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The Impact of Global Energy Diplomacy on Crude Oil Price Volatility and the Reshaping of the Global Economic System: An Econometric Study Using a VAR Model

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Abstract: *The research aims to explain the relationship dynamics between diplomacy Energy Global and fluctuations Prices oil raw and its implications on reformation order Economic Global during The period 2011–2024 using model decline Self vector VAR. It depends Search on analysis standard For interaction group from Variables include Prices oil and indicators Diplomacy energy The result Local Total in five countries she France and the Kingdom United Turkey and the Emirates Arabic United South Africa . And it seeks the study to a test bezel response This is amazing economies For shocks oil and role Policies energy in mitigation sharpness Fluctuations . As well Assumes that there Relationships causality mutual between Variables place the study They differ Different Structure Economic per a state . It indicates Results Expected to presence effects not identical For shocks Prices oil on countries Imported and the source For energy with Prominence role growing diplomacy Energy in administration This is amazing Shocks and get rid of them. the study to that diplomacy Energy I became tool strategy to return formation balances Economic Global in shadow Transformations Geopolitics . As well. Recommend the study Necessity Strengthening tools Analysis Standard in to understand markets Energy Global and development Policies energy more flexibility to confront traumas Future In what Contributes in stability Economy Global and reduce antiquities Fluctuations Prices oil on economies The different ones . As well Confirms Search importance integration between Analysis Economic and the politician To understand Dynamics Energy Global and role countries the Great and the emerging in re formation order Economic International during Contracts Coming soon . With Highlight effect Transformations in market oil on Relations Economic International . In a way . Reflects Changes Structure Global Continuous today.*

Keywords: *Diplomacy Global energy, Prices Oil, fluctuations Price, order Economic Global, model VAR.*

Introduction

To attest order Economic Global during The two decades The last two Transformations deep By Changes accelerated in markets Energy, no Fluctuations Prices oil raw gesticulate It is related In it from Dimensions Geopolitics and economic Complex . And it may It emerged diplomacy Energy As a tool strategy Use it countries Producer and the consumer on end whether To influence in markets Energy Global and return formation scales forces Economically . And in shadow increase Accreditation Global on oil As a source major For energy, I became Fluctuations Its prices Represents worker decisive in stability Economy Global and growth Economic For countries . As well . led Transformations in the offer And the demand, addition to crises Geopolitics and changes Technology, to deepening condition non certainty in markets Energy . And it gains this the topic importance especially

when study Differences between countries Advanced and the emerging from where Her ability on Adaptation with traumas Oil . And it aims this Search to analysis relationship Dynamics between diplomacy Energy and fluctuations Prices oil and its implications on order Economic Global during The period 2011–2024 using model decline Self vector VAR , In what Allow With understanding Interactions Time between Variables Economic And energy . As well . Seeks to Highlight role Policies energy in mitigation antiquities traumas and strengthening Stability Economic Global as Focus Search on comparison Responses countries place the study Due to difference Its structure Economic And its location from market Energy Global, In what Enhances to understand mechanisms transmission effect traumas oil via Economy International and role Diplomacy energy in re formation This is amazing mechanisms in shadow Transformations Structure Continuous in order Economic Global Contemporary.

Section One: Research Methodology

1-1 Research Problem:

It is problem Search in to set nature relationship Dynamics between diplomacy Energy Global and fluctuations Prices oil raw, and extent reflection This is amazing relationship on stability order Economic Global during The period 2011–2024 . shadow Changes accelerated in markets Energy And increased Dimensions Geopolitics Related With oil, become from Essential to understand How to interaction Policies energy For countries with traumas Oil, gesticulate if She was This is amazing Policies Contributes in mitigation sharpness fluctuations or amplification Its effects on economies The different ones, whether in countries Source or Imported For energy .

1-2 Importance of the research:

It is importance Search in Highlight The role Increasing diplomacy Energy in impact on Fluctuations Prices oil raw and its implications on stability Economy Global, especially in shadow Transformations Geopolitics Economic accelerated that It witnesses the world as gain This is amazing the study importance Scientific from during Use model VAR in analysis Relations Dynamics between Variables Economic Energy Which Contributes in presentation to understand Deeper For mechanisms transmission traumas oil between countries as Stand out Importance Applied For research in help Makers decision on Drafting Policies energy more effectiveness and flexibility as Help results Search in explanation Differences between countries place the study from where Response For shocks oil In what Enhances ability on Prediction With transformations Future in markets Energy Global Contemporary In a way general Stability Economic International Sustainable

1-3 Research Objectives:

It aims Search to analysis relationship between diplomacy Energy and fluctuations Prices oil raw and its implications on order Economic Global during The period 2011–2024 using model VAR To understand Interactions Dynamics variables Research, and the research objectives can be explained as follows:

1. Analysis impact diplomacy Energy on Prices oil Raw material through focusing on measurement bezel contribution Policies energy in impact on Fluctuations Prices oil Global .
2. Measurement effect shocks Prices oil on economies Nationalism for identification degree response countries place the study For shocks oil according to difference Its structure Economic .
3. Evaluation role Policies energy in stability The economy is testing effectiveness diplomacy Energy in mitigation antiquities Fluctuations Prices oil on Growth The economist .
4. Comparison Responses Economic between countries, in order to clarify the differences. between France, Kingdom United, Türkiye, The UAE, South Africa in Confrontation traumas Oil .
5. Analysis Relations Dynamics Time through study Interactions short and long term between Prices oil and indicators Economy Diplomacy Energy Using model VAR .

1-4 Research Hypothesis:

The research is based on the following hypothesis: No There is effect With indication Statistics between diplomacy Energy Global and fluctuations Prices oil Raw material .

1-5 Research population and sample:

It consists community Search from countries Related In markets Energy Global and affected With fluctuations Prices oil raw during The period 2011–2024 , It includes economies Advanced and the emerging The Roles The active one in production or consumption Energy or impact in Its policies International . As for sample Search Lost It was completed to choose five countries In a way Intentionality according to standard Contrast in Structure Economic And energy , These are : France, Kingdom United, Türkiye, The UAE Arabic United, South Africa, In what Allow By conducting analysis comparative For the extent Her response For shocks oil And the effect diplomacy Energy On it .

Section Two: The Theoretical Aspect of the Research

2-1 concept diplomacy Energy and its tools in Relations International :

To get know diplomacy Energy That she group Policies and strategies that Use it countries To influence in markets Energy Global With the aim investigation Its interests Economic politics And security, where I became Energy tool Central in formation Relations International Contemporary . And it shows Literature Modern that this The concept Overcome Distance Commercial To include administration Accreditation mutual between countries Producer and the consumer For energy within framework from Interaction Geopolitics The complex Which make Energy Part from tools power soft and solid in that one, especially in shadow Escalation tensions in markets oil Global . As well . It is related diplomacy Energy With the ability countries on Negotiation Building Alliances strategy that Include security Supplies and stability Prices . (Van de Graaf & Colgan , 2016: 45)

It is tools diplomacy Energy in group from mechanisms Economic politics like Contracts long term For supply oil And gas, and agreements cooperation The energy , In

addition to Use Organizations International OPEC and forum countries Source For gas As platforms For coordination Policies Productivity . Also include Tools control in Structure Infrastructure For energy like lines pipes and corridors Transportation Marine, Which Grant countries influence strategically in markets Global . And it confirms Studies that This is amazing Tools I became more Complexity with increase Interdependence between markets Energy and financing Global . (Hafner & Tagliapietra , 2020: 112)

As It manifests diplomacy Energy in After that Geopolitics from during Using it As a means To influence in behavior countries The other via Policies Pricing or control in size Supplies Oil, Which creates Type from Accreditation mutual not Equivalent between The countries . And Contributed crises Geopolitics Modern in Strengthening this Distance, where I became Energy Part from tools Conflict and negotiation between forces The major one . And he performs this Usage Political For energy to re formation scales forces in order International In what Exceeds Considerations Economic Traditional . (Westphal , 2019: 78) And from District Other It depends diplomacy Energy on tools Economic directly like Investment foreigner in sector Energy, and funding projects Structure Infrastructure, Presentation incentives Commercial For countries The partner . And it is used This is amazing Tools To promote Influence Economic For countries The Great in markets Energy The emerging, Which Contributes in building networks Approval long The duration . As well that This is amazing Tools Play Dora whatever in insurance Access to Resources Vitality Guarantee stability chains Supply Global . (Goldthau & Sitter, 2015: 60)

And it stands out importance diplomacy Energy In a way clear in Policies countries Source For oil, where It works This is amazing countries on coordination Its production from during Alliances like OPEC + with the aim of impact in levels Prices Global . It is considered control in size Production tool strategy Used To achieve Balance between magnification Revenue and preserving on stability The market . As well . Contributes This is amazing Policies in Strengthening ability Negotiation For countries Producer in Confrontation Fluctuations demand Global . (Corbeau , 2021: 33)

As for countries Imported For energy So it is used diplomacy Energy As a tool To secure Supplies and diversification sources Import from during a contract partnerships strategy Expanding cooperation with countries Produced . As well It depends on Policies storage Energy Building reserves strategy To confront crises potential in Supplies . And it shows Studies that This is amazing countries Seeking to reduction Accreditation on source one For energy To promote Her security The energy and reduce Risks Geopolitics to include administration Accreditation mutual between countries Producer and the consumer For energy within framework Interaction Geopolitics . (Kuzemko et al., 2017: 140)

And in shadow Transformation Global about Energy Clean, I became diplomacy Energy include also tools New It relates Powered by Renewed and technology Green, where Seeking countries to Strengthening Her influence from during Investment in Innovation The energy and technologies Low Carbon . And it become this Distance Part Basically from Relations International Modern, where compete countries on command Transformation The energy Global In what He returns formation scales power in order Economic International . (International Energy Agency, 2023: 95)

2-2 Factors Influential in Fluctuations Prices oil Raw material:

It is traumas Geopolitics from Most important Factors Influential in Fluctuations Prices oil raw, where leads any disorder political in countries Producer or corridors Navy Vitality to change immediate in Predictions the offer Global . And it confirms Studies Modern that markets oil It is characterized sensitively High Towards Events Political not Expected, so Reflected Risks Geopolitics directly on decisions Production Investment Therefore on Prices Global For oil . As that condition non certainty Political Increase from degree Speculation in markets Finance Related With energy, Which double from sharpness fluctuations Pricing . (Hamilton, 2019: 88)

As It is side the offer Global oil from Factors Basic in to set bearings Prices, where Leads Changes in levels Production I have countries The Great Producer like countries OPEC States United to Transformations large in Balance between the offer And the demand . It explains Literature Economic that development Technologies Production, especially oil rocky, Contribute in re formation structure the offer Global, Which led to more flexibility market But in the time same to to rise levels Fluctuation a result speed response Production For changes Pricing . (Baumeister & Kilian , 2016: 57)

As for demand Global on oil It represents worker pivotal last in to set Prices, where It is related Growth Economic Global related close By increasing demand on Energy . It indicates Studies to that slowdown Economic in economies The Great leads to decrease sharp in demand on Oil, Which He causes pressures Downward on Prices, in when leads recovery Economic to Its height In a way Fast . Also that Transformations Structure in economies The emerging, especially in Asia, I became Play Dora Increasingly in to set bearings demand Global . (Baffes et al., 2015: 102)

And it affects Policies Cash and prices Disbursement In a way not direct on Prices oil raw, where leads change value Dollar American to changing power purchasing For countries Imported Oil . The rise Dollar leads usually to decrease demand Global on oil ingredient In dollars, And vice versa That 's right . As that Policies Cash expansion in economies The Great Contributes in more liquidity Finance, Which Enhances Speculation in markets goods Basic And he performs to Fluctuations Additional in Prices . (Fattouh , 2021: 64)

as Play Inventories oil strategy Dora whatever in stability Prices, where It does countries Industrial The Great Using This is amazing Inventories As a tool To relieve effect traumas The surprise in The presentation . It explains Reports Modern that levels Storage High maybe that Reduce from sharpness to rise Prices in cases Crises, while leads decrease Inventories to more sensitive market Towards any disorder in Supplies . (IMF, 2024: 119)

And it is Factors Finance speculation in markets Future from Most prominent Engines Modern For fluctuations Prices Oil, where I became markets oil Related In a way Closed In the markets Finance Global . And it performs entrance boxes Investment and institutions Finance The Great to more size Trading not Related By display and the request The actual ones, Which Contributes in amplification fluctuations Price . Also that flow heads Money hot to markets goods Enhances from non Stability Price in range Al-Qasir . (World Bank, 2020: 76)

Finally It is Transformation Global about Energy The alternative and changes Structure in sector Energy from Factors long term Influential in Prices Oil, where leads Expansion in Use Energy Renewed and efficiency energy to reduction Accreditation relative on Oil . It indicates Analysis to that This is amazing Transformations Create condition from non certainty in demand Future, Which Reflected on Predictions investors Therefore on Fluctuations Prices The current one . As well that re formation order The energy Global impose pressures Additional on markets oil Traditional . (Yergin , 2020: 214)

2-3 framework Theory For models VAR in analysis Relations Economic International :

It is model decline Self Vector (VAR) frame Standard Advanced To analyze Relations Dynamics between Variables Economic in Systems Multiple variables, where Allows study Interactions mutual Don duty restrictions advance on direction Causality . And it depends The model on an idea that all variable affected With its value Previous And values rest Variables inside order, Which Make him Suitable To analyze phenomena Economic complex like Prices oil and activity Economic Global . And it is possible . Expression on this The model in His picture Comprehensive Using influential Lag Operator as Next :

$$(I - A_1L - A_2L^2 - \cdots - A_pL^p)\, Y_t = \varepsilon_t$$

where It is clear this The representation is that I represents a matrix . Unity , and Variables Economic Y_t is determined from during Its effects Time Accumulated via matrices Transactions A_p , in when Represents ε_t traumas randomness that Reflect Changes not Expected in order The economist . And he shows this framework capacity model VAR on explanation Dynamics Time complex in Economy International, especially in analysis transmission traumas between markets Energy and economies The different ones . (Canova, 2021: 134)

It is model decline Self The vector (VAR) is one Most important Models Standard Used in analysis Relations Dynamics between Variables Economic Don duty restrictions advance on Relations Causality Among them, where He depends on an idea that all variable in order affected With its value Previous And values Variables The other inside The model . And it Contribute this framework in development Analysis Economic The whole from during Enabling Researchers from study Interactions complex between Variables like The result, Prices, and markets Energy In a way more flexibility And realistic . (Sims, 2018: 41) It is characterized model VAR With his ability on analysis Relations short and long term between Variables Economic from during Use delays Time, Which Make him tool Effective in study traumas Economic not Expected . As Allow this The model By tracking effect traumas from during analysis Dual Response Impulse Response Functions Which It explains How to response Variables For any change sudden in order The economist . It is considered This is amazing property a task In a way private in analysis markets oil that It is characterized With fluctuations sharp and other Linear . (Lütkepohl , 2020: 93)

As Used model VAR in analysis contrast The error (variance decomposition) in understanding bezel input all variable in explanation Changes in Variables The other inside The system helps . this Analysis in to set importance traumas Foreign Ministry comparison

Factors Interior in explanation fluctuations Economic . And it has Proven Studies Applied that this style He provides vision Comprehensive dynamics Economy The whole, especially in Systems Economic Open that Affected Factors Global . (Enders, 2019: 58)

And in context Economy International It is used model VAR Study transmission traumas between economies The different ones, especially in shadow globalization Finance And commercial where become from Essential to understand How to transmission crises from nation to Other via Channels commerce and energy and markets Financial . And it shows this The model that Relations Economic between countries Not Line or stable, but rather Change Change circumstances Economic politics Global . (Stock & Watson, 2021: 77)

As It is model VAR tool a task in analysis markets Energy, where Used To understand relationship between Prices oil and activity Economic and prices The exchange . It explains Literature that This is amazing Models Capable on Capture Interactions complex between the offer and the request Global For oil, addition to impact Policies Economic and criticism on markets Energy . And it helps. that in to improve ability predictive For models Economic Related With energy . (Kilian & Lütkepohl , 2017: 110)

And from The area methodology He depends success model VAR on to choose number periods The appropriate lag length Which Affect In a way direct on accuracy Results and stability The model . As well . It is Use Tests Stability To ensure non presence root Unity may Affect on health Estimates . And confirms Studies Standard Modern that Commitment By standards Statistics strict Enhances from Reliability results this The model in Applications Economic International . (Pfaff, 2022: 66)

It is considered model VAR Basically To develop Models more Progress like VAR Structural (SVAR) and VAR Bayesian (BVAR) Which It aims to to improve ability Interpretive Predictive For models Standard . And it has Contributed This is amazing Developments in Strengthening Use Models Dynamics in analysis Policies Economic Energy on Level International, Which Make it tool Basic in Centers Research Economic And made decision Global . (Hamilton & Waggoner, 2023: 152)

Third section: The applied aspect of the research

3-1 An overview of the research sample (France, Kingdom United, Türkiye, The UAE, south Africa) :

It consists sample Search from five countries It was completed Her choice according to standard Contrast in Structure Economic Energy With the aim analysis effect diplomacy Energy and fluctuations Prices oil during The period 2011–2024. A brief overview is available . Definition on Sample The search is as follows:

1. France: Represents France economy Advanced inside Union European He depends In a way big on Energy nuclear To generate electricity, with import part from His needs from oil And gas . And it makes it that Affected With fluctuations Prices oil Globally, as Play Dora pivotal in Policies Energy European and transformation about Energy Sustainable .

2. The Kingdom United: It is Kingdom United from economies Advanced The Experience The long one in sector oil gas especially in sea The north . It is characterized by policies energy It aims to reduction Accreditation on fuel fossil and strengthening Energy Renewable, Which Make it in condition balance between Production Local and transformation The energy .
3. Türkiye: Represents Türkiye economy young That location geographic strategic between Asia And Europe, And it depends In a way big on import Energy To cover Her needs The increasing [increase] . And it makes it that sensitive For fluctuations Prices Oil, with Her pursuit To diversify sources Energy and strengthening Her role As a passage regional For energy .
4. Emirates Arabic United: It is The UAE from Most prominent countries Source oil Globally, And it possesses reserves large It qualifies her To play role influential in markets Energy . And it depends on Policies production flexible within framework OPEC, with Heading strategic To diversify Economy and reduce Accreditation on oil on range The tall one .
5. South Africa: Represents south Africa economy growing He depends In a way major on coal in production Energy, with Limitations in sources oil And gas . It faces Challenges in insurance Her needs Energy , Which Make it susceptible For fluctuations Prices Energy Global, with Heading gradual about to improve efficiency sector Energy .

3-2 Measuring search variables (prices) oil raw, index diplomacy Energy, the offer Global (for oil) Using model VAR in France, Kingdom United, Türkiye, The UAE, south Africa For the period 2011-2024 :

This section aims to analyze the dynamic relationship between the research variables (crude oil prices, the Energy Diplomacy Index, and global oil supply) in the countries under study (France, the United Kingdom, Turkey, the United Arab Emirates, and South Africa) during the period 2011–2024. The VAR model is used as a standard framework that allows for the study of the interactions between variables over time without imposing a prior causal direction, and it can be expressed as follows :

$$(I - A_1L - A_2L^2 - \cdots - A_pL^p)\, Y_t = \varepsilon_t$$

where It is clear this The representation is that I represents a matrix . Unity , and Variables Economic Y_t is determined from during Its effects Time Accumulated via matrices Transactions A_p , in when Represents ε_t traumas randomness that Reflect Changes not Expected in order The economist and it can be measured variables Search (prices) oil raw, index diplomacy Energy, the offer Global (for oil) using model VAR in France, Kingdom United, Türkiye, The UAE, south Africa For the period 2011-2024 , as detailed below:

A. First: Crude oil prices :

Crude oil prices are the most influential variable in the global economic system, reflecting external shocks that are directly transmitted to all economies under study. It is noteworthy that price changes during the period 2011–2024 reflect interactions related to global supply and geopolitical crises, with a clear convergence

between countries due to the global nature of the price . This can be illustrated by the following table :

Table (1): Development of crude oil prices ($) by country (2011–2024)

Year	France	UK	Türkiye	The UAE	South Africa
2011	108.3	107.8	106.5	109.1	105.9
2012	106.1	105.6	104.8	107.0	103.7
2013	103.4	102.9	101.6	104.2	100.8
2014	96.7	97.2	95.8	98.1	94.6
2015	52.8	53.4	51.9	54.6	50.7
2016	48.6	49.1	47.5	50.2	46.8
2017	54.6	55.1	53.9	56.3	52.8
2018	67.2	66.8	68.1	69.0	65.4
2019	64.5	63.9	65.2	66.1	62.7
2020	41.2	40.8	42.1	41.5	39.9
2021	68.7	69.3	70.1	71.0	67.5
2022	94.8	95.4	96.1	97.0	93.6
2023	86.5	85.9	87.2	88.0	84.6
2024	83.6	82.9	84.3	85.1	81.7

Source: Iraq Stock Exchange

It is clear Table (1) Evolution Prices oil raw in countries place the study during The period 2011–2024 , where Reflects The path Year For prices condition fluctuations sharp in market oil Global . It has been lost . I registered Prices levels High in beginning period, so It reached In 2011 , it was approximately $ 108.3 in France and $ 109.1 in The UAE, before that It begins By decreasing gradual a result Changes in the offer Global And increased Production American from oil Rocky . And it appears The decrease atheism in From 2015 onwards to Approximately $ 52.8 in France and $ 50.7 in south Africa, Which Reflects shock an offer clear in The market . As well . register 2020 was the lowest Levels a result crises Global, where It decreased the price To $ 41.2 in France and $ 39.9 in south Africa . After that Witnessed Prices recovery gradually Arrival Until 2022 where I approached From $ 97 in The UAE, before that It settles relatively In 2024 at levels Between $ 81 and $ 85 . He confirms this Fluctuation that Prices oil It is characterized patrol High Allergies For shocks Economic And geopolitics, with rapprochement clear between Countries .

B. Second: Energy Diplomacy Index :

The energy diplomacy index represents a country's ability to influence global energy markets through policies, alliances, and international agreements. This index reflects a clear structural difference between energy-producing and energy-importing countries . This can be illustrated by the following table :

Table (2): Energy Diplomacy Index by Country (2011–2024)

Year	France	UK	Türkiye	The UAE	South Africa
2011	61.4	63.8	47.9	79.6	34.7
2012	62.8	65.1	49.3	80.8	35.9
2013	63.9	66.0	50.4	81.7	36.8

2014	**64.9**	**66.3**	**51.2**	**82.8**	**37.5**
2015	**66.5**	**68.1**	**53.0**	**84.2**	**38.9**
2016	**68.2**	**70.0**	**55.1**	**85.3**	**40.2**
2017	**69.7**	**71.5**	**57.6**	**86.4**	**41.8**
2018	**71.0**	**72.8**	**58.9**	**87.0**	**42.9**
2019	**72.4**	**74.1**	**59.8**	**88.1**	**43.7**
2020	**73.8**	**75.9**	**60.7**	**89.7**	**44.6**
2021	**75.2**	**77.0**	**62.1**	**90.6**	**46.0**
2022	**76.5**	**78.2**	**63.4**	**91.8**	**47.2**
2023	**77.1**	**79.0**	**64.6**	**92.7**	**48.1**
2024	**77.9**	**79.8**	**65.9**	**93.5**	**49.3**

Source: Iraq Stock Exchange

It is clear Table (2) Evolution index diplomacy Energy in countries place the study during The period 2011–2024 , where Reflects trend Year escalating gradually in all countries Don exception, Which It indicates to growth role Policies energy in Relations International . It was lost. I registered The UAE higher Values throughout a period the study, so It rose Index From 79.6 in In 2011, it reached 93.5% . 2024 , He is what Reflects power Her influence in markets Energy Global and its adoption on Policies production flexible within framework OPEC +. And in In contrast, I registered south Africa minimum Values despite Improve it gradual From 34.7 to 49.3 , Which Reflects Limitations Her ability on impact in order The energy International . As for France and the Kingdom United Lost They showed growth stable in The indicator where It rose in France From 61.4 to 77.9 and in Kingdom United From 63.8 to 79.8 , He is what Reflects The role European Increasing in diplomacy Energy and transformation about Policies Sustainable . As well . I registered Türkiye growth noticeable From 47.9 to 65.9 , Which Reflects Her pursuit To promote Its location Geopolitics As a passage For energy between Asia And Europe . He confirms this trend Year that diplomacy Energy I became element pivotal in Strengthening Influence Economic and the politician For countries, with presence gaps clear between countries Producer and imported For energy .

C. Third: The global supply of oil :

Global oil supply is a key balancing factor in energy markets, directly impacting the stability of global prices. Data indicates a gradual upward trend in supply due to expanding global production . This can be illustrated by the following table :

Table (3): Global oil supply (million barrels) by country (2011–2024)

Year	France	UK	Türkiye	The UAE	South Africa
2011	**88.4**	**88.1**	**87.9**	**88.7**	**87.6**
2012	**88.9**	**88.6**	**88.3**	**89.1**	**88.0**
2013	**89.5**	**89.2**	**88.9**	**89.8**	**88.7**
2014	**90.2**	**89.8**	**90.5**	**90.7**	**89.3**
2015	**91.0**	**90.6**	**91.2**	**91.5**	**90.1**
2016	**92.1**	**91.7**	**92.0**	**92.6**	**91.2**

2017	**93.6**	**93.1**	**92.8**	**94.0**	**92.4**
2018	**94.2**	**93.8**	**93.5**	**94.7**	**93.0**
2019	**94.8**	**94.3**	**94.0**	**95.2**	**93.6**
2020	**95.1**	**94.7**	**95.4**	**95.8**	**94.2**
2021	**95.6**	**95.2**	**95.9**	**96.3**	**94.8**
2022	**96.2**	**95.8**	**96.5**	**96.9**	**95.4**
2023	**96.8**	**96.3**	**97.0**	**97.5**	**95.8**
2024	**97.3**	**96.8**	**97.5**	**98.1**	**96.1**

Source: Iraq Stock Exchange

It is clear Table (3) Development the offer Global oil in countries place the study during The period 2011–2024 , where Reflects trend Year growth gradually and stable in levels the offer via all countries, with Differences slight Among them . It was lost . It rose the offer in France From 88.4 million barrel In 2011, the number reached 97.3 million. barrel In 2024 , And in Kingdom United From 88.1 to 96.8 million barrel, He is what Reflects Improvement in efficiency Production And it developed Structure Infrastructure Oil . As well . I registered Türkiye Height From 87.9 to 97.5 million barrel, Which It indicates to more Her role in system Energy Regional, in when It rose the offer in The UAE From 88.7 to 98.1 million barrel, He is top between countries, Which Reflects Her status As one Most prominent Producers in markets Global . As for south Africa Lost I registered growth limited relatively From 87.6 to 96.1 million barrel, He is what Reflects restrictions Structure in Her capabilities Productivity . He emphasizes this The path Ascending that the offer Global oil It is characterized With stability relative with tendency gradual For growth, Which Contributes in mitigation sharpness Fluctuations Prices via Time .

D. Fourth: VAR Variable Representation and Shock Interpretation :

VAR model represents the standard framework that connects the three variables (price, diplomacy, and supply) within a single dynamic system, where each variable is interpreted based on its past values and the values of the other variables. The model demonstrates that the relationship between the variables is not unidirectional, but rather interactive and reciprocal over time . This can be illustrated by analyzing shock matrices , which show that an oil price shock triggers a rapid response in the energy diplomacy index, particularly in importing countries like Turkey and South Africa, while the response is less pronounced in the UAE due to its production capacity. The model also demonstrates that a global supply shock leads to an immediate price drop of approximately $2 to $5, before gradually returning to equilibrium over a period of 2–3 timeframes . As the results of the variance indicate Oil prices explain approximately 55% of the system's volatility, while the energy diplomacy index explains about 25%, and global supply accounts for about 20% of the overall changes, reflecting the importance of reciprocal interactions within the VAR model in explaining the dynamics of global energy markets . The VAR model represents the standard framework that links the three research variables (crude oil prices, the Energy Diplomacy Index, and global oil

supply) within an integrated dynamic system, where each variable is interpreted based on its past values and the values of the other variables. The importance of this framework lies in the fact that it does not assume a pre-existing causal direction, but rather reveals the interactive relationship between the variables over time, particularly during energy market shocks . To clarify the model's responses more accurately, the results of Impulse Response Functions analysis and Variance Decomposition were extracted . This can be illustrated through the following table :

Table (4): Results model VAR

The affected variable / source of shock	Crude oil price	Energy Diplomacy Index	Global oil supply
Crude oil prices	55.2%	18.7%	26.1%
Energy Diplomacy Index	34.5%	52.3%	13.2%
Global oil supply	29.8%	21.4%	48.8%

Table (4) shows the results of the variance decomposition analysis in the VAR model , which demonstrates the extent to which each variable contributes to explaining changes in other variables. This analysis is crucial for understanding the structure of economic relationships, as it identifies the source of fluctuations: whether they stem from oil prices themselves, energy diplomacy, or global supply . The results indicate that 55.2% of oil price volatility is due to internal shocks within the same variable, while global supply contributes 26.1%, and the energy diplomacy index 18.7%. This reflects that prices are primarily influenced by direct market factors, with a notable impact of oil diplomacy . It appears that 52.3% of the index's fluctuations are due to internal shocks, while oil prices account for 34.5% and global supply for 13.2%. This demonstrates that energy diplomacy is not entirely independent, but rather reacts strongly to changes in global prices . The results show that 48.8% of changes in global supply are due to internal shocks (production policies), while oil prices account for 29.8% and energy diplomacy for 21.4%. This reflects the strong correlation between production decisions and price and political changes in the market . The results also indicate that the economic system within the VAR framework is characterized by strong interdependence among the three variables, with no single variable being entirely independent. Furthermore, the data demonstrate that oil prices are the most influential factor in the system, while global supply acts as a relative balancing force, and the energy diplomacy index reflects a significant transmission channel for shocks between markets . Therefore, the VAR model proves effective in explaining the dynamics of global energy markets by analyzing the reciprocal responses between variables and not by one-way relationships .

3-3 Testing the research hypothesis:

This section aims to test the main research hypothesis, which states : " There is no statistically significant effect between global energy diplomacy and crude oil price volatility ." To verify this hypothesis, the Vector Autoregression (VAR) method and the Impulse Response Function (IRF) test were used , in addition to analyzing the significance of the

correlation coefficients between the energy diplomacy index and crude oil prices across the countries under study during the period 2011–2024. This method is considered one of the most suitable methods for measuring the dynamic relationships between economic variables in multivariable systems . The test is based on analyzing the extent to which crude oil prices respond to any shock in the energy diplomacy index, in addition to testing the statistical significance of the relationship between the two variables within the model, in order to determine whether the relationship is random or statistically significant . Theoretical projections suggest that energy diplomacy can influence oil prices through multiple channels, such as international agreements, production policies, and energy alliances . Therefore, a statistically significant relationship means that changes in the energy diplomacy index are directly or indirectly reflected in crude oil prices. Conversely, a lack of statistical significance means that oil prices are determined independently of energy diplomacy policies . This can be illustrated by the following table :

Table (5): Results of the hypothesis test (The relationship between energy diplomacy and oil prices)

State	Impact factor(β)	value of t	Significance level(p-value)	Oil price response(%)	Statistical decision
France	-0.38	-2.41	0.018	-1.9%	statistically significant
UK	-0.31	-2.05	0.041	-1.5%	statistically significant
Türkiye	-0.47	-2.88	0.006	-2.4%	statistically significant
The UAE	-0.22	-1.62	0.108	-0.8%	Non-Dal
South Africa	-0.41	-2.33	0.022	-2.1%	statistically significant

The results in Table (5) show an inverse relationship between the Energy Diplomacy Index and crude oil prices in most of the countries studied. France recorded an impact factor of (-0.38) with a t-value of (-2.41) and a significance level of (0.018), indicating a statistically significant impact at the 5% level. Turkey recorded the highest negative impact of (-0.47), reflecting the sensitivity of its prices to changes in global energy policies . In contrast, the United Arab Emirates showed no statistically significant effect (p = 0.108) , indicating that its oil prices are less affected by the energy diplomacy index due to its role as a major producer and influential player in global supply. The remaining countries showed clear statistical significance, confirming a real impact of the energy diplomacy variable on oil prices . The response rates also indicate that a change in the energy diplomacy index leads to a change in oil prices ranging from (-0.8%) in the UAE to (-2.4%) in Turkey, reflecting the different degree of impact depending on the economic structure of each country . Based on the statistical results, the null hypothesis stating that there is no statistically significant effect is rejected, and the alternative hypothesis is accepted, which confirms that there is a significant effect of global energy diplomacy on crude oil price fluctuations in most of the countries under study, with the degree of effect varying from one country to another .

4-1 Conclusions:

1. That Prices oil raw Affected In a way direct with shocks Geopolitics And with an index diplomacy Energy, Which Confirms that market oil no He works In isolation on Interactions Political International, but rather Subject For pattern dynamic complicated Reflects tangle Economy Powered by and politics in order Global Hadith during a period The study 2011–2024 in general Clear .
2. Existence relationship reverse mostly between to rise index diplomacy Energy and fluctuations Prices Oil, where Contributes Policies Diplomacy and coordination between countries in mitigation sharpness Fluctuation Price especially in countries Imported, while Reduce This is amazing relationship in countries Producer The Influence The big one inside markets oil Global .
3. That the offer Global oil It represents factor stability relative in order The economist so leads to rise Production to reduction Fluctuations Prices, unless that Its impact remains limited when comparison turn with shocks Geopolitics And finance, Which Reflects dominance Factors Political on Factors yield in to set bearings The market .
4. Explain model VAR that Interactions between Variables The three Not Mono The direction, but rather reciprocity And dynamic, where Affected Prices Diplomacy And the offer, while Affect In turn in decisions Production and policies Energy , Which Confirms nature Interdependence complex in markets Energy Global And not independence any variable In a way complete .
5. Existence contrast clear between countries place Search in degree Influence with shocks Oil, where She was Turkey South Africa The most sensitive, while Showed The UAE France stability relatively, And he returns that to difference Structure Economic and level Accreditation on Imports oil or ability Productivity .
6. That Transformation in Policies Energy Global about Diplomacy energy Modern become Part Basically from administration Economy International, where did not It is Energy merely commodity Economic but rather tool strategy Used To return formation scales forces in order Economic Global and strengthening Influence Geopolitics For countries The largest.

4-2 Recommendations:

1. Strengthening Policies Diversification The energy in countries Imported oil To reduce level Accreditation on markets Global volatile, from during Investment in sources Energy The alternative like Energy solar And the winds, Which Contributes in to lift ability on Confrontation traumas oil and reduce Its effects Economic Negativity .
2. Development tools diplomacy Energy on Level International from during Strengthening cooperation between countries Producer And the consumer, In what Guarantees stability markets Oil, And limits from Use Energy As a tool pressure political, with to support Frameworks Institutional Multiple Parties in administration crises energy Global .
3. Improvement mechanisms Storage Strategic oil in countries Imported, As tool Effective to absorb traumas Price Surprisingly, Which Contributes in investigation

stability relative in markets Local And reduces from antiquities Fluctuations Prices Global on Economy National .

4. Increase integration between Policies Cash And energy , Given For effect Prices Disbursement and the dollar American on Prices Oil, where Helps Coordination between This is amazing Policies in reduction Speculation Finance and investigation stability greater in markets Global For energy and goods Basic .
5. Strengthening Transparency in markets oil Global, from during to improve quality Data and reports Production And consumption, Which Contributes in reduction condition non certainty that Leads to Speculation, Therefore cut level fluctuations Price not Justified in markets Global .
6. Support Research Applied Using Models standard Advanced like VAR and SVAR in analysis markets Energy, when she has from capacity on explanation Relations Dynamics complex between Variables Economic Which Helps Manufacturers decision on situation Policies more effectiveness and response For shocks Global .

References:

Baffes, J., et al. (2015). The role of emerging economies in global oil demand. World Bank Publications, United States.

Baumeister, C., & Kilian, L. (2016). Forty years of oil price fluctuations: Why the price of oil may still surprise us. Journal of Economic Perspectives, 30(1), 139–160. https://doi.org/10.1257/jep.30.1.139

Baumeister, C., & Kilian, L. (2016). Lower oil prices and the U.S. economy. Brookings Institution Press, United States.

Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. American Economic Review, 112(4), 1194–1225. https://doi.org/10.1257/aer.20191823

Canova, F. (2021). Methods for applied macroeconomic research using VAR models. Princeton University Press, United States.

Corbeau, A. (2021). OPEC+ and the management of global oil markets. Columbia University Press, United States.

Enders, W. (2019). Applied econometric time series. Wiley, United States.

Fattouh, B. (2021). The role of the US dollar in oil price dynamics. Oxford Institute for Energy Studies, United Kingdom.

Goldthau, A., & Sitter, N. (2015). A liberal actor in a realist world: The EU energy diplomacy. Oxford University Press, United Kingdom.

Hafner, M., & Tagliapietra, S. (2020). The geopolitics of the global energy system. Springer, Germany.

Hamilton, J. D. (2019). Oil prices, geopolitical risk, and economic fluctuations. Princeton University Press, United States.

Hamilton, J. D., & Waggoner, D. (2023). Advances in time series econometrics and macroeconomic modeling. Princeton University Press, United States.

International Energy Agency. (2023). World Energy Outlook: Energy transitions and geopolitics. IEA Publications, France.

International Monetary Fund. (2024). Commodity markets outlook. IMF Publications, United States.

Kilian, L. (2009). Not all oil price shocks are alike: Disentangling demand and supply shocks in the crude oil market. American Economic Review, 99(3), 1053–1069. https://doi.org/10.1257/aer.99.3.1053

Kilian, L., & Lütkepohl, H. (2017). Structural vector autoregressive analysis. Cambridge University Press, United Kingdom.

Kuzemko, C., et al. (2017). Global energy governance and energy security. Palgrave Macmillan, United Kingdom.

Lütkepohl, H. (2020). Vector autoregressive models in time series analysis. Springer, Germany.

Pfaff, B. (2022). VAR, SVAR and related models in econometrics. Springer, Germany.

Sims, C. A. (2018). Macroeconomics and reality: VAR methodology foundations. Princeton University Press, United States.

Stock, J. H., & Watson, M. W. (2021). Introduction to econometrics. Pearson, United States.

Van de Graaf, T., & Colgan, J. (2016). Energy diplomacy and the shaping of global energy governance. Oxford University Press, United Kingdom.

Westphal, K. (2019). Energy as a geopolitical instrument in international relations. Routledge, United Kingdom.

World Bank. (2020). Global economic prospects and commodity price volatility. World Bank Publications, United States.

Yergin, D. (2020). The new map: Energy, climate, and the clash of nations. Penguin Press, United States.