1995). Economic protectionism is a trade policy developed or underdeveloped countries use to restrict international trade to help domestic industries. However, extreme economic protection might harm the country in the long term since it will impact a particular country's ability to compete in international trade.

Moreover, the test statistics show that the Market Depth coefficients are statistically significant and positive. Indicating that as the market liquidity increases, the Saudi stock market's development also increases. Liquidity is an important function in a stock market, and it reduces investment risk, since investors can alter and change their investment portfolios quickly and with less costs. According to Levine and Zervos (1996), market liquidity can enhance capital allocation and investment in the long run. This, in turn, could promote development in stock markets. The positive link between Market Depth and stock market development tends to support (John et al., 2010; Greenwood & Smith, 1997; Matadeen, S., 2017; Chiad et al., 2022)

As for the macroeconomic stability that is measured by the inflation rate, our findings suggest that Macroeconomic Stability has a negative and insignificant association with stock market development. This finding is expected and validates the findings of Boyd et al. (2001) and Matadeen (2017). As discussed, smaller and less liquid markets are associated with higher inflation rates. Inflation reduces the rate of return, incentives to lend, and the availability of loanable funds.

Consequently, this reduces the number of loans made, less efficient allocation, and activity within the financial sector. This, in turn, will negatively impact stock market performance.

This research did not find a positive impact on stock market development regarding corruption control. Contrary to expectations, this research records a statistically significant and negative correlation between corruption control and stock market development. A very common example of corruption is illegal payments. The common view is that high corruption is associated with operational inefficiencies and can act as a barrier to market efficiency (Bardhan, 1997). Thus, a positive link is expected with the rules that controls corruption. Control of corruption refers to regulations to control and minimize private gain by exercising power.

However, our finding supports Krammer's (2019) and Lui's (1985) arguments. Corruption can enhance investment activity in the presence of weak institutions and high growth (Huntington, 1968). Corruption could promote private capital mobilization, since it can aid in avoiding delays in business practices, for example, licensing processes (Leff, 1964; and Lui, 1985). Inventors can see this as an opportunity to avoid excessive rules and regulations.

In contrast to earlier findings, our finding suggests a significant and inverse association exists between Income level and stock market development. A possible explanation for this result is that low-income levels tend to increase physical capital investment, which can impact economic growth and development of markets in a positive way (Chen, 2022)

Our results on the banking sector development indicate a positive relationship between Financial intermediary development and stock market development; however, the coefficients are insignificant. Our study supports the view that the financial intermediary's development is essential to the development of the stock market since it is an important component of the overall financial system. Our results are consistent with the work of (Garcia & Liu 1999, Yartey 2007, 2010; Ho, 2018; Matadeen, 2017).

As for Private capital flows, the greater the savings, the higher the flow to stock markets. Looking at the coefficients of Private capital flows and Domestic Savings and investment, it is obvious that both factors positively correlate with stock market development; however, both are insignificant. The findings in the present study are consistent with the findings of (Raza et al., 2012; Abdul Malik & Amjad, 2013; Raza et al., 2015; El-Nader & Alraimony, 2013; Shahbaz et al., 2016; Raza et al., 2015; and Acquah-Sam, 2016)

These findings suggest that Private capital flows and Domestic Savings and investment promote development in stock markets. As domestic savings and FDI increase, more capital will be mobilized through stock markets toward projects, which will enhance participation and liquidity. Foreign direct investment inflows are higher in institutionally strong countries. Private capital flows can enhance the development of capital markets by improving firms' involvement in capital markets and increasing the market liquidity (Claessens et al. 2001). Several studies have revealed that FDI can enhance capital market development and trigger economic growth. For example, Vehorn & Vasarevic (2011) find that Private capital flows and Domestic Savings and investment significantly and positively impact economic growth. To attract foreign direct investment inflows, Saudi Arabia is undergoing economic reforms and setting new policies and regulations to increase income and enhance competitiveness. Saudi Arabia aims to increase Foreign direct investment to reach 5.7% of GDP by 2030.

Table 4: Summary of estimation of the impact of the factors under investigation.

Variable	*Coefficients*	*t Stat*	*P-value*
Global Openness	-0.00086	-0.56	0.608
The Market Depth	2.7325	1.94*	0.125
Macroeconomic Stability	-8.6765	-0.72	0.509
Control of corruption	-313.52	-1.94*	0.125
Income level	-4195.6	-2.51**	0.066
Private capital flows (FDI)	31.212	1.17	0.306
Financial intermediary development	1.8342	0.14	0.894
Economic Development	3866.6	3.32***	0.029
Domestic Savings and investment	20.956	1.13	0.321
constant	-58806	-3.06	0.038
R-squared	0.9141		
Adjusted R-squared	0.7208		
Durbin-Watson d-statistic	2.4		

Note: *denotes that coefficients are significant at the 10% level, ** denotes that coefficients are significant at the 5% level, and *** denotes that coefficients are significant at the 1% level.

6. Conclusion

Many investigated the impact of several macroeconomic and institutional factors on the development of stock markets; however, the literature is largely inconclusive. Therefore, it is difficult to generalize the findings of previous studies since different countries have different backgrounds, economic environments, social environments, rules, and regulations. Despite the extensive research conducted in recent years investigating forces that enhance the development of stock markets, there has been relatively little literature focusing on Saudi Arabia; thus, there is room to improve the existing literature.

This research explores the robust macroeconomic factors of stock market development in the context of Saudi Arabia with its unique economic, market, and social environments. This study builds on previous studies and contributes to the existing literature by identifying the most important forces that enhance the stock market development in Saudi Arabia. We investigate the impact of Global Trade Openness, Market Depth, Macroeconomic Stability, Control of Corruption, Income level, Private capital flows, Financial intermediary development, Economic Development, Domestic Savings and investment. We employ (MLR) multiple linear regression model between 2008 and 2021 to analyze the adopted set of macroeconomic and institutional variables.

Overall, the results suggest that the macroeconomic determinants of stock market development in Saudi Arabia are Economic growth, Income level, Control of corruption, and Market Depth. It is evident that economic growth and market liquidity have a statistically significant and positive correlation with stock market development, while Income level and corruption control have a negative impact.

This research has important policy implications for legislative authorities and policymakers in Saudi Arabia. It can support policymakers in their decision-making process, as they will have a clear guide to creating adaptive and necessary policies to enhance stock market development, which will trigger economic growth. Policymakers can formulate better policies to enhance development and economic growth and achieve Vision 2030.

Saudi Arabia is working to expand investment opportunities to foreign and domestic investors. Legislative authorities must accelerate their reform efforts to achieve an optimal investment environment.

Saudi Arabia must move to policies that stabilize inflation, protect domestic industries, promote private sector growth, increase FDI inflows, and promote the development of the banking sector. The kingdom must formulate policies to increase and diversify GDP and increase market liquidity. We suggest extending our research to include the GCC member countries for future research.

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Impact of Cash Conversion Cycle on Firm's Profitability by Applying to Companies Listed on the Saudi stock market

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Abstract

This study examines the complex relationships between Cash Conversion Cycle and firm profitability using a dataset of seven companies. The primary goal is to assess the subtle impact of the Cash Conversion Cycle (CCC) on two key dependent variables: Return on Assets (ROA) and Earnings Per Share (EPS). The focus of this investigation is on four independent variables: leverage ratio, quick ratio, current ratio, and debt to service ratio. In a departure from conventional wisdom, our findings call into question established financial theories by demonstrating the CCC's insignificant impact on ROA. However, the CCC's critical role in influencing EPS highlights the CCC's diverse implications for financial performance. The alignment of the Leverage Ratio with financial theories has a significant impact on ROA. This research provides nuanced insights into the complex dynamics of financial ratios and their collective impact on firm profitability. The findings provide strategic guidance for financial decision-makers, emphasizing the importance of a customized and sophisticated approach to working capital management in navigating the complexities of today's dynamic business environment, and the study recommended to create CCC strategies that are unique to each company's industry dynamics, Take into account industry benchmarks when optimizing the CCC for improved financial performance.

Keywords: Cash Conversion Cycle (CCC), Earnings per Share (EPS), Leverage ratio, Return on Assets (ROA), Working Capital Management.

1. Introduction

Working capital management is the management of a firm's current assets and current liabilities in order to achieve a balance between profitability and risk that adds value to the firm (Gitman, 2000). A widely recognized and potent indicator of efficient working capital administration is the Ca sh Conversion Cycle. The Cash Conversion Cycle (CCC) is a critical financial management metric that provides deep insights into a company's operational efficiency and working capital dynamics. In essence, the CCC represents the time required to convert inventory investments into cash flows from sales—a critical indicator of a company's liquidity and overall financial health. The CCC is comprised of three primary components:

Inventory Conversion Period, Receivables Collection Period and Payables Deferral Period

The formula for CCC encapsulates the cycle of cash outflow to purchase inventory, the time the inventory spends in the company’s processes, and the time it takes to collect the cash from sales, offset by the time the company holds onto its cash before settling its payables.

Effective CCC management has moved beyond operational necessity to become a strategic imperative in today's dynamic business landscape, exerting a significant influence on a company's profitability and long-term sustainability. Also, it measures the time elapsed between a company's cash outflows for raw materials and its cash inflows from finished goods sales (Brigham & Ehrhardt, 2004). Unlike static measures such as the current ratio and quick ratio, the Cash Conversion Cycle provides a dynamic perspective on ongoing liquidity management by integrating balance sheet and income statement data (Jose et al., 1996).

Furthermore, the relationship between the Cash Conversion Cycle and the firm’s financial performance is explored in this study. The study aims to find the crucial factors which affect the CCC. Moreover, the study delves into the intricate connection between the Cash Conversion Cycle and profitability.

1.1. Research Questions

- What effect does effective Cash Conversion Cycle (CCC) management have on a company's financial health and operational efficiency?
- What factors influence the relationship between CCC and financial performance across different industries and regions?

- How do inventory turnover, accounts receivable, accounts payable, and debt influence the Cash Conversion Cycle and, consequently, a firm's profitability?

1.2. Objective of the Study

The study aims are to identify the effect of the cash conversion cycle on financial and operational efficiency. It will also investigate the factors those influence the relationship between CCC and financial performance and debt to equity of different health care firms in Saudi Arabia. The research will discover the effect of the inventory turnover, account receivables, accounts payable and debt on cash conversion cycle and to the firm profitability accordingly.

1.3. Beneficiary of the Study

This study has significant implications for a variety of stakeholders. Decision makers especially who work in health care field, investors, health care supplies vendors and financial sector decision maker and analysts' "creditors".

1.4. Added Value of the Study

The study adds value to business leaders and managers by learning and better understanding about effective working capital strategies that improve operational efficiency and financial health. Investors and financial analysts gain a better understanding of the relationship between the Cash Conversion Cycle and key financial indicators, which allows them to make more informed investment decisions. The academic community benefits from an addition to the existing literature, which lays the groundwork for future research on dynamic aspects of working capital. Policymakers can use the findings to inform financial regulations, and SMEs can learn practical strategies for optimizing working capital despite constraints. Furthermore, stakeholders, suppliers, educational institutions, economic researchers, and the general public stand to benefit from new insights into the financial dynamics that affect businesses, economic stability, and the general public. in generally, we can conclude the added value in this area,

- Enhances operational efficiency and financial health.
- Deeper understanding of financial indicators for better investment decisions.
- Expands current literature and stimulates future research.
- Informs the development of enlightened financial policies.
- Practical strategies to improve working capital.
- Better grasp of business and economic dynamics.
- Increased awareness of economic issues.

2. Literature Review

The study of the Cash Conversion Cycle (CCC) and its effects on business profitability has arisen as a critical topic across a wide range of organizations. This chapter explains the theoretical foundation of the study and methodically analyses prior literature on the evaluation of CCC and its consequences on the financial health of various enterprises and banks at the national and international levels.

This study's theoretical approach navigates through known theories and models, providing a conceptual underpinning for understanding the complexities of the Cash Conversion Cycle and its impact on corporate profitability. This framework, which is based on fundamental works in financial literature, provides a systematic lens for analyzing and interpreting empirical data in succeeding parts.

The study of literature delves deeply into previous studies on the Cash Conversion Cycle and its influence on business profitability. Scholars have looked into many approaches, models, and indicators on a national and worldwide scale to provide a comprehensive knowledge of how CCC management influences a firm's financial well-being. These research findings contribute not just to intellectual debate, but also to practical consequences for stakeholders in the financial sector.

The Cash Conversion Cycle (CCC) measures a company's liquidity and operational effectiveness. This analysis emphasizes its importance for private enterprises, who are frequently limited in capital markets, and investigates the complex relationship between CCC and debt. It highlights the difficulties that both private and public enterprises confront when borrowing through formal financial markets, as informed by Pecking Order Theory. Diversifying financing sources is critical, as proven by worldwide research, particularly those from developing economies, which shed light on distinct cash management issues in the face of economic changes.

Richards and Laughlin (1980) proposed the Cash Conversion Cycle (CCC), which challenged the use of traditional liquidity ratios. The CCC, which includes inventory, accounts receivable, and payable periods, is an essential component of a company's financial machinery, with significant implications for corporate strategy and performance. Additionally, Koliasa et al. (2020) emphasize the macroeconomic effects on the CCC, emphasizing the impact of monetary policy and interest rate changes. Given recent global economic shifts, particularly the effects of the COVID-19 pandemic, it is critical to keep data and understanding up to date in order to effectively manage the cash conversion cycle.

Debt serves a dual purpose in the Cash Conversion Cycle (CCC) management. On the one hand, strategically structured debt can improve the CCC by giving the firm the leverage it needs to optimize its operational cycle without incurring excessive financial obligations. As Laghari et al. (2023) explain, an overreliance on debt, particularly short-term debt, has the potential to extend the CCC, resulting in capital tying up and hindering liquidity. Aktas et al. (2015) emphasize this delicate balance even further, arguing that maintaining an optimal level of working capital, and thus a balanced CCC, can contribute to improved returns and operational performance. This highlights the complicated interplay of debt in achieving effective CCC management. (Koliasa et al., 2020).

According to the Pecking Order Theory, companies prioritize internal funds over debt and equity in their financing preferences. Myers (1984) explains this tendency as a result of information asymmetry and the costs associated with it. As Obeng et al. (2021) point out, firms with ample internal funds are likely to have a shorter Cash Conversion Cycle (CCC) due to less reliance on external financing mechanisms.

The empirical findings provide a more nuanced perspective. While some studies support the Pecking Order Theory, indicating a preference for shorter Cash Conversion Cycles (CCCs) in firms with significant internal financing, others add variables such as market conditions, firm size, and industry-specific factors. According to Zeidan and Shapir (2017), these variables can have a significant impact on a firm's financial strategy and, as a result, its CCC.

Analyzing specific business cases provides practical insights into how to apply cash conversion cycle concepts. As Qadri, Altas, and Aman (2021) point out, certain cement companies in the Saudi market have successfully implemented inventory management strategies. This proactive approach has resulted in shorter cash conversion cycles, increasing financial liquidity.

Asset and liability management are at the heart of CCC optimization. The agility with which a firm manages its inventory turnover and accounts receivable can significantly reduce the CCC, fostering greater liquidity and reducing the need for debt. Conversely, the liability structure, particularly the terms and conditions of debt, can either compress or expand the CCC, thus dictating the firm's liquidity stance (Buddenberg, 2019).

The lifecycle stage of a firm is a determinant of its financial strategy and, by extension, its CCC. Berger and Udell (1995) highlighted that firms at different lifecycle stages exhibit varying capacities to raise funds, which in turn influences their CCC management.

Mature firms, with more predictable cash flows, might manage their CCC differently from growth-stage firms that might be navigating more erratic cash flows and greater reliance on external financing (Zhang & Xu, 2021).

While an insignificant relationship was discovered between cash conversion cycle CCC and firms return on equity ROE in contracts and construction firms listed in the Bombay Stock Exchange (Vartak, 2019), results indicated that the cash conversion cycle has a significant negative effect on the profitability measured by return on equity ROE or return on assets ROA in one hand and the firm size affect the ROE and ROA in manufacturing companies in the other hand (Saraswatia & Bernawati, 2020).

With a consistently observed negative relationship, the Cash Conversion Cycle (CCC) has been identified as a significant factor influencing both return on equity and return on assets (Doğan & Kevser, 2020). A negative relationship was discovered between the cash conversion cycle and return on equity and return on assets in the Nigerian Stock Exchange's healthcare sector. It was proposed that lowering the CCC could improve financial performance by increasing return on equity and improving return on assets.

A study of the Sri Lankan industrial sector found a positive relationship between the inventory conversion period, a critical component of the cash conversion cycle, and return on assets. In contrast, a negative correlation was discovered between the payable conversion period and return on assets. Furthermore, a negative correlation was found between all components of the cash conversion cycle and return on equity. This highlights the important relationship between the cash conversion cycle and overall company profitability in the Sri Lankan industrial sector, emphasizing the importance of paying close attention to working capital requirements (Sugathadasa, 2019).

A study conducted in Thailand discovered a significant inverse relationship between the cash conversion cycle and the profitability of agricultural and food companies. Furthermore, the production and debt ratios were negatively related to return on assets, whereas the payment receivables collecting cycle and firm size were positively related to return on equity. However, no significant relationship was identified between the cash collection cycle and overall profitability (Linh, 2018).

A thorough investigation into the Saudi Arabian market, involving 100 listed companies from various industrial sectors, revealed a positive and significant relationship between working capital

components, represented by the cash conversion cycle, and company profitability, as reflected in return on assets and return on equity. However, a negative and significant relationship with gross operating profit was discovered. The study emphasized that larger firms were more profitable than their smaller counterparts.

Despite a large sample size, another Saudi Arabian study found a negative relationship between the current ratio, debt-to-equity ratio, and company size on one hand, and return on equity and return on assets on the other (Anis, 2022). A positive relationship between a company's profitability and receivables turnover was discovered in a separate study in the same region. Days of sales outstanding (DSO), a key indicator of receivables, correlated negatively with earnings. In Saudi industrial organizations, account receivables turnover has been identified as a significant influencer of cash flows and profitability (Kumaraswamy & George, 2019).

According to the pecking-order theory, firms prefer internal funds, such as retained earnings, to external financing for investments. This theory is supported by research into the impact of EBITDA on the cash conversion cycle. According to the literature, while pecking-order theory insights hold true, the relationship between EBITDA and the cash conversion cycle is affected by factors such as industry and debt financing.

Several studies have been conducted to investigate the relationship between the Cash Conversion Cycle (CCC) and profitability in various sectors and regions. Nwude et al. (2018) discovered that CCC has a negative impact on the profitability of Nigerian insurance firms. Linh and Mohanlingam (2018) discovered an inverse relationship between production and payment cycles in Thailand's agriculture and food industries. Samosir (2018) emphasised the positive impact of CCC on the profitability of Indonesian manufacturing firms. In Malawian manufacturing firms, Nijam (2016) discovered an inverse relationship between CCC and returns. According to Upadhyay et al. (2015), a shorter CCC contributes to higher hospital profitability in Washington State. Telly's (2019) research on Indonesian manufacturing firms highlighted the significant impact of CCC on profitability, while firm size had a lesser impact. These studies collectively underline the crucial role of effective working capital management in enhancing a firm's financial performance across diverse contexts.

2.1. Conceptual Model

The Cash Conversion Cycle (CCC) conceptual model is a theoretical framework that depicts the interplay of various components affecting a firm's working capital management and, as a result,

its financial performance. The CCC is the amount of time it takes for a company to turn its investment in raw materials and other inputs into cash flows from the sale of finished goods. The following is an overview of the CCC conceptual model's key components:

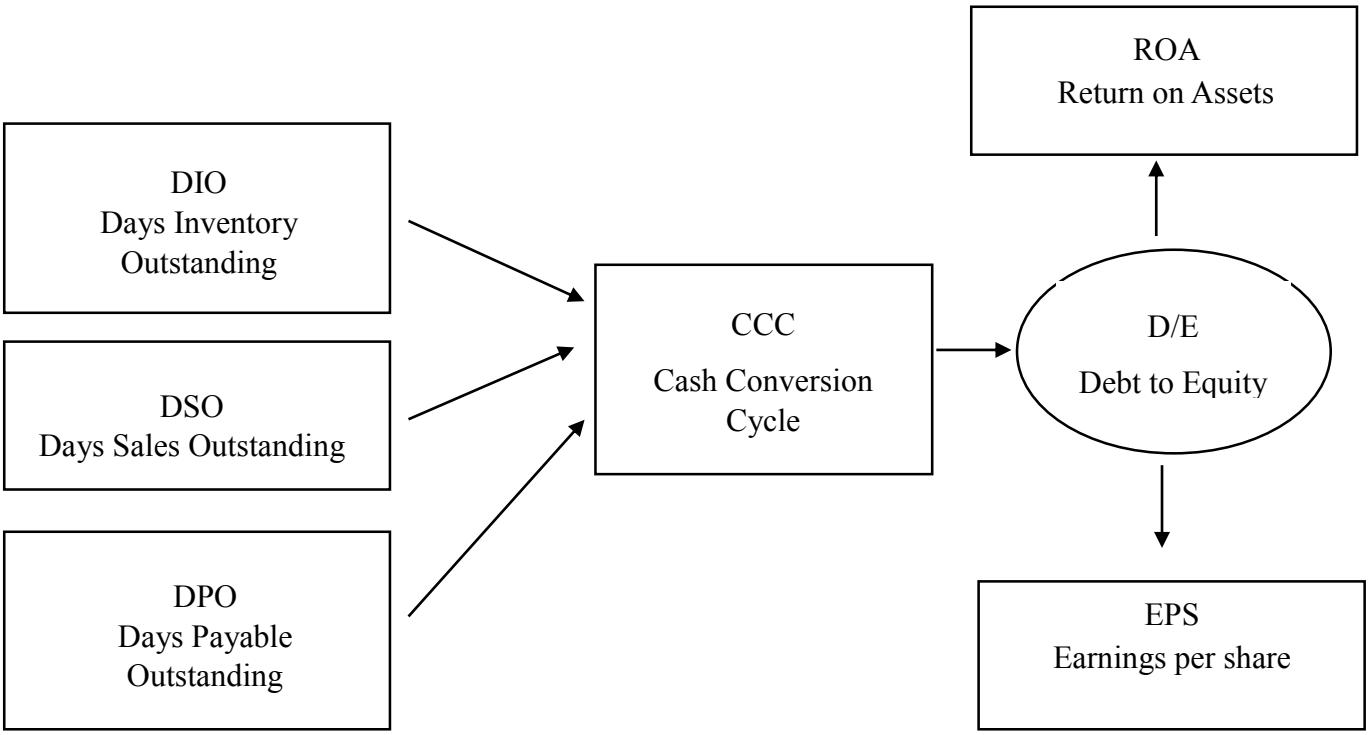

Figure 1: Conceptual Model

The model emphasizes the delicate balance between efficiently managing inventory, collecting receivables on time, and handling payables strategically. The CCC depicts effective working capital management as being associated with improved liquidity and financial health. The model also recognizes these components' dynamic nature, which is influenced by industry dynamics, economic conditions, and firm-specific factors. The CCC conceptual model depicts how the efficiency of a firm's operating cycle, which includes inventory, receivables, and payables, contributes to its overall financial performance. It guides businesses in optimizing their working capital practices for improved cash flow and profitability.

3. Methodology

The dataset, Dependent variables, and independent factors employed in this study are all attempted to be discussed in this section and a brief outline of discriminatory strategies used in our model i.e. Regression analysis.

3.1 Dataset

The dataset for the study consists of seven financial enterprises spanning the years 2015-2022 from the companies listed in the Saudi stock market in the healthcare sector, The selected companies are:

1- Dr. Sulaiman Al Habib Medical Services Group Company.
2- Al Hammadi Holding Company.
3- Dallah Healthcare Holding Company.
4- Middle East Healthcare Company.
5- Ayyan Investment Company.
6- Mouwasat Medical Services Company.
7- National Medical Care Company.

The financial variables were extracted from the official websites of these companies and TADWAL website. However, the current study uses the panel data set for analysis.

3.2 Model Diagnostic Test

3.2.1. Variance Inflating Factor VIF

The Variance Inflation Factor (VIF) is a critical diagnostic test in regression analysis for assessing multicollinearity, a condition in which predictor variables in a model have strong linear relationships. VIF measures how much the variance of an estimated regression coefficient is inflated as a result of collinearity. A VIF of 1 indicates no collinearity, while higher values indicate an increasing level of collinearity. It is calculated by regressing each predictor against all other predictors in the model. A threshold of 5 or 10 is typically used, and predictors that exceed this threshold are considered problematic. VIFs are calculated by regressing one predictor against all other predictors in the model.

$$VIF = \frac{1}{1 - {R_i}^2}$$

3.2.2. Panel Unit Root Test

The panel unit root test is used to determine whether or not the time series is stationary. The time series is said to be stationary if the variance and mean remain constant over time. Harris and Tzavalis designed a test for use on data sets with relatively short periods (T) and large panels (N) in 1999, with the centered and rescaled test statistic N (0, 1). On Balanced Panel data, the test is permitted.

The test assumes that panel data have a unit root, as opposed to the alternative hypothesis that time series are stationary. If the probability value is less than 0.05, the null hypothesis is rejected. This test was applied to our dataset since it fulfils the respective test assumptions.

3.2.3. Hausman Specification Test

The Hausman specification test of Hausman (1978) is used to distinguish between fixed effect and random effect panel data modeling approaches. The Hausman test sets the hypothesis that there is no statistically meaningful difference between the estimators of the random effect and fixed-effect model. The fixed-effect model will be appropriate if the null hypothesis gets rejected and vice versa. The general equation of the Hausman test statistic is:

$$H = (\beta_{RE} - \beta_{FE}) \sum -1 \ (\beta_{RE} - \beta_{FE}) \sim \chi^{2\,(k)}$$

The hypothesis for the test is explained as:

H_0: The appropriate model is Random effects. There is no correlation between the error term and the independent variables in the panel data model.

$$Cov\ (\mu_i, x_{it}) = 0$$

H_1: The appropriate model is Fixed effects. The correlation between the error term and the independent variables in the panel data model is statistically significant.

$$Cov\ (\mu_i, x_{it}) \neq 0$$

If the p-value is found to be less than & equal to 0.05 then reject H_0 otherwise don't reject.

3.2.4. Heteroscedasticity

The ordinary least square regression is inherent in certain assumptions. One of the important assumptions is that there should be no heteroscedasticity of residuals. It implies that the variance of residuals should not vary with the fitted values. Cross-sectional data are more likely to exhibit heteroscedasticity due to the underlying unique characteristics of each cross-section unit, which can cause the problem of an outlier in the dataset. Heteroscedasticity is also caused due to the omission of the important explanatory variable. To find out this, the study employs the Breusch-Pagan test which states the null hypothesis of no heteroskedasticity or homoskedasticity. The test uses chi-square (χ^2) by giving the degree of freedom equal to the number of parameters in the regression. (Gujarati, 2003)

3.2.5. Autocorrelation

The Wooldridge test was used to determine whether autocorrelation existed in panel data. In the Wooldridge test, the null hypothesis is "there is no first-order autocorrelation." Because the Wooldridge test yields p-values less than 0.05 for both regression models (0.0000 and 0.0001, respectively.

3.3. Research Variables

3.3.1. Dependent Variables

Table 1 demonstrates that Return on Assets (ROA) and Earnings per Share (EPS) are two key Dependent variables used in this study to assess a company's financial performance and profitability. Return on Assets (ROA) is an important indicator that measures how efficiently a company uses its assets to generate profit. Earnings per Share (EPS) is a per-share measure of a company's overall profitability that represents the profit attributable to each outstanding share of common stock.

Table 1: Dependent Variables

Variables	Data Dictionary
ROA (Return on Assets)	ROA is a metric that measures how effectively a company uses its assets to generate profit.
EPS (Earnings per share)	EPS is the profit per outstanding share of common stock of a company.

3.3.2. Independent Variables

Table 2 introduces key independent variables that are critical for comprehending a company's financial landscape. The Cash Conversion Cycle (CCC) measures a company's ability to convert resources into cash flow, which reflects its working capital efficiency. The Leverage Ratio assesses a company's debt-to-equity ratio, indicating financial risk. The Quick Ratio evaluates a company's immediate liquidity, while the Debt to Service Ratio evaluates its ability to meet debt obligations with operating income. These variables shed light on the complex dynamics that influence financial health and operational efficiency, laying the groundwork for further investigation.

Table 2: Independent Variables

Variables	Data Dictionary
CCC- Cash Conversion Cycle	The time it takes for a company's resources to be converted into cash flow is measured by CCC.
Leverage Ratio	The leverage ratio compares a company's debt to its equity.
Quick Ratio	The Quick Ratio measures a company's ability to meet its most liquid obligations with its most liquid assets.
Debt to Service Ratio	The Debt to Service Ratio measures a company's ability to meet its debt obligations using operating income.

3.4. Descriptive Statistics

Table 3 provides a detailed overview of key financial indicators for seven companies. With an average of 10%, the Return on Assets (ROA) reflects the companies' efficiency in utilizing assets. Earnings Per Share (EPS) shows a wide range of profitability, ranging from 0.12SR to 29.59SR, with an average of 5.15SR. The Cash Conversion Cycle (CCC), which averages 395.24 days, represents the time it takes to convert the cash cycle and varies greatly between companies, ranging from 38.31 to 2,127.43 days. The Leverage Ratio, which averages 0.82, shows an average debt proportion of 82%, with variations ranging from 21% to 153%. Liquidity ratios, such as The Quick Ratio, reflected at -0.94, and the Current Ratio, positioned at 1.74, signal potential liquidity concerns that merit a thorough investigation. This prompts a closer scrutiny of the companies' financial robustness and their capacity to fulfill immediate financial commitments. The Debt to Service Ratio, which ranges from 0.04 to 1.23, provides insight into the relationship between debt and service. These statistics serve as a meaningful starting point for a nuanced analysis of the financial, operational, and leverage positions of the selected companies. The diverse range in these indicators underscores the unique financial profiles and potential areas of strength or concern across the companies.

Table 3: Descriptive Statistics

	Observation	Mean	Standard Deviation	Minimum	Maximum
Return on Assets	56	0.10	0.05	0.02	0.17
Earning Per Share	56	5.15	6.21	0.12	29.59
Cash Conversion Cycle	56	395.24	520.90	38.31	2,127.43
Leverage Ratio	56	0.82	0.45	0.21	1.53
Quick Ratio	56	-0.94	3.15	-8.66	1.42
Current Ratio	56	1.74	1.04	1.02	8.33
Debt to Service Ratio	56	0.22	0.30	0.04	1.23

3.5. Multiple Linear Regression

In this research, Multiple linear regression was used first to analyze the impact of CCC on a firm's profitability. It is a statistical method for modeling the relationship between two or more independent variables (also known as predictors or features) and one or more dependent variables (also known as the response or outcome). Multiple linear regression considers multiple predictors, as opposed to simple linear regression, which only considers one independent variable.

The study employs the subsequent regression model:

$$ROA_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (LR_{it}) + \beta_3 (QR_{it}) + \beta_4 (CR_{it}) + \beta_5 (D/S_{it}) + \epsilon_{it}$$

$$EPS_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (LR_{it}) + \beta_3 (QR_{it}) + \beta_4 (CR_{it}) + \beta_5 (D/S_{it}) + \epsilon_{it}$$

Where,

ROA = Return on Assets

EPS = Earning per share

CCC = Cash conversion Cycle

LR = Leverage Ratio

CR = Current Ratio

QR = Quick Ratio

D/S = Debt to service ratio

By using this model, the combined effect of these variables on profitability can be assessed. If β_1 is statistically significant and negative, it implies that a longer CCC is associated with lower profitability, assuming all other variables remain constant.

This analysis assists in determining which factors, including CCC, contribute significantly to the variability in profitability, providing valuable insights for financial management and decision-making in firms.

4. Results and Discussions

4.1. Panel Unit Root Test

The study began with a unit root test at the level for each variable. In contrast to the alternative hypothesis, which was based on the idea that each variable is stationary, that is, variables do not have a unit root, the null hypothesis was thought to have a unit root. All of the variables did not support the null hypothesis. The test results for the panel unit root are shown in the table below:

Table 4: Panel Unit Root

Variables	z-statistics	p-value
Harris-Tzavalis Test		
Return on Assets	-3.070	0.001*
Earning Per Share	-4.573	0.000*
Cash Conversion Cycle	-3.902	0.000*
Leverage Ratio	-1.332	0.091**
Quick Ratio	-2.317	0.010*
Current Ratio	-5.762	0.000*
Debt to Service Ratio	-5.450	0.000*

Note: * and ** indicates the level of significance at 5% and 10% confidence interval, respectively.

4.2. Correlation Matrix

Table 5 demonstrates that the correlation matrix sheds light on the relationships between the dependent variables, Return on Assets (ROA) and Earnings Per Share (EPS), as well as various independent financial ratios. ROA and EPS have a negative correlation with the Cash Conversion Cycle (CCC), implying that a longer CCC has an adverse effect on return on assets and negatively impacts earnings per share. Furthermore, ROA has a strong negative correlation with the Leverage

Ratio, implying that firms with higher leverage experience lower asset returns whereas EPS has a strong negative relation with the Leverage ratio implying that firms with higher leverage cause lower earnings per share. However, the correlation with liquidity ratios such as Quick Ratio and Current Ratio is weak and not statistically significant, implying that these liquidity measures have a limited association with ROA and EPS respectively. Similarly, ROA and EPS are negatively correlated with Debt Service Ratio, implying that firms with a higher debt-to-service ratio have lower returns on assets and lower earnings per share.

Table 5: Correlation Matrix

	Return on Assets	**Earnings Per Share**	**Cash Conversion Cycle**	**Leverage Ratio**	**Quick Ratio**	**Current Ratio**	**Debt to Service Ratio**
Return on Assets	1						
Earnings Per Share	-0.178	1					
	(0.189)						
Cash Conversion Cycle	-0.302*	0.765*	1				
	(0.024)	(0.000)					
Leverage Ratio	-0.758*	0.352*	0.475*	1			
	(0.000)	(0.008)	(0.000)				
Quick Ratio	0.120	0.540*	-0.517	-0.115	1		
	0.380	(0.000)	(0.000)	(0.400)			
Current Ratio	-0.043	0.694*	0.436*	0.068	-0.310*	1	
	0.755	(0.000)	(0.001)	0.619	(0.020)		
Debt to Service Ratio	-0.355*	0.853*	0.834*	0.488*	-0.462*	0.658*	1.000
	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

Note: 1): The level of significance at the 5% confidence intervals is shown by the *. 2): The values in () indicate the p-value of the estimated coefficients.

4.3. Variance Inflating Factor

Table 6 shows the Variance Inflation Factor (VIF) for each variable, indicating that each variable has a VIF less than 10, indicating the lack of multicollinearity. VIFs are calculated by regressing a single predictor against all of the model's predictors.

Table 6: Variance Inflating Factor

Variable	VIF	1/VIF
Debt to Service Ratio	6.750	0.148
Earning Per Share	4.940	0.203
Cash Conversion Cycle	4.110	0.243
Current Ratio	2.590	0.386
Leverage Ratio	1.590	0.629
Quick Ratio	1.530	0.653
Mean VIF	**3.590**	

4.4. Results of ROA Fixed Effect Model

Table 7 summarizes the findings of a regression analysis designed to determine the impact of various financial ratios, particularly the Cash Conversion Cycle (CCC), on firm profitability as measured by Return on Assets (ROA). The results reveal intricate relationships between these variables. The Leverage Ratio exhibits a noteworthy and negative influence on profitability. These findings are consistent with established financial theory, indicating an increase in financial risk associated with increased leverage, as noted by Karim et al. (2023) and other scholars. Similarly, the Quick Ratio exhibits a significant and negative coefficient, implying that a higher proportion of liquid current assets may be associated with lower profitability, potentially indicating underutilized resources. Conversely, the Current Ratio demonstrates a positive and substantial impact on profitability. one independent variable in the model significantly influences firm profitability. While an increased Current Ratio corresponds to increased profitability, it is critical to consider both statistical and economic significance. Notably, the constant term in the model, which represents the baseline profitability when all independent variables are zero, achieves statistical significance.

In summary, the regression model is statistically significant, as indicated by F-statistics and associated p-value (p 0.05) indicating that at least one independent variable in the model significantly influences firm profitability.

Table 7: Results of ROA Fixed Effect Model

	Coefficient	**t**	**P>|t|**
Cash Conversion Cycle	0.000	-0.180	0.860
Leverage Ratio	-0.179*	-5.000	0.000
Quick Ratio	-0.008*	-3.900	0.000
Current Ratio	0.009*	3.870	0.000
Debt to Service Ratio	0.078	0.640	0.525
Constant	-0.025*	-4.420	0.000
F-statistics	17.390*		
Prob > F	0.000		

Note: * indicates the level of significance at 5% confidence interval.

4.5. Results of EPS Fixed Effect Model

Table 8 shows the regression analysis which reveals important insights into the complex relationship between various financial ratios and firm profitability, as measured by Earnings Per Share (EPS). Four significant variables are found in this analysis. To begin, the `negative Cash Conversion Cycle (CCC) coefficient of -0.021 indicates that a shorter CCC is closely associated with higher profitability, emphasizing the critical role of effective working capital management. This finding aligns with financial theory and emphasizes the critical role of optimizing the CCC to enhance firm performance. The Quick Ratio has a highly negative coefficient of -3.442, indicating that increased liquidity is associated with increased profitability Bordeleau and Graham (2010), Similarly, the Current Ratio has a highly positive coefficient of 4.727, highlighting the positive relationship between a higher current ratio and higher profitability.

The overall model is statistically significant, as indicated by the F-statistics with a p-value of 0.000. This underscores the collective impact of the included variables on firms' profitability. In summary, the findings highlight the critical role of a shorter CCC and favorable liquidity positions in positively influencing firms' profitability, providing valuable insights for financial decision-makers.

Table 8: Results of EPS Fixed Effect Model

	Coefficient	**t**	**P>|t|**
Cash Conversion Cycle	-0.021*	-3.050	0.004
Leverage Ratio	-0.059	-0.010	0.993
Quick Ratio	-3.442*	-8.530	0.000
Current Ratio	4.727*	10.740	0.000
Debt to Service Ratio	19.929	0.830	0.412
Constant	-6.922*	-6.190	0.000
F-statistics	31.290*		
Prob > F	0.000		

Note: * indicates the level of significance at 5% confidence interval.

In Conclusion, the regression analyses in Tables 7 and 8 provide critical insights into the complex dynamics of financial ratios and firm profitability as measured by ROA and EPS. According to financial theories on leverage and risk, the Leverage Ratio has a significant influence on ROA. Quick and Current Ratios provide more nuanced views on liquidity and profitability. Notably, the CCC has a negligible impact on ROA, implying that it is not a reliable indicator of profitability. A shorter CCC emerges as a critical factor in the context of EPS, emphasizing the importance of effective working capital management. The overall statistical significance emphasizes the combined impact of these factors on firm profitability, providing concise strategic guidance for long-term financial success.

5. Conclusion

This study delves into the financial dynamics of seven companies in the context of effective working capital management, assessing the impact of Cash Conversion Cycle (CCC) on two dependent variables: Return on Assets (ROA) and Earnings Per Share (EPS). This research looks at four independent variables—Leverage Ratio, Quick Ratio, Current Ratio, and Debt to Service Ratio—to better understand their complex relationships with ROA and EPS across these companies. To achieve our goals, this study investigates the impact of CCC on financial health, the factors influencing CCC's impact on financial performance, and the roles of inventory turnover accounts receivable, accounts payable, and debt in shaping CCC and firm profitability.

The findings shed light on these relationships in a variety of ways. While the Leverage Ratio corresponds to financial theories, demonstrating a significant influence on ROA, the CCC appears to be insignificantly correlated with ROA, challenging conventional wisdom. In the realm of EPS, on the other hand, a shorter CCC emerges as a pivotal factor, emphasizing its importance in driving profitability. These findings highlight the complexities of Cash Conversion Cycle dynamics in influencing firm performance. Lastly, this research provides valuable strategic guidance to financial decision-makers by highlighting the multifaceted effects of various financial ratios on firm profitability in a dynamic business landscape.

5.2. Recommendations and practical impactions

- Strategic management can help to mitigate the financial risks associated with increased leverage.
- Manage the Quick Ratio and Current Ratio strategically to avoid resource underutilization.
- Provide a comprehensive view of a company's performance that goes beyond traditional profitability measures.
- Create CCC strategies that are unique to each company's industry dynamics.
- Take into account industry benchmarks when optimizing the CCC for improved financial performance.

We recommend conducting further research that includes more companies in the healthcare sector, as well as companies from other sectors, to compare the results.

5.3. Limitations

This study has some limitations because it includes a dataset of only seven companies which may not fully represent the diversity of industries and business practices. Larger datasets with broader industry coverage will provide a more complete picture. External factors such as macroeconomic indicators, regulatory changes, and global events were not taken into account thoroughly.

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Fulani Nationalism and the Use of Herdsmen to Forcibly Acquire Land Belonging to Natives in Nigeria

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Abstract

Fulani people can be found in many African states, especially in West Africa. The Fulani who are mainly nomads and Muslims, migrated to Nigeria in the 13th Century and conquered the Hausa ethnic group in the 18th Century. Thereafter, they established their rule over the Hausa and other ethnic groups in Northern Nigeria through the Sokoto Caliphate. The study analyses how the sedentary Fulani use the nomads, herding cattle across the country to acquire land from the natives through intimidation and violence forcibly. The sedentary Fulani who are often well educated and sophisticated use their positions in government to protect and defend the herdsmen. Many authors have attributed climate change as the main reason causing the conflicts between Fulani herdsmen and farmers in Nigeria. The study does not support this assertion. Rather it finds that the attempts by native farmers to resist land grabbing by the nomads lead to conflicts. The study adopted a qualitative method to review some earlier literature on the phenomenon and proffer solutions to the avoidable and unnecessary clashes that have led to the deaths of many farmers and other natives across the country.

Keywords: Herdsmen, Farmers, Clashes, Nigeria

1. Introduction

The herdsmen-farmer conflict in Nigeria is a phenomenon that has confounded many in recent times. Many reasons and explanations have been given by scores of authors and commentators as the causes of the conflict. Some have attributed the underlying factor to climate change (Odo and Chigozie, 2012). However, what many agree is the main cause of the rampant conflict between farmers and Fulani herdsmen is resource scarcity (Adekunle and Adisa, 2010). To understand the genesis of this conflict, it's important to dive into a brief history of the Fulani, their origin in Nigeria, and their mode of herding cattle. The Fulani people are widely spread across Africa but are mostly found in West Africa. They had roots in the Middle East and North Africa (Anter, 2015). They migrated to Nigeria in the 13th Century and have since constituted a significant part of northern Nigeria. Fulani people are mostly nomads, whose way of grazing poses significant challenges to farmers across Nigeria (Ibrahim, 1966). Fulani nomadic cattle herders were accustomed to moving their cattle southwards during the dry season in search of water and vegetation. As a result of climate change, they now move their cattle southwards during the rainy season, when cultivation of crops usually takes place. This pits them against farmers when their cattle damage crops (Odo and Chigozie, 2012). The pastoralist Fulani are usually accompanied in their migration by their sedentary kinsmen. The latter are generally better educated; and are fanatical Muslims and shrewd politicians than the former. The sedentary Fulani supply the necessary political and military strategy when the pastoralist Fulani face opposition from farmers. The sedentary Fulani also mobilise them for jihad when the occasion arises (Ezeonwuka and Igwe, 2016). However, the pastoral Fulani play a major role in the production and supply of meat, as they own a significant percentage of the country's livestock population, which contributes up to one-third of agricultural Gross Domestic Product (GDP) and about 3.2 percent of Nigeria's overall GDP (Eniola, 2007). Customarily, Fulani herdsmen live in temporary structures called 'ruga' (Eniola, 2007). It's not settled when the conflict between Fulani cattle herders and farmers started in Nigeria, but the frequency of the conflict is a recent phenomenon. Despite all the reasons adduced as the major and underlying causes of the frequent Herder-Farmer conflict in Nigeria.

One thing that should dominate the discourse is the political and social dimensions that the crises have taken. Indigenous farm owners, as well as non-indigenous farmers who are often left at the mercy of the heavily armed Fulani herdsmen, hold the view that the Federal Government of

Nigeria, dominated by members of the Fulani ethnic group using the herdsmen for an expansionist agenda (Nwosu, 2017). In other words, the conflict is deliberate and it's fuelled by Fulani nationalism. This view emanates from the arms support given to the herdsmen, their defense and protection by the Federal Government of Nigeria, and governments of the states where the state governors are Fulani. Nationalism usually is employed to push for the interests of a particular group (Smith, 2010). So, it's this nationalistic feeling that the study finds nudges the sedentary Fulani and the Fulani nomads to collaborate to ensure their collective survival in Nigeria, by killing especially native farmers and appropriating their land. So, this view opposes the views of many authors, commentators, and scholars, who have majorly attributed the frequent clashes between farmers and Fulani herdsmen to climate change. The view of the author concerning the main reason for the conflict, calls for introspection among scientific researchers in Nigeria, who have written extensively on the topic of farmer-herder conflict in Nigeria. The role of a scientific researcher as an objective researcher should not be sacrificed on the altar of political correctness. It is true that a scientific researcher's perspective on a certain social phenomenon influences his appreciation of the social phenomenon. Yet, the insistence on value neutrality should lead him to demand a revolutionary disjunction between facts and values, in one dimension, and define the idea-type idealization in another (Weber, 1949). However, this does not suggest a fundamental separation of facts from values. The mechanism for unearthing the social phenomenon called the farmer-herder conflict demands that researchers call to aid, the historicity of the conflicts, to unravel the real facts on ground. The explanation of the conflicts through the lens of scarce resources alone can be said to be inadequate or less comprehensive in any sense.

The importance of understanding the political elements in the crisis will go a long way in curbing the menace. The type of social research, researchers should be interested in, is an empirical science of solid reality. Social scientists are admonished to take cognizance of the peculiarity of the reality surrounding them. This can be attained by striving to understand or master the relationships and the social, political, and cultural happenings in their emerging manifestations, and also critiquing the causes of their being historically so, and not in any other conceivable manner (Weber, 1949). The results of scientific experimentations or studies must be seen to be valid for all scientific social researchers, discarding their personal biases. This will eliminate the possibility of empirical irrationalism.

The Fulani example immensely underscores the concept of nationalism in which shared sentiments produce a form of identity that joins individuals in political and social solidarity (Anderson, 1983). The conflict involving farmers and Fulani herdsmen emanated from the national feelings of the Fulani ethnic group, to collectively survive as a group in Nigeria. There is no other way they can successfully displace the farmers and other natives without, coming together as a group and using force to do so. In this sense, conflict is desirable to them; and farmers must resist since their existence is largely dependent on the lands.

1.1. Importance of the Research

The conflict involving farmers and herdsmen in Nigeria has led to unnecessary loss of lives. There is the need to properly situate the problem to stop these carnages. A problem cannot be solved when its cause has not been properly identified. This study is geared towards unearthing this problem, with the hope that the menace will be put to rest. The critique of this study is expected to compel lucidity on the crisis. The study rejects the validity of the outcomes of previous studies on this phenomenon and offers to provide a clearer insight into the conflict.

1.2. Research Questions

1. Is Climate Change the Major Trigger to the Farmer-Herder Clashes in Nigeria?

2. How can this Menace be stopped?

2. Literature Review

It is not certain when the herder-farmer conflicts in Nigeria started. However, some clashes involving them were even witnessed as far back as in the 1960s (Ibrahim, 1966). Fulani nomadic herdsmen who rear different types of cattle such as the muturu, the zebu, the keteku, and others were welcomed and respected by their host communities across Nigeria. This could be a result of the fact that they played an important role in the economic life of their host communities. The herdsmen were friendly and peaceful. They were known to have exchanged their butter and milk for agricultural products of the subsistent farmers whom they lived in their communities. The Fulani herdsmen also reared the livestock of these farmers and fertilized their fields by grazing cattle on them following harvests (Ezeonwuka and Igwe, 2016). Despite a few occasions of violence involving the two groups, their relationships were both cordial and symbiotic. There was evidence of occasional destruction of farms by cattle belonging to the herdsmen. Nonetheless, both parties had always devised ways of resolving these problems.

Fulani nomadic herdsmen were hitherto associated with carrying sticks while tending their cattle. However, since the Government of former President Muhammadu Buhari, who is Fulani, began in 2015, they were often seen, armed with AK47 riffles and other dangerous guns. It's safe to argue that although the activities of herders moving their cattle from one place to another in Nigeria, brings these herdsmen into confrontation with local farmers (Okoli and Atelhe, 2014), the major factor fuelling the conflicts is the audacity of the Fulani ruling class in using the herders to take over land belonging to native Nigerians forcibly. There have been provocative statements from the Fulani ruling class, supporting the encroachments on the land owned by natives by their herdsmen kinsmen. In Nigeria, these Fulani leaders have been heard to have claimed that ''Allah has given them Nigeria as their inheritance'' (Ezeonwuka and Igwe, 2016). This will be discussed in detail in a subsequent section. This typology of statement often makes the Christian south wary of Fulani herdsmen who are mostly Muslim. Finally, the recent surge in conflicts between herders and farmers in Nigeria has its roots in the superior-inferior complexes, as exhibited in the hubris of the Fulani ruling class in Nigeria. Their attempts to use the herdsmen to chase natives away or kill them to acquire their land, leave the endangered natives with no other option than to resist extermination by fighting back (Gwamma, 2006). In January 2002, Fulani herdsmen and their families suffered heavy casualties, as over 90 of them were killed in Plateau State, north-central Nigeria, which has remained a hot spot for the farmer-herder crisis in Nigeria (Armed Conflict Report, 2009). This singular incident showed that there is always resistance when one group tries to oppress or dominate the other.

3. Conceptual Issues

Conflict may be perceived as evil yet it may be used to resolve differences in political, social, cultural, or economic statuses. In other words, it may serve as a bulwark against inequality in a capitalist system. Karl Marx explains that inequality is a product of capitalism and a group or individuals subjected to inequality by the capital may use a violent confrontation to change their status (Ritzer and Stepnisky, 2014). In his historical materialism thesis, he links conflicts to economic structures and social institutions (Faleti, 2007, p. 43). Conflict is a scheme fashioned to settle divergent interests and attain some kind of satisfaction by a group, notwithstanding, if it involves annihilation of one of the parties to a conflict. So, conflict is perceived as inevitable in the cultural, economic, political, or social relationship of different groups, once there is a clash of interests (Francis, 2006). Decreases in the quantity of renewable, unequal access to land can

compel a group to migrate or be expelled to strange lands. Usually, when one of these occurs, migrating groups may cause ethnic conflicts, if they attempt to occupy land belonging to their host communities (Homer-Dixon and Blitt, 1998). Conflict is usually linked to negative developments and the phenomenon amounts to a struggle over values and claims to scarce power, status, and resources. This explains conflict as a way of resolving problems emanating from opposing interests that groups may have (Coser, 1956). The only way the Fulani herdsmen can dispossess native farmers of their land is through the use of force. The farmers will resist this attempt since their survival largely depends on their lands. This divergence of interests will eventually culminate in a conflict. Thus, conflict serves as an agent for dispossessing farmers of their lands. Conversely, it serves as an agent of resistance for the farmers and other native Nigerians.

4. Methodology

4.1 Data Collection

The qualitative method is used to answer the research questions. The study employed secondary materials such as books, journals, and statements by prominent Fulani leaders. Questionnaires and surveys are important in this type of study. However, since there is adequate literature covering this phenomenon, the study decided to make use of secondary materials instead of primary materials and quantitative methods.

5. Discussion

5.1. Factors Responsible for the Clashes between Herdsmen and Farmers across Nigeria

In a study conducted not too long ago, it was discovered that deliberate grazing of cattle on farms, farmers' encroachment on land reserved for grazing, and indiscriminate bush burning by Fulani herders were the major factors contributing to conflicts between these two groups in some states of the country (Adeoye, 2017). Some have attributed the crises to a scarcity of resources (Adekunle and Adisa, 2010). Some authors such as Abbas (2009) have linked the conflicts to claims and counterclaims over the use of farmlands and cattle routes across the country. While (Odo and Chigozie, 2012) attribute them to climate change. All these findings may be true. However, they are neither the major factors triggering the clashes nor are they the main contributing factors to their escalation. At the base of the clashes is the perceived blocking of the interest of one group by the other (Idowu, 2017). From time immemorial, local farmers and non-

local farmers alike have been living side by side with the Fulani nomadic herders peacefully. They indulged in trade by barter and always devised pacific ways of resolving their differences, arising from herders' cattle destroying crops and plants. The presence of the farmers never threatened the local people hosting them. The herders were allowed to erect their ruga (the customary Fulani encampment comprising temporary structures made of stalks) on the land belonging to their host communities (Eniola, 2007). However, the problem started when the sedentary Fulani began to use the herdsmen for land grabbing and jihad. Statements by some notable Fulani leaders like Bello Badejo that, ''Fulani own all lands in Nigeria'' (Nwachukwu, 2021) and ''Allah has given Nigeria to Fulani'' (Ezeonwuka and Igwe, 2016) built suspicions in the minds of local communities where Fulani herdsmen usually camp. So, statements such as these immensely fuelled the clashes. Another interesting factor in the conflicts is the country's seeming inability to regulate the mutual coexistence among the citizens of the country (Fiki and Lee, 2004). The intractable problem of indigene/settler in the country is one of the contradictions of the Nigerian state. As long as this is allowed to fester, conflicts involving herders (seen as settlers and invaders) and farmers (indigenes) will continue unabated. The presence of these herdsmen is enough to threaten the farmers, notwithstanding whether or not the 'settlers' actually want to dispossess the farmers of their land. The deescalate the conflicts or to avert future occurrences of conflicts involving local communities and nomadic Fulani herdsmen, both the central and state governments must discourage the movement of cattle from one place to the other. The herders should be encouraged to ranch their cattle while some form of subsidy may be provided to them by the central government. This would certainly allay the fears of the local communities that the central government is solidly behind their ordeal in the hands of the nomadic herdsmen (Nwosu, 2017).

5.2. Cases of Fulani Herdsmen Invading Local Farming Communities and Non-Farming Communities

As stated earlier, conflicts between herders and farmers have become a recurring decimal. They have become the new normal in the country. Before now, there had been cases of clashes between local communities and Fulani herdsmen. However, these clashes rarely resulted in the deaths of either party. Sometime in June 2002 about 30 people were hacked to death in clashes between these two groups in Plateau State. On 4th March 2003, over 100 people (the majority of them farmers) were killed in Adamawa, northern Nigeria over land use (Irin News, 2003).

Armed conflicts involving Fulani herdsmen and their host communities have occurred in over 20 communities in Nigeria (Taiwo, 2010). On 25 April 2016, about 500 Fulani herdsmen who were armed to the teeth invaded a rural, farming community in Enugu State called Nimbo and massacred over 40 villagers without any form of challenge by security forces. The attitude of the security forces in not intervening to save the community was curious because they were alerted beforehand concerning the invasion by these herdsmen. The police and the army arrived only when the attacks had ceased and the attackers fled (Igata, 2016). The governor of the state informed the public that he alerted the security forces of a possible attack but they chose not to act on the intelligence (Ugwuanyi, 2016). The seeming inability of Nigeria's security forces to apprehend and prosecute Fulani herdsmen often emboldens them to act with impunity. In 2017, the nomadic herdsmen once again invaded Agatu, in Benue State, central Nigeria, and hacked over 400 villagers to death. Following, the gruesome killings, the survivors fled and the herdsmen took over their abandoned land. Once again, there was no intervention by Nigeria's security forces to protect the victims of this heinous crime (Ikezue and Ezeah, 2017). It has been alleged that most of these killer herders are non-Fulani Nigerians (Ikezue and Ezeah, 2017). This led credence to the fears of many Nigerians that the Fulani herdsmen are being used by the sedentary Fulani for an expansionist agenda (Nwosu, 2017). Recently, over 100 villagers were massacred by the Fulani herdsmen in Christian communities in Plateau State. The conflict erupted over attempts by the herdsmen to dispossess the communities of their land (Jannmike and Nanlong, 2023). These attacks one may argue have the trappings of a premeditated ethnic cleansing. Farmers are usually the victims because they are unarmed while the herdsmen are heavily armed. These characteristics of the conflicts oppose the views that the major factors contributing to the clashes are climate change, destruction of farms, indiscriminate bush burning, and encroachment on cattle routes. The questions that are germane here are: Who arms the herdsmen? Why are they armed? Why are they allowed to kill with impunity? The study will attempt to proffer answers to these questions in another section.

5.3. Political Dimension to the Conflicts

Farmers and herders had once coexisted peacefully and exchanged dairy and agricultural products in Nigeria until the sedentary Fulani began to use the herders to acquire land belonging to farmers through the use of force (Ezeonwuka and Igwe, 2016). Having stated this. It is important to say that across Africa, especially the West Africa sub-region, history is replete with

the incidents of the Fulani successfully conquering their former host communities militarily, socially, and politically. In most cases, they inadvertently ended up becoming racially and culturally immersed and consequently lost their traditions and language but not religion (Ezeonwuka and Igwe, 2016). So, it's not that the idea of the Fulani taking over land belonging to natives and subjugating such people is a recent thing in Nigeria or across Africa. However, the idea of using the nomadic herdsmen to achieve this is a recent phenomenon in Nigeria. Before former President Buhari, a Fulani man assumed the leadership of Nigeria, there had been cases of the sedentary Fulani using the herders to acquire land. However, this intensified under President Buhari. The cases were mostly restricted to northern and central Nigeria, but with the coming of Buhari, they were extended to southern Nigeria. In 2018, following a spate of killings by Fulani herders, especially in Benue State, central Nigeria, the Federal Government was accused of not apprehending any of the culprits and had done nothing to prevent the killings. However, the Federal Government attributed the conflicts to anti-open grazing law being operated in the state. It advised farmers to devise a way of accepting and coexisting with foreigners in their midst.

The attitude of the Federal Government was seen as openly endorsing the killings by herders and the eventual taking over of land abandoned by local farmers by the herdsmen (Tukur, 2018). Former Governor Nasir El-Rufai of the northern state of Kaduna, a Fulani man once admitted going to Niger, Chad, Mali, Senegal, and Cameroon to pay some herdsmen whom he referred to as 'foreign Fulani herdsmen' to stop killing farmers in his state (Opejobi, 2016). Many Nigerians interpreted this as his being actively involved in the conflicts between herders and farmers in Kaduna. They wondered how he was able to identify the killer herdsmen and trace them to their respective countries. Sometime, in early 2021, the then Bauchi State Governor Bala Mohammed defended the killer Fulani herdsmen for arming themselves with AK-47. He argued that they used AK-47s solely for self-defense against cattle rustlers. He was responding to a notice to quit issued to the killer herders in southern Nigeria, specifically Ondo State, and Governor Ortom's condemnation of the activities of the herdsmen in his state, Benue (SaharaReporters, 2021). Bauchi state Governor had also in 2019 argued that Fulani herdsmen from Chad, Niger, and other countries bordering Nigeria would benefit from a proposed National Livestock Transformation Plan being canvassed by the Federal Government. By this scheme, Fulani herdsmen and their livestock would be put in designated 'colonies' across the country.

He justified the inclusion of foreign Fulani herders on the basis that a Fulani man is a global or African person. That his nationality was simply Fulani (Mohammed, 2019). Many native Nigerians saw this proposal as an orchestrated plan to illegally take their land and hand same to the Fulani. States from across the country, especially those from the south and central Nigeria vehemently kicked against the scheme. Later, the Federal Government abandoned the plan because it generated a lot of heated debates and suspicions. In 2018, a presidential spokesman Femi Adesina on behalf of the presidency advised subsistent farmers in Benue State to surrender their land to Fulani herders to avoid being killed by the herdsmen (Adesina, 2018).

The open or tacit support given to the killer herdsmen (regarded as the fourth most dangerous terrorist group in the world by the Global Terrorism Index) (Burton, 2016) underscores the point that climate change, resource scarcity, destruction of farms by cattle, the seizure of cattle routes by farmers may somehow lead to conflicts between these groups. However, at the roots of the conflicts is the ambition of the sedentary Fulani to take over land belonging to the indigenous Nigerians across the country and subjugate them militarily, politically, economically, and socially. How may one explain the often quoted rhetoric by some Fulani leaders that, ‘’Fulani own all lands in Nigeria or Allah has given Nigeria to the Fulani, other than to argue that the killer herders are being used for an expansionist agenda?’’ (Nwosu, 2017). It’s safe to argue that both the sedentary and nomadic Fulani are using Fulani nationalism to achieve their interest across Nigeria. So, the clashes are all about the survival of the fittest. Sometime in 2021, the Human Rights Writers Association of Nigeria warned that then-President Buhari was steadily but inadvertently plunging the country into another civil war, following the latter’s open support to the Fulani herders (Human Rights Writers Association of Nigeria, 2021). Buhari had sequel to this, instructed the Attorney General of the Federation and Minister of Justice to start the process of recovering cattle routes and grazing reserves taken over by native Nigerians across the country.

HURIWA saw this as a scheme to dispossess farmers and non-farmers alike, of their ancestral land and hand them over to his kinsmen. Climate change (Odo and Chigozie, 2012) and other factors such as destruction of crops, intimidation of herders by locals, sexual harassment of women by herders, indiscriminate bush burning, cattle rustling and so on (Ajibefun, 2018, p. 136) may have contributed to the conflicts. However, these are not the major contributing factors. For the umpteenth time, at the roots of the conflicts is the inordinate ambition of the

sedentary Fulani ruling class in Nigeria to sack indigenous natives, through the nomadic Fulani, from their land and forcibly take them for their purpose.

5.4. Consequences of the Frequent Conflicts Involving Fulani Herdsmen and Native Nigerians

The adverse effects of the ubiquitous conflicts involving Fulani herders, farmers, and other native Nigerians are multifarious. These have economic, social, political, and even cultural implications. Looking at the social and cultural consequences, the conflicts can contort the cultures or traditions of the natives subjugated by the Fulani. When groups are conquered, usually the conquerors would impose their own cultures or traditions on the conquered. So, the communities forcibly taken over by the Fulani are at the risk of losing their cultures or traditions to them. The conflicts would breed mutual mistrust between the herders and their host communities. Fulani are known to have fought many holy war (jihads) and those communities that were defeated, were assimilated into Islamic culture or Fulani culture. When Fulani conquered some communities in northern Nigeria, they created emirate system in those communities. The Sultan of Sokoto, the Emir of Kano, the Emir of Gwandu and other prominent Emirs in northern Nigeria are all Fulani.

On the political front, when a community is chased out and disposed of its ancestral land, the demography of such a community changes. It may likely lose its land permanently and this would lead to the community losing its original identity (Ikezue and Ezeah, 2017). The conflicts have dire effects on the country's national security.

The attendant security and livelihood crises pose a grave danger to the collective survival of the affected populations because they involve the loss of lives (Okoli and Atelhe, 2014). Over ten months, spanning 2015-2016, it was reported that about 710 people were murdered in eastern Nigeria by the Fulani herdsmen (Mama and Ndujihe, 2016). This particular trend of the conflict could lead to ethnic cleansing, given the identities of the two groups involved. The majority of Igbo people are Christians; conversely, Fulani are Muslims. The killing could be interpreted as a jihad by the Igbo people of eastern Nigeria; while the larger Fulani could attribute the crisis to religious differences. It was surprising that there were no investigations by the Federal Government. Then President of Nigeria, Buhari was accused of aiding the killer pastoralists. The attitude of the Federal Government under President Buhari, a Fulani Muslim toward the crisis in eastern Nigeria may have fuelled this perception. Following the massive killings, no culprit was

ever arrested for the killings. Even his government described Miyetti Allah (an umbrella body for Fulani herdsmen) as, 'a legal stakeholder in our nation and should be respected' (Shehu, 2019). This was surprising given the fact that the Fulani herdsmen group quite like Boko Haram is a terrorist group. A statement such as this gives the impression that the government was in bed with the Fulani herdsmen. Indeed, this posed a threat to the existence of Nigeria as a federal union.

The conflicts in their economic ramification, pose unimaginable danger to the sustainability of pastoral farming and crop production in the country (Moritz, 2010). Today, the country is faced with an acute lack of food and other related resources to meet the needs of the population growing astronomically (Solagberu, 2012). Therefore, the conflicts that result in loss of food, skin, income, and so on should be stopped by the Federal Government to avoid hunger and famine in the country. The effective management of conflicts by both the Federal Government and the state governments cannot be overemphasized. In the country, the production of crops is an important characteristic of agricultural activities. Most of the farming activities in the country are carried out by rural-based small-scale farmers, who constitute up to 80 percent of total food needs (Fayinka, 2004). Conversely, Fulani herders play a significant role in the production and supply of meat, skin, milk, butter, and so on. They own a significant percentage of the country's livestock population, which yields up to one-third of the agricultural GDP, and about 3.2 percent of the country's total GDP (Eniola, 2007). The construction of Internally Displaced People's camps by the state governments, to accommodate those displaced by the crises is a drain on the finances of such governments. The funds that should have been channelled into developmental projects are used instead to take care of these people and this does not augur well for the physical or economic development of such states.

6. Conclusion

Scores of literature regarding the ubiquitous and incessant conflicts involving Fulani nomadic herders (popularly known as Fulani herdsmen) and farmers or other natives in Nigeria are largely attributed to factors such as climate change, indiscriminate bush burning, resources scarcity, and so on. There is a dearth of literature on the use of Fulani herdsmen for an expansionist agenda by the Fulani ruling oligarchs in Nigeria. Or should I say many authors are unwilling to toe this line of discussion? It is difficult to fathom why scores of authors and commentators in the realm of this discourse neglect this fact and dwell on the periphery.

The study does not dispute the fact that those factors contribute to the crises. Rather, it simply argues that they are not the major factors contributing to the conflict. How may one explain the Federal Government's urgency in proposing to establish 'cattle colonies' across the country, while turning a blind eye to the killing of farmers and other natives by Fulani herders? This study explains how Fulani nationalism in no small measure fuels the conflicts. At least, the actions and inactions of notable Fulani leaders, in Nigeria, including former President Buhari, regarding the conflicts buttress this point. Hence, political scientists, sociologists, historians, and others are urged to be more objective while discussing this hydra-headed problem referred to as the farmer-herder clash. One of the major objectives of embarking on this study is to unearth and expose the clandestine motives behind the conflict. It is hoped that the direction of researchers should focus on this dimension of the cause of the conflict. At least, this would go a long way in saving precious lives and resources for national development. The study explains that conflict is unavoidable when two opposing interests clash. As long as one group tries to block the interest of the other, the conflict would be employed to remove this blockage, notwithstanding the possibility of bloodshed. Conflicts do not happen in a vacuum, they occur to justify a group's inclination to survive in a world of scarcity and want.

7. Declarations

Ethics Approval: Not applicable

Consent for Participate: Not applicable

Consent for Publication: Not applicable

Availability of data and material: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Analysis of Personal and Cultural Beliefs Related to Organ Donation in Saudi Arabia

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Abstract

This article aimed to perceive and analyze the obstacles and demanding situations dealing with the organ donation manner in Saudi Arabia, and to observe how cultural factors affect society's outlook and choices concerning organ donation, as organ donation contributes significantly to improving public health and saving the lives of people who be afflicted by Incurable sicknesses. Through using the experimental approach and the usage of the questionnaire as an examination tool among the residents of KSA during 2023, this cross-sectional study showed that lack of awareness and information are principle obstacles to organ donation in KSA. This is due to personal and cultural beliefs connected to habits and traditions, and we found that the doctor is responsible for the case of brain death and the organ transplant coordinator must be fully aware of these matters, as well as they must have a spirit of inquiry and good listening, and they must also have a sense of the non-verbal language of the brain-dead's family that may be a major reason for their approval to donate the organs of the brain dead, and taking into consideration that organ donation awareness as one of the critical issues in transplantation centers.

Keywords: Organ donation, Challenges, Cultural influences, Personal influences.

1. Introduction

Organ donation is a multifaceted and delicate subject that intertwines personal convictions and cultural viewpoints. A multitude of factors, encompassing religious, ethical, and cultural considerations, can shape people's stance on organ donation (Sharp & Tollefsen, 2019, pp. 1-13), (Goyal, 2012, pp. 282-285)

Religious beliefs on organ donation diverge widely. Some religions advocate it as an altruistic act of benevolence, while others might express reservations or impose restrictions. Therefore, seeking advice from religious leaders or scholars is crucial. When looking at ethical apprehensions about organ donation, such as concerns about the determination of death, consent, or the possibility of exploitation, they may be present in some individuals. These concerns necessitate transparent communication and education (Choudhury et al., 2020).

Some people highly regard personal autonomy and the right to make decisions about their bodies. Others might stress the necessity of obtaining informed consent prior to any organ donation procedures (Dalal, 2015, pp. 44-51).

Cultural beliefs about death and life after death can shape views on organ donation. In certain cultures, the body is deemed sacred and should remain undisturbed after death, while others might perceive organ donation as a means to continue contributing and assisting others posthumously (Li MT et al., 2019, pp. 1001-1018)

The attitudes of a person's community or cultural group can significantly influence their views. The social norms and expectations within a specific community can mold an individual's perspective on organ donation. Cultural customs and practices related to death and burial can affect the readiness to donate organs. It is vital to understand and respect these traditions when discussing organ donation within particular cultural contexts (Cotrau et al., 2019, pp. 12-14).

Enhancing awareness about organ donation, debunking myths and misconceptions, and providing accurate information can assist individuals in making informed decisions (pennmedicine.org, 2019).

Acknowledging and respecting the diversity of beliefs is crucial. Health care professionals should approach discussions about organ donation with sensitivity and cultural competence (Attum et al., 2023).

Promoting community engagement in discussions about organ donation, involving cultural leaders, and encouraging open dialogue can lead to a broader understanding and acceptance (Timar J et al., 2021, pp. 380-394).

Organ donation often involves individuals who are declared brain dead. Brain death is defined as the total and irreversible loss of all brain function, including the capacity for the brainstem to regulate respiratory and vegetative activities (Roopan, 2023).

The diagnosis of brain death is made by one or more physicians not associated with a transplantation team (donorrecovery.org, learn-understanding-brain-death) The process of confirming brain death involves a series of tests to determine whether any brain activity is present. These tests are carried out twice to minimize any chance of error. The tests used to determine brain death include checking for reactions to light, physical stimulation, and certain reflexes. The person is also disconnected from the ventilator for a short period of time to see if they make any attempt to breathe on their own. Brain death is diagnosed if a person fails to respond to all of these tests (nhs.uk, conditions-brain-death-diagnosis).

In the context of organ donation, brain death is the circumstance under which the donation of vital organs most commonly takes place. Once brain death is declared, it means the person has died, but other organs, such as the heart, kidneys, or liver, can still work for a short time if the breathing machine is left in place. This allows for the possibility of organ donation. However, the concept of brain death and organ donation is often misunderstood and can be particularly difficult to broach with different communities due to cultural and religious beliefs. In many societies, there are cultural expectations of family involvement in medical care, and an inability to declare brain death without consent from the family can complicate the process (Terunuma, 2021)

Cultural customs and practices related to death and burial can affect the readiness to donate organs. It is vital to understand and respect these traditions when discussing organ donation within particular cultural contexts. Therefore, health care professionals should approach discussions about organ donation with sensitivity and cultural competence. Promoting community engagement in discussions about organ donation, involving cultural leaders, and encouraging open dialogue can lead to a broader understanding and acceptance. It's also important to enhance awareness about organ donation, debunk myths and misconceptions, and provide accurate information to assist individuals in making informed decisions (AMA J Ethics, 2020).

In Saudi Arabia, organ donation is influenced by a variety of factors, including personal beliefs, cultural norms, and religious teachings. Despite concerted efforts to increase organ donation, the gap between the need for organs for transplantation and the lack of donors has been increasing globally (Alobaidi, 2023).

In fact, when we talk about brain death, we must remember the meaning of illness and death, and therefore we must keep in mind that there are some matters that must be clarified to the family of the brain-dead person and prepare them to make the decision to donate or not, as follows: the extent of the family's knowledge of the nature and meaning of brain death, and the mechanism for implementing regulatory procedures to confirm Brain death, the presence of a person responsible for a brain-dead patient is important during the routine procedures to confirm brain death and to communicate with the medical team and make important decisions, knowing the personal or cultural beliefs held by the family regarding organ and tissue donation, whether the decision to donate will be made individually or will the decisions be made as a family. Therefore, through this study, we will focus on the culture of organ donation in the Kingdom of Saudi Arabia, based on the variables of age, level of education, location, and attitudes toward organ donation as dependent variables.

2. Previous work

Organ donation in Saudi Arabia is influenced by both personal beliefs and cultural factors. A study conducted in the SA found that only 19.6% of participants were willing to register as organ donors. However, 44.3% of the participants agreed that they were healthy enough to donate organs. Positive associations were found between intention for organ donation and beliefs that organ donation is a good thing, can save someone's life, and can have a positive impact on life after death. The study also highlighted the importance of promoting awareness about organ donation, particularly in terms of religious permissibility, to increase donation rates (Alobaidi, 2023).

Doerry et al. explored the religious and cultural aspects of organ donation in order to reduce the gap through understanding different religious beliefs. They found that the religious beliefs of patients, potential donors, and healthcare professionals play an important role in the decision-making process (Doerry et al., 2022).

In China, a study examined the influence of traditional Chinese culture on organ donation within the frameworks of Confucianism, Buddhism, and Taoism. Within each of these cultural systems, certain expressions or statements in modern Chinese society are often perceived as conflicting with

organ donation, especially cadaveric organ donation. It's not that the fundamental tenets of these systems inherently oppose cadaveric donation, but rather, contemporary Chinese individuals have not developed and established relevant ritual practices that align with the central concerns of organ transplantation. The article concludes that to encourage more donations, there is a necessity to establish pertinent ritual practices that support organ donation in accordance with the central concerns of these cultural systems (Yu Cai, 2013).

Brisnahan et al. show that spiritual connection with the transplant recipient, spiritual concern about removing organs, and attitudes toward organ donation significantly predicted willingness to become an organ donor for participants in USA and China (Bresnahan et al., 2010, pp. 133-146).

In some cases, participants thought organ donation was a noble deed. They believe that importance of context, values and beliefs, lack of knowledge about donation influence of spiritual or cultural values, lack of communication, and the need to preserve an intact body in relation to death and dying (Molzahn et al., 2005, pp. 82-98).

In South Korea, traditional Confucian-based thought still prevails. Barriers to organ donation in South Korea, include Confucianism, misunderstandings and myths, organs as spare for selling, lack of clarity in the definition of death in the new legislation, and limited medical insurance coverage (Kim et al., 2004, pp. 147-154).

Similarly, Asian Americans hold more negative attitudes toward and participate less frequently in a large, urban organ-donation program (Alden and Cheung, 2000, pp. 293-314). In UK, culture and religion play a much less prohibitive part in determining the level of organ donation (Randhawa, 1998, pp. 1949-1954). While, in Asian countries, Living-related kidney donation is more social than cultural (Woo, 1992, pp. 421-427).

In relation to the topics addressed in prior research, there appears to be a gap in studies examining the proper execution of standard procedures for confirming brain death, which is vital for an accurate diagnosis. In addition, there is a need to investigate the role of the individual responsible for the patient declared brain-dead during these procedures due to its significance in liaising with the medical team and making crucial decisions. It’s also necessary to determine if the norms or procedures reflecting the culture of handling brain-dead patients involve respect for the patient’s dignity, open communication with the family, and adherence to ethical guidelines during the process of confirming brain death and discussing potential organ donation.

The results can highlight the differences between regional cultures in the Kingdom due to the existence of multiple cultures across the regions, and their influence on organ donation, considering the beliefs, traditions, and practices associated with these subjects.

3. Methodology

3.1. Study Design and Participants

An online survey was conducted among the residents of KSA during 2023 using a questionnaire created in Google Forms. This cross-sectional study was designed by a panel of experts who suggested appropriate questions to explore the correlation between organ donation & personal and cultural beliefs in Saudi Arabia. The aim of the study was clearly stated at the beginning of the questionnaire, and participants were only allowed to proceed with the survey after they explicitly agreed to participate.

3.2. Instruments

The survey was divided into three sections. The initial section collected socio-demographic information such as the participants' age, education level, and location. The second section aimed to gauge the participants' general knowledge about organ donation. The final section delved into the participants' normative, behavioural, and control beliefs about organ donation by assessing their agreement with various statements.

3.3. Statistical Analysis

The Microsoft Excel was used to analyze the data. Descriptive statistics were utilized to analyze the variables of the study.

4. Results

The Statistics of the variables are calculated based on respondent answers as displayed and summarized in table 1.

Table 1. Statistics of the variables based on respondent answers.

Variable		**%**
Age	18-30 year	32.2
	31-50 year	55.8
	51-65 year	10.9
	66 and more	1.1

Location	Eastern Province	9.9
	Western Region	37.5
	Central Region	32.4
	Northern Region	5.2
	Southern Region	8.8
	Outside the Kingdom	6.2
Education	high school	34.6
	diploma	6.8
	high diploma	5.9
	university degree	44.6
	master degree	5.7
	PhD degree	2.4
Do you agree on Organ donation	No	61.5
	Yes	38.5
If the answer is yes, have you informed your parents of this desire?	No	76.2
	Yes	23.8
If the answer is no, state the reason	Fear of them not agreeing	21.8
	Other reasons	78.2
Have you ever seen an awareness advertisement about organ failure and organ donation?	No	55.9
	Yes	44.1
Do you have enough information about organ failure and organ donation?	No	54.3
	Yes	45.7
If the answer is no, state the reason	Weak visual media awareness.	26.4
	Negligence of the press and journalists and media, Saudi Center for Organ Transplantation is negligent in this aspect, and Organ transplantation centers have a weak role in educating patients.	10.1
	All of the above.	63.5

Do you agree that some habits and traditions may resist organ donation?	No Yes	27.7 72.3
Do you believe the stories you hear about organ donation?	No Yes	52.3 47.7
If you were the decision maker to agree to donate the organs of a brain-dead person close to you, what would be your decision?	I agree to donate his organs for the sake of charity, kindness, and mercy. I do not agree due to family circumstances. I agree to donate his organs because obeying God is from obeying the ruler (based on the wise government's approval of organ donation).	58.5 39.5 2
If you were the decision maker to donate the organs of a brain-dead person, would you agree to transplant a kidney taken from a brain-dead person to a person close to him?	No Yes	30.9 69.1
Do you have information about the types of organ donation approved by the Kingdom of Saudi Arabia?	No Yes	62.2 37.8
If you have information about brain death, will you talk to your family educate them about this topic?	No Yes	18.3 81.7

The majority of the study participants (61.5%) disagree to organ donation, and (76.2%) don't even attempt to discuss organ donation with their parents due to fear of them not agreeing (21.8%) and other reasons (78.2%). Most of participant (55.9%) have not seen an awareness advertisement or even have enough information (54.3%) about organ failure and organ donation, in addition to lack of awareness and information about types of organ donation approved by KSA (62.2%). Most of participants (72.3%) find that traditions may resist organ donation, although (52.3%) don't believe the stories they hear about organ donation.

There are (58.5%) who agree with organ donation of other people for the sake of charity, kindness, and mercy. Also (69.1%) agree to transplant a kidney taken from a brain-dead person to a person

close to him. At the end (81.7%) agree on convey more information about organ donation to their family.

5. Discussion

The current research assessed the willingness to donate organs among the Saudi Arabian population, taking into account personal and cultural beliefs. It was discovered that these beliefs play a significant role in the decision-making process regarding organ donation in Saudi Arabia.

A similar conclusion was drawn from a recent study conducted in Qatar. The study, which surveyed 1044 adults in a household setting, investigated their beliefs and intentions towards organ donation (El-Menyar et al., 2020, pp. 122-127).

Another study that examined the intentions towards organ donation among Americans and Koreans underscored the substantial impact of personal and cultural beliefs on the decision-making process for organ donation. (Yun and Park, 2010, pp. 130-137)

The current study also found that most of the participants (55.8%) are within 31-50 years old. Around (44.6%) are university graduates, and (37.5%) live in Al-Gharbeia. Most of them (61.5) refuse to donate organs for reasons not related to parental disapproval. Most of them (55.9%) are even not interested in watching awareness advertisements about organ failure and organ donation, and consequently (54.3%) have no sufficient information about this. A total of (63.5%) of them attributed this to several reasons such as the lack of visual media awareness, negligence of the press, shortcomings of the Saudi Center for Organ Transplantation, and the weak role of organ transplantation centers in patient awareness. Significant portion (72.3%) believed that certain customs and traditions pose barriers to organ donation. And nearly (52.3%) don't believe the stories told about organ donation. It turns out that (62.2%) do not have information about the types of organ donation approved by the Kingdom. So components under personal and cultural beliefs showed a statistically significant positive correlation with a definite intention for organ donation which is consistent with previous study results.

The comprehensive findings suggest that the intention to donate organs among the Saudi population is significantly shaped by personal and cultural (Ajzen, 1991), (Yun and Park, 2010) (Alobaidi, 2023).

Worldwide, the establishment of policies for organ procurement for transplantation and systems promoting organ donation are rooted in the principle of selfless giving (Hafeeq et al., 2021, pp. 268-270), Organ donation represents the epitome of selfless behavior, where individuals driven by

altruism establish a standard of volunteering for organ donation, thereby fostering a sense of communal unity (Dopelt et al., 2022), In our study, there are (58.5%) believed that they might support donating the organs of their brain-dead relatives as a form of charity, mercy, and benevolence. For example, (69.1%) confirmed that they find no objection to transplanting a kidney taken from a brain-dead person to their relatives. This induces statistically significant positive correlation between altruistic beliefs and definite intention for organ donation. A recent study from Qatar echoed these findings, with 95% of participants expressing agreement with the altruistic principles underlying organ donation (Yun and park, 2010, pp. 130-137).

The findings of this study suggest that the Saudi population generally exhibits altruism in relation to organ donation. Policies that create opportunities for individuals to express this altruism, such as registering for organ donation, could foster a sense of social unity. However, one of the significant challenges faced by organ donation initiatives in Middle Eastern countries is the stagnant growth rate of deceased organ donations compared to voluntary ones (Shaheen, 2016, pp. 1387-1389).

In light of the existing research and the results of this study, it's advisable to establish avenues that support organ donors and their families, as this could enhance organ donation. Recently, King Salman recognized the altruistic act of 200 Saudi citizens who registered in a government organ donation program by bestowing upon them the King Abdulaziz Medal of Third Class (Arab News).

In addition, the Tawakkalna utility, in collaboration with the Saudi Center for Organ Transplantation (SCOT), has also venerated organ donors with 3 classes of medals—gold, silver, and bronze. This gesture of appreciation acknowledges their selfless contributions to patients combating organ failure. (Saudi Gazette, Tawakkalna Awards Medals to Organ Donors) .The government of KSA has verified its popularity of the significance of imparting help to donors via these recent improvements.

Since organ donation regularly involves folks that are declared mind useless, in this case, I observed that the health practitioner is liable for the case of brain demise and the organ transplant coordinator have to be fully aware about these topics, as well as they must have a spirit of inquiry and correct listening, and that they should even have a sense of the non-verbal language of the brain-lifeless's circle of relatives that may be a primary purpose for their approval to donate the organs of the brain dead.

6. Conclusion

The research examined the relationship between personal and Cultural beliefs in Saudi Arabia toward organ donation. The control variables consisted of age, level of education, and location. Certainly, Weak role of media in spreading awareness. Furthermore, we have to keep in mind organ donation awareness as one of the critical problems in transplantation centers, In addition to that, the Continuation of Saudi Arabia's consciousness of organ donation Culture besides the activation of advantageous non secular and social impacts could improve organ donation nationwide. The dependent variables consisted of attitudes toward organ donation. Also, Most of the research participants were willing to Willingness to be Living Organ Donors. And they wanted to Support Organ Donation.

7. Recommendations:

1. Encouraging interest in organ donation organ donation within the Kingdom of Saudi Arabia, in particular amongst people aged 31-50, and among university students.
2. Spreading visual media awareness about organ donation and types of organ donation approved in the Kingdom of Saudi Arabia.
3. Holding courses for members of organ donation centers to educate patients.
4. Encouraging collaboration with social regulatory bodies to clarify problems related to organ donation, emphasizing humanistic, altruistic, and moral values.
5. Strengthening public self-belief within the healthcare device and organ transplant centers, fostering verbal exchange between medical groups and donor families in each instances.
6. Continuously encouraging donors and their households via moral standards, highlighting their contributions with pride, and reflecting the values of altruism and team spirit in society.
7. Crafting powerful and clear regulations that help and encourage organ donation, incorporating cultural and non-secular concerns.

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