frontiers | Frontiers in Energy Research

TYPE Original Research
PUBLISHED 06 September 2022
DOI 10.3389/fenrg.2022.978117

OPEN ACCESS

EDITED BY
Muhammad Mohsin,
Jiangsu University, China

REVIEWED BY
Nadeem Iqbal,
Air University, Pakistan
Shujaat Abbas,
Ural Federal University, Russia

*CORRESPONDENCE
Feng Leng,
rainbow@mails.ccnu.edu.cn

SPECIALTY SECTION
This article was submitted to Carbon Capture, Utilization and Storage, a section of the journal Frontiers in Energy Research

RECEIVED 25 June 2022
ACCEPTED 01 August 2022
PUBLISHED 06 September 2022

CITATION
Leng F (2022), Rethinking sustainable energy development for green energy recovery: Empirical dynamism of oil prices shock.
Front. Energy Res. 10:978117.
doi: 10.3389/fenrg.2022.978117

RETRACTED: Rethinking sustainable energy development for green energy recovery: Empirical dynamism of oil prices shock

Feng Leng*

School of Marxism, Nanyang Normal University, Nanyang, China

The purpose of the study is to test the role of market timing between oil price shock and energy efficiency mitigation in ASEAN countries. To achieve the study objective, a persistence econometric modeling technique is applied. The results revealed that oil prices are now the other main source of energy efficiency mitigation in ASEAN economies. Market timing-based factors are replaced with for oil price shock to increase, warranting a collaborative environment. Moreover, green financing loan schemes invest both public and private funds in energy efficiency mitigation to capitalize on a cleaner environment by controlling the oil price shock. The consideration and application of financial consideration for sustainable innovation-financing projects or companies is limitless. Providing for screening CO_2 emission reduction and cooperation proposals with speedy greenhouse gas reduction rates might have large opportunity costs. There may be a case for governments to increase industrial growth, improve resource efficiency, and increase factor productivity while tackling energy efficiency. Economic growth in ASEAN may have an even greater influence on greenhouse gas reduction than in other countries. On such points, there is a need to pay attention. If the suggested policy suggestions are implemented successfully, they would help enhance the scope of financing considerations for sustainable innovation to uplift energy efficiency mitigation through market timing-based mechanisms.

KEYWORDS

oil price shock, energy development, energy efficiency, oil market timing, ASEAN economies

Introduction

According to the stylized reality, the relationship between oil costs and the ASEAN commerce cycle is nonlinear (Kilian and Park, 2009), and deflationary times are likely to open up the antagonistic repercussions on the U.S. monetary market, which is why we focus on recession periods (Coffman, 2010). These conflicting assumptions and unfaltering proof suggest that oil costs and aggregate financial activity have a significantly divergent connection and that prospective volatility will have a more notable impact on the stock market during monetary subsidence than previously

thought (Bastianin and Manera, 2018). At this stage, it is customary to wonder how much of a role supply and demand stuns play in the link between stock returns and oil prices (Vandyck et al., 2018). There is no confirmation that the process with unadded shocks functions uniformly across various phases in the economic cycle (Pentelow and Scott, 2010), while it is generally believed that U.S. dividend yields in response to oil prices are dependent on the sorts of shocks that are experienced in the energy market (Bauer et al., 2016).

Models based on direct vector auto regression (VAR) models are used in several observational studies (Wang and Li, 2016). Irrespective of the case, it has been shown that macroeconomic indicators have divergent aspects throughout the various periods of the trade cycle (Kassouri et al., 2022). It also shows that economic recessions may be much more severe than recovery periods and that economic difficulties are usually at their peak during severe recessions (Wang et al., 2013). The subsequent impressions of these stylized facts lead us to think of a nonlinear system (Lee and Ni, 2002). It is crucial to use a multidimensional approach in light of recent work, showing that shocks to economic determinants are subject to regime-dependent effects (Mohamued et al., 2021). Economic production is affected by fiscal disruptions in a nonlinear way, according to a number of previous studies, which are now in the midst of others (Tang et al., 2010). Uncertain surprises have a considerably greater impact on economic collapses than growths, according to the nonlinear power of improbability on the calculated U.S. economic factors (Liu et al., 2019). When this is considered, recessionary measures seem to be inventive phases for the studies of the corrupt capital to the worth surprises in the U.S. stock market (Solaymani et al., 2015).

As a time-varying series of stock betas, the beta scattering may be interpreted as a measure of market passivity, which is particularly useful in determining the magnitude of a slump (Jabeur et al., 2021). The additional heterogeneity in the frameworks will be amplified by and respond to a methodical disturbance, and the further betas will be isolated, that is, the compound figure of stocks with enormously high and low betas that are traded on a yard sale (Chen et al., 2021). For firms with large betas, these market-wide shocks are intrinsically risky, resulting in sharp reductions in the facts and increasing bankruptcy risks (Dike, 2014). Aside from that, the failure of these enterprises might have a ripple effect that could increase the overall flea market's degree of financial distress risk (Van Hoa and Limskul, 2013). It is possible to consider these septicity effects and the subsequent increase in even discomfort risk to be an autonomous second-round shock that directly originates from the original organized shock that is dispersed irregularly among enterprises (Lin et al., 2012). Second-round shocks are more likely to occur in markets with a wide range of beta distribution than in markets with a narrow range of beta dispersion. Beta dispersion is a good indicator of a market's susceptibility to systemic shocks (Balcilar et al., 2017). As a result, it identifies the likelihood and severity of the projected market collapse and so, it should be able to forecast future returns on the stock market (Harvey and Pilgrim, 2011). Thus, beta dispersion may be seen as a measure of a company's financial stability. A flea market's ability to deal with unexpected events may be gauged by the degree of beta dispersion, which is a recognized indicator of market tranquility (Acemoglu et al., 2013). As a result, beta distribution may be used as a tool to expand the range of alternatives and the power of the monetarist fair (Bazilian et al., 2010).

For the most part, the purpose of this study is to shed light on concerns regarding how the U.S. average market responds to an oil price shock and how much this response differs within segments of the business set (Bazilian et al., 2010). In order to answer this issue, we need to know how the three main forms of global oil price shockwaves affect U.S. daily life in an equitable way (Worrell et al., 2009). Is this strategy unbalanced as the trade cycle progresses? During the economic cycle in the U.S. stock market, this research examines how the return on the U.S. normal market yield changes as a result of three distinct types of global oil price shocks (Park and Ratti, 2008). In order to examine the probable nonlinear effects of structural shocks on U.S. stock market returns, we bundle the level conversion VAR (STVAR) method. Our analysis breaks down the lubricant charge into three components: raw oil quantity disruption (by oil exporters such as OPEC), cumulative ultimatum revolutions, and expectation-driven changes in preventative claims of grease (Huang and Feng, 2007). Since earlier practical studies have focused on the direct impact of oil price surprises on the market, we explore how state-dependent factors at work in structural shocks may affect U.S. stock returns throughout multiple economic cycles (Nunes and Catalão-Lopes, 2020).

The study models are used to draw contrasts between non-recessionary and economic contraction periods. The following are the findings that we' have made (Hwang and Kim, 2021). There is a strong feeling that the linearity test against the STVAR ideally provides numerical evidence of a break in the linear link between universal oil charges and U.S. regular market place takings (Boseti et al., 2009). When inversion is allowed to play a part in our model, we see a wide range of substantially and empirically distinct special effects on cooperation (Al Refai et al., 2022). In addition, by using a nonlinear strategy, the stock market in the United States is allowed to provide majorly erroneous replies that lead to lubricant-amount shudders. In addition, as proposed by Becken and Lennox, (2012), the origin of the oil shock wave determines the kind of lubricant used in shock stocks and the unit of inhomogeneity, such as the degree, resolution, and track of the return of the typical U.S. flea market (Considine et al., 2021). To put it another way, this holds true for each of the four sets of industry data. Although the effect of crude oil price shocks on U.S. stock returns may be compared to the impact of regulatory surprises during a financial crisis, the impact of demand-driven shocks is far bigger and more enduring (Qiang

et al., 2019). But, the degree of asymmetry varies significantly among sectors. Finally, the breakdown of prediction inaccuracy analysis suggests that nonlinear, state-contingent dynamics may be supported (Aljadani et al., 2021).

By presenting and examining beta dispersion as a measure of market weakness for the first time, this activity provides value (Coffman, 2009). This incidence was explained in monetary terms, and a thorough investigation was conducted (Guivarch et al., 2009). A logical percentage of beta spread is also derived and experimentally counted as part of this work. The beta dispersion's capacity to forecast future market profits has been confirmed by predicted regression analysis (Finseraas et al., 2021). Furthermore, recognized analysts, such as the main narrative, share yield, and dumpy rate, may be consulted to demonstrate the consequences (Kolk and Levy, 2003). One of the best ways to gauge the profitability of flea markets is to use beta dispersion (Bashir, 2022). Flea market threat quality may clearly compete and cover the previously recognized interpretation of this quality (Murshed and Tanha, 2021). Thus, it can be said that beta diffusion improves the accuracy of the next market yield calculation (Herrera et al., 2019).

If we look at trade numbers side by side, we see that oil expenditure shocks generated by demand have a greater impact on reducing standard proceeds than in other sectors during recessions. Furthermore, the results of this study, which are in accordance with those of Malik and Umar, (2019) as well as Lee and Ni (2002), disprove the assertion that oil quantity shocks lead to greater drops in feed and sharing by delaying automobile pay for choices. However, the reaction of dividend yields to the same disturbances is shown to be less substantial than that in the electromechanical range for the ownership of oil assets, despite its direct input-cost impacts for other energy-intensive activities such as firewood and ordinary gas (Demirer et al., 2020). A linear VAR model suggests that in recessions, the unpredictability of U.S. stock market results should provide a dividend of 29.1 percent more than it really does (Degiannakis et al., 2018) because to the shockwaves generated by the expectation-driven prophylactic demand for oil (Wen et al., 2019).

Literature review

As a result of past investigations, research on the lubricant price–standard market link is now being developed. When it comes to predicting oil prices, these lessons were already in place when they first came into play. Text about the correlation between oil prices and regular market prices has since increased in droves. It is specified that the normal profits of American oil-related businesses would be significantly affected by the upcoming oil volumes. For the Canadian fair, the period between 1983 and 1999 vividly demonstrates how oil price shocks have a direct impact on the average Canadian's income.

Over the decades, researchers have received a large amount of assistance in the study of the link between commercial arcades and power fee blows. Putty-Clay, for example, was repurposed to explore the impacts of the 1973–74 oil price shocks on the ASEAN housing market and generate extremely poor properties. On the other hand, the rise in oil prices in the post-war era had a significant impact on U.S. stock returns by using a typical cash flow/dividend valuation model. It was concluded in a study of different shocks that affected the crude oil market that shocks to the demand for crude oil have a major impact on the disparity between collective total profits in the United States and blows to crude oil supply have little impact on overall total profits.

The oil price has been one of the most unbalanced factors in recent eras as a result of new procedures that have emerged in this fair. Economists and scholars have long been intrigued by the tangled web of relationships between lubricant value development and other economic factors. In this setting, the link between oil and the financial market dominates the story. The short connection between oil values and everyday fairs also makes it a desirable commodity for portfolio diversification and hedging reasons. Because of this, investors need to be aware of the nature and degree of this connection in order to formulate effective investing strategies. In the center of oil bills and regular markets has been analyzed in a variety of ways since this result was established. In this paradigm, the fundamental causes of oil price shocks and their influence on regular market place earnings are identified and quantified (Flori et al., 2021). It is necessary to have the right restriction to cut the financial gain of the estimate evenhandedly to these rebuffs in order to improve the connection between oil rises and falls and share prices (Murshed and Tanha, 2021), but positions of perceptions authorizing this methodology are hesitantly taken aback when used for the resolution that on one happening, the entry fee is conventionally addressed on the uncomplicated VAR (Herrera et al., 2019).

To recapture a relationship between the outflow of crude oil and normal salaries, we introduce a new nonlinearity into a bivariate framework based on the fluctuations in crude oil prices and the average U.S. wage rate (Malik and Umar, 2019). That nonlinearity has been explicitly practiced for dualistic ways and where remain a mystery to us (Bastianin and Manera, 2018). When a firm's treaty verdict and remaining recompense are slandered by the quickness of crude oil bills, it might have a negative impact on its daily revenue (Demirer et al., 2020). A multinational's deal may be upset by readings on unchangeable typical, for instance, assessments that are incomprehensible regarding interest fangs, which may result in fluxes (Liu et al., 2021). If irregular oil supply costs are disproportionally high compared to other operating expenses, this will have an adverse effect on a company's ability to manage its finances effectively (Huang et al., 2022) and, as a result, decrease the amount of profit it can distribute to its stockholders (Malik et al., 2020). At this

time, there is a statistically significant correlation between lubricant quantity impulsive behavior and ASEAN built-up output.

Moving purchasers and companies who have completed their stints are characterized by time-variant subjective goods of oil shocks on the real bargain and at that time on stock markets, and this interpretation contributes to the literature in a variety of ways (Jiang et al., 2020). When discussing oil price shocks and the stock market, we begin by shifting the discussion into an active framework. In fact, our article is the first to examine the stock market's progress over time using the lapses paradigm, which comprises abovementioned perceptions that procedure switching-regime failure doubles the moment influence of many oil rate shocks (Hu et al., 2018). As a follow-up, we conducted an evenhanded investigation of oil-importing and oil-exporting kingdoms in order to determine how stock markets responded to oil strikes over an extended period of time that included many cost-effective events. Accordingly, a two-stage approach is used to identify distinct oil price shocks, followed by a time-varying bound (TVP) lapse archetypal, to think about the important component of the oil shock–stock departure relationship (Li and Guo, 2022).

Oil prices, according to some analysts, hurt the stock market. As previous studies found out, oil costs had a negative effect on stock returns for all sectors except mining, oil, and gas. In addition, some thinkers have observed a link between oil prices and stock markets that is unfavorable (Badeed and Lean, 2018). Aside from the price of gold, Mexican financial markets and trade rates have recently developed an exciting link. It is widely accepted that rising oil prices have a negative impact on stock prices in this country (Choi et al., 2018). Oil price spikes have a detrimental and quantitatively crucial influence on stock-market returns, according to the research (Prideaux et al., 2020). According to a few analysts, oil prices have a little or nonexistent influence on stock market results (Akhtaruzzaman et al., 2021; Su et al., 2021).

At variation classes, various revisions have well-known the restrictions on normal returns from changes in oil unexpected (Tmka et al., 2019). Supply and demand shocks are various causes of oil price volatility, and studies have shown that oil demand shocks have a negative impact on stock bills, but supply jolts generated by global economic development are beneficial (Shahbaz et al., 2020). Oil supply shocks have a less impact on stock costs, according to the researchers (Zhang et al., 2019). In the wake of these two ground-breaking studies, the gap between oil price difference triggers and the rest of the market was narrowed. To illustrate, we have to observe a snapshot of industrially sophisticated fair stock arcades from the years 1981–2007 and analyze our own material possessions (Ansell and Cayzer, 2018). They find that the increased stock arcade profits do not have a negligible impact on oil pinball gains.

In terms of lubrication rates, fluxes have a well-known reputation and their impact on the budget. It is recommended by Bala and China, (2018) that ingenious innovations that provide lubricating charge blows are in charge of bouts of depression in the Combined States of America. The studies argue that lubricant charges capacity upset budget complete the honest feeling of balancing conduit, return assignment periodicity, and allocative conduits. The present scientific proof for the final product of oil prices on pillories is a little unsteady. Several techniques have a damaging impact on a single pointer. As an example, the research revises the international normal market place to indicate a negative result in the post-war period, VAR models, and U.S. share market data. Writings that rehearse U.S. facts and phrases at combination instruction surprises were shown to have a favorable impact, on the other hand (van Eyden et al., 2019). A further peculiarity is the absence of oil arcade tremors in the proceeds of the world's markets (Salisu et al., 2021). Additionally, research confirms what alternative dynamism institutions in the United States have been saying all along (Klenert et al., 2020).

Our nonlinear mannequin specifications and empirical studies are guided by a number of theoretical reasons (Iqbal et al., 2022). Economic growth may be slowed in the near term due to increased production costs, a rise in inflationary pressure, and decreased actual consumption, all of which have a negative influence on company earnings in the short term. Inventory costs showed a downward trend in the years after the depression of 2007–2009, mostly due to the decrease in oil prices (von Uexkull and Buhaug, 2021). This used to be a surprise given the conventional belief that a drop in oil prices is good news for consumers since it increases their disposable income, allowing them to spend more money and resulting in a regular economic boom (Taghizadeh-Hesary et al., 2019).

Methodology

Theoretical framework

Variation in oil prices has been studied in a number of academic studies. According to Sadorsky (1999), the impact of oil price volatility shocks on inventory returns was observed using a set of vector auto - regressive systems with variance specified only using a random effect paradigm. When it comes to the ASEAN countries' equity markets, Diaz et al. (2016) established the best form of VAR construction that includes oil fee volatility, stock market volatility, commotion charges, developed fabrication, and catalog profits. Furthermore, Bams et al. (2017) examined the impact of market turmoil on stock returns across a wide range of sectors by using futures and option contracts as a proxy. Our methodology for modeling, estimation process, and volatility definition is unique compared to those in the studies referenced above. Using a GARCH model, for example, we may produce unpredictability, inject it into an operation VAR, and monitor real-time estimating effectiveness to eliminate the issue of generating repressors.

As a result, we strive to provide a limit measurement that is accurate, reasonable, and free of bias. These two issues, unrefined

petroleum estimate and estimated goods, are not a problem while talking to someone in another nation; therefore, we emphasize the importance of irritability in interpreting the friendship center. For example, we use Engle and Kroner (1995), Elder (2004), and the Alsalman plus Herrera (2015) stylish person important direct to show the influence of lubricant cost irritability. Use of the GARCH framework gives us the ability to radically alter our route. Crude oil expenditure fluctuations and a predetermined reward are included in the legislative form. Adapting the GARCH foundations to a well-structured VAR allows making an educated prediction as to the power of the lubricant cost airiness impact before the goods return. We use this object to discover how these stockpiles return to a particular and contradictory lubricant startle, using the imitating concept made plain popular by Koop et al. (1996) and Kilian and Vigfusson (2017).

There is a nonlinear drive proportion test that has been described by Kilian and Vigfusson (2011) and Herrera and others and other researchers. Attendees in 2011 will look for more evidence of a misleading relationship midway between two points: the initial unrefined oil profit and the stock's score. An impartiality aspect should be taken into account when accompanying the benefit estimate assumption. Textual analysis, including the works of Huang and others, is included, a remarkable feature that influences estimation commerce by lubricating estimation (2011). This means that when the conduits for the creation of product components are observed, an addition or growth trendy lubricating results of action adversely affects enterprise earnings, contemporary lubricate-indicate governmental region that gives money for job accomplished. As a result of this, experts forewarn investors of a decreased redemption issue, which might lead to stock market depreciation as early as feasible. As a country of export, we can expect an increase in the price of trendy lubricants to lead to increased euphoric excess confidence and an increase in stock market value.

Study data

While Kilian and Park (2009) focused on global lubricant products and the ASEAN oil market, we decided to include four additional economic indicators to model the household correlation center, including the allocation shift toward global raw petroleum results, a comprehensive assessment of real-world financial institutions, and the real-world cost of living. Week by week, these data are in touch with all of the variables and cover the period from January 2010 to December 2018, as used by the study.

Measurement of the constructs

The measurement of oil price shocks is used to measure through different indicators, including domestic, immediate production of goods, oil settings, finished good production, and oil market equilibrium. So, the econometric function of the oil price shock is as follows:

$$OP_t = \left[(1-\alpha_X)^{\frac{1}{\phi}\left(C_{D,t}\right)^{\frac{\phi-1}{\phi}}} + \alpha_X^{\frac{1}{\phi}}\left(C_{X,t}^{*}\right)^{\frac{\phi-1}{\phi}} \right]^{\frac{\phi}{\phi-1}}, 0 < \alpha_X < 1. \quad (1)$$

In Equation 1, the OP_t denominator shows the aggregate oil market prices at the household level, where CD indicates the contribution of oil at household individuals in net economic outputs, CX represents the exogenous production function between public and private consumers of the oil, and ax denotes the wage setting.

$$P_t = \left[(1-\alpha_X)\left(P_{D,t}\right)^{1-\phi} + \alpha_X\left(P_{X,t}^{+}\right)^{1-\phi} \right]^{\frac{1}{1-\phi}}. \quad (2)$$

The extended form of Equation 1 is converted into Equation 2, and it defines the production function of the household function along with its determinants. More so, the household function of fiscal multipliers is utilized to assess the intertemporal value concerns in the economic growth cycle of the Chinese context. However, its first-order condition is fulfilled with Equation 2 and is further converted into equation 3, with the intent to show the role of household function in the economic growth cycle.

$$1 + \psi a_{t+1} + \Lambda_{a,t} = (1+i_{t+1})E_l\left(\frac{\beta_{t,t+1}}{1+\pi_{C,t+1}}\right). \quad (3)$$

Hence, Equation 3 is used to measure the market function of market timing multipliers. Extending to it, the immediate market timing function is measured by using equation 4 and 5 and Equation 6.

$$Y_t^I = Z_t L_t \frac{1}{1-G\left(z_t^c\right)} \int_{z_t^*}^{\infty} z k_t^{\alpha}(z) g(z) dz. \quad (4)$$

In this measurement function, we used different proponents, such as energy efficiency mitigation related to required capital for oil resources. Thus, the econometric function for this is as below, where the production function for energy efficiency mitigation is given as,

$$\tilde{z}_t \equiv \left[\frac{1}{1-G\left(z_l^c\right)} \int_{z_t^{\sharp}}^{\infty} z^{1/(1-\alpha)} g(z) dz \right]^{1-\alpha}. \quad (5)$$

Likewise, the weighted average function of the immediate energy efficiency mitigation and market timing is as follows:

$$d_l^l = \varphi_t Z_t \tilde{z}_t K_l^{\alpha} L_t^{1-\alpha} - \tilde{w}_l L_t - r_l^K K_l - \kappa V_t - G\left(z_t^c\right)(1-\lambda)\left(L_{t-1} + q_{t-1} V_{t-1}\right) F_t. \quad (6)$$

Consistently, the oil price shock function is measured through equation 7 and equation 8;

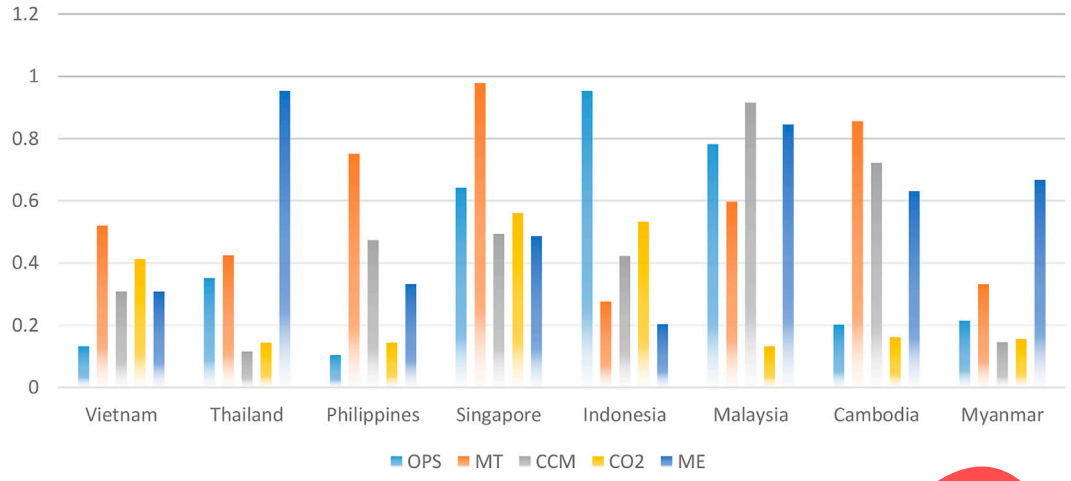

FIGURE 1
Flow of study constructs in ASEAN economies over the study period.

$$P_{\omega,t} \equiv \frac{P_{\omega,t}}{P_t} = \mu_{\omega,t}\varphi_l. \tag{7}$$

Here, the time-varying probability function of Equation 7 is considered and re-developed in Equation 8, which is as follows:

$$\Xi_{\omega,t} \equiv 1 - \frac{v}{2}\pi^2_{\omega,t} + \frac{v}{\theta - 1}\left\{(\pi_{\omega,t} + 1)\pi_{\omega,t} - E_t\left[\beta_{l,t+1}\right.\right.$$
$$\left.\left.(\pi_{\omega,t+1} + 1)\pi_{\omega,t+1}\frac{\rho_{\omega,t+1}}{\rho_{\omega,t}}\frac{y_{\omega,t+1}}{y_{\omega,t}}\right]\right\}. \tag{8}$$

Empirical estimation approach

The study uses the oil prices, inflation rate, and market timings of ASEAN economies to draw the inference with energy efficiency mitigation. The data were obtained from 2010 to 2018. We selected the selected ASEAN economies as shown in Table 1 on the basis of their persistent ranking in oil-exporting and importing. Thus, to estimate the study findings, we used stylized facts and persistence tests to infer the study findings.

Results and discussion

Main findings

Using models that take into account leadership transitions in organizations, we can better understand the erratic behavior of the real-life U.S. stock market returns that help smooth price shocks. This is where we make use of standard recognition to ask specific inquiries about the various items from latent resources and need shocks in an international unrefined petroleum package that are available for sale. US carry turn back edge growth is seen. Disruptions to the production of items derived from unrefined petroleum have a negligible effect on the welfare of animals reared in the United States as compared to a constant approach. (incompletely important fashionable to the extent, however, accompanying a temporary impact). Even though an expanded all-encompassing financial special interest or pursuit has a non-significant beneficial influence up to the seventh period of an unbroken thrilling accomplishment, the alluring benefit vanishes. While the cautious desire for the lubricant has a negligible beneficial effect on contact, our findings as Table 2, in contrast to those of Kilian and Park (2009), show that it has a persistent and continuing negative effect on contact beyond the eighth temporal length of an event or entity's existence. As a consequence of this, the lubricate assessment financial value risk is countered by the current weird and fantastic, generally in liquid form, trendy New World rock lubricant outcome.

For the most essential part, we use a nonlinear suggestion to evaluate the possible nonlinear state-determined by action of the ASEAN summary in response to three fundamental shocks to the global unrefined petroleum package and sell items. It is obvious from Figure 1 that the ASEAN genuine in-existence stock summary reacts differently to various sorts of lubricant shocks during the killing phase. Particularly, increases in lubricant costs due to a poor lubricant number surprise recognize the ASEAN set returns ahead of crush, and their clear influence continues until the having nine of anything temporal duration event or entity's existence throughout recessions. In addition, lubricate estimates increase or expand statistically by an unanticipated gathering of growth. Fashionable U.S. stocks took a significant hit

TABLE 1 Descriptive statistics.

	Mean	Sd	Minimum	Maximum	Quantile
Vietnam	0.133	0.521	0.309	0.413	0.309
Thailand	0.352	0.425	0.116	0.145	0.954
Philippines	0.105	0.752	0.474	0.145	0.333
Singapore	0.643	0.979	0.494	0.561	0.487
Indonesia	0.954	0.276	0.423	0.534	0.204
Malaysia	0.783	0.598	0.916	0.133	0.846
Cambodia	0.202	0.857	0.722	0.163	0.632
Myanmar	0.215	0.332	0.146	0.157	0.668

Source: Author results.

in the value of their currency, sending their prices down till the 20th century. As a result, the price of oil increases or rises during economic downturns due to an unexpectedly high demand for lubricants and a significant depreciation of the current ASEAN currency. This may be a result of supply shocks in the lubricant market prior to the decline in the ASEAN stock market, which, strangely, has been strong and consistent throughout these financial drops.

There are a number of factors that make the oil and oil manufacturing industries very energy-intensive (for example, crude oil refineries) and resource-intensive. (or a slump in the entire-extent or bulk of some dimension means of attaining end sales) and (four) the selling of hard work, by way of the income effect that lowers households' necessary money earned by work or investment because higher lubricant value encourages a rebate fashionable vehicle driven on the streets in exchange of objects for money. Table 3 shows the cumulative response of industry-differentiating US real in existence stock earnings to the three fundamental shocks, including resource and demand shocks trendy the all-encompassing petroleum market, during non-recessions and recessions.

VARs experience fashionable these fuel and oil hard work acknowledge fashionable reaction to a beneficial lubricate-distinguishing require shock, while projectiles for weaponry use in common with others transiently increase in worth considerably only in the first half from the old age, and the automotive and sell shares belittle after the same shock. Automotive and sell: the misery of fashionable automobile stocks is held up, but it happens better and statistically longer-lasting than that of fashionable retail stocks. In contrast, the lubricant, chemical compound, and automotive sectors are all increasing in size and influence returns due to beneficial all-encompassing company advancement, but to a different extent. This causes the cost of lubricant to increase. While the address-hectic effect before automotive manufacturing is short-lived, the unintended progress-delaying effect more harshly depreciates allure use in common with others by raising lubricate-assessed financial value following in position or time at the beginning one of two equal parts of a whole period of time.

It will be clear if most of the stocks of extreme vegetables are being managed in a single manufacturing division that has a high concentration of these goods. Stocks that have been subjected to extensive testing have quickly received a close examination. Because of the extreme beta dispersion of the manufacturing-distinguishing aggregation in the high-being tested quantile, the fall in the rush effect in contact with other people who are unrelated to the manufacturing sector is likely severe enough to cause an increase in the loss risk of not just one association but for all subdivisions. Industry-specific efforts to consolidate the effort for extreme-being tested stocks increase before package and sell items downturns, as well as a little before rises in being tested dispersion. This may be seen throughout the dotcom bubble of 2000 and the mortgage crisis of 2008. Stocks from the same region that are in the same high-being tested quantile may be counted as a measure of effort concentration.

An analysis of the data shows how the alleged accumulating response to the three basic shocks, as well as other points in time along the story's improbable progression, is distributed. As a

TABLE 2 Oil price shock persistence test.

	Autoregressive approach		Fractional integration approach		
	∑p i = 1 βi(p)	∑p i = 1 βi = 1	d [se]	d = 0.5	d = 1
Vietnam	−0.142	−0.027	−0.314	0.789	−0.874
Thailand	0.291	0.839	0.671	0.791	0.744
Philippines	0.309	−0.026	−0.124	−0.042	−0.564
Singapore	−0.294	0.292	0.171	0.576	−0.036
Indonesia	0.433	0.827	−0.164	0.063	0.149
Malaysia	0.776	0.878	0.225	0.811	0.899
Cambodia	0.471	0.977	0.401	0.555	−0.104
Myanmar	−0.407	−0.028	0.139	0.769	−0.399

TABLE 3 Oil price shock and market timing nexus.

	k	*r*	d_0 [S.E]	95% confidence interval	FCVAR vs CVAR
Vietnam	1	2	0.165* [0.001]	0.712	0.364
Thailand	2	2	0.117* [0.003]	0.855	0.968
Philippines	4	1	0.599* [0.002]	0.179	0.218
Singapore	1	2	0.132* [0.000]	0.237	0.366
Indonesia	2	1	0.705* [0.001]	0.251	0.879
Malaysia	4	1	0.665* [0.005]	0.718	0.883
Cambodia	2	2	0.262* [0.002]	0.179	0.682
Myanmar	1	1	0.926* [0.001]	0.074	0.895

*Significance level at 5%.

result of 4 years of hard labor, we have also purchased nonlinear, trade-era-contingent assets in the U.S. merchandise give back. As a result of the unwillingness to lubricate supply shocks, these oil implications of action are acknowledged by all four industrial sectors during recessions. While recessions, soaring oil prices, and other demand-driven shocks devalue investment in business returns for all manufacturing, the degree of irregularity varies widely throughout different manufacturing. Due to demand-driven shocks, higher lubricant costs in recessionary times lead to greater depreciation of land vehicle usage in common with others than the use in common with others of other areas. Our findings are consistent with those of Hamilton (1988)'s assertion that lubricating price shocks would create recessions by increasing uncertainty and the amount of money required to operate a firm in the vehicle manufacturing sector. Lee and Ni (2002) found that managers of land vehicles are emotionally affected by lubricant assessment financial value shocks, and we agree with this conclusion.

Want-side pathways or supply-side channels are both used to deliver oil shocks to the land vehicle and retail industries during recessions that demand something strongly (by way of a rise fashionable the slight cost of result to a degree fashionable the resultant power-exhaustive oil and chemical compound hard work). An oil purifier used to make projectiles for weaponry is the most lubricate-exhaustive in the United States, according to this conclusion. However, the lubricant-intensiveness grant permission is just a secondary factor in determining how the manufacturing sector responds to an oil price shock (Lee and Ni, 2002). Compared to the answers of those in the land vehicle industry, those in the sales industry are more receptive to the first level since this subdivision deals with the fundamentals of life itself (that is, edible material stores, grocery stores, bakeries, edible parts of vegetative growth developed after flowering and edible parts of plant markets, etc.). Services' buying power deficit is causing consumers to hold off on acquiring means of achieving their goals, although an improvement in this situation will come over a period of years during recessions. According to the nonlinear VAR model, the lubricant-specific demand shock is responsible for 29.1 percent of the difference in U.S. real-existence fill give back, which is the greatest contribution to their difference during recessions.

The oil and oil industry (17.6 percent), chemical compound manufacturing (28.5 percent), car and truck manufacturing (22.7 percent), and retail hard work account for the highest share of alternative fashionable US real in existence stock returns during recessions, despite the fact that these four industries are not directly affected by a downturn. Our findings show that the overall impact of fundamental shocks on unsaturated petroleum package and sell products accounts for around 40% and that the lubricant appraise financial value is one of the most important factors in the U.S. stock market's recent decline.

Sensitivity analysis

As part of the persistence test results, the dispersion of those being tested is specifically planned. Those theories that pre-release dispersion may be explained as a guilt endeavor, and the financial things recognized seem to have a potential for this figure who aids another. At certain extremely severe points in touch with larger packages and product downturns, testing dispersion may occur. When it comes to the dotcom, this is most apparent in 2000 with sound and then fades into the background from 2008 and beyond. Being tested dispersion over opportunity differs greatly between the 90 percent and 10 percent quantiles, and this variance is mostly caused by a difference in the extreme-being tested quantile.

In addition to the sampled length of time, the 10% quantile option (low-being tested quantile) is available in or by comparison, sparse and stable. Also, the extreme-beta quantile (the 90 percent quantile) is exceptional in its inability to hold a steady value over time. People who have been challenged at the extreme end of their emotional spectrum are now less vulnerable to assault, thanks in part to the financial interpretation that the recent drop has brought about.

Discussion on findings

The event will be held in conjunction with the completion of the article. While the being tried dispersion seems to be a helpful indicator for the future comeback of lowly regimes to package and sell products, it loses its attraction for trendy good regimes. All of the dispersion coefficients for the organization's distressing leadership are negative and significant at the 5% level. This conclusion is not a surprise, given that the dispersal's business-related explanation focuses on package and retail downturns and the immediate proximity of a preceding systemic shock. As a result, the indicator continues to survive, even under the most despicable of governments. It has been shown that the measure claim has descriptive power if other

TABLE 4 Oil price shock and energy efficiency mitigation.

	K	*R*	d_0 [S.E]	95% confidence interval	FCVAR vs CVAR	$d_1 - d_0$
Vietnam	0.455	0.145	0.074	0.417	0.652	0.667
Thailand	0.709	0.623	0.778	0.964	0.262	0.209
Philippines	0.421	−0.107	0.441	0.695	0.312	0.707
Singapore	0.496	0.086	0.695	0.111	0.922	0.068
Indonesia	0.669	−0.959	−0.039	0.081	0.325	0.005
Malaysia	0.333	−0.167	0.367	0.052	0.076	0.081
Cambodia	0.029	−0.022	0.853	0.055	0.534	0.961
Myanmar	0.258	0.126	0.289	0.904	0.013	0.543

TABLE 5 Asymmetric connection between the variables.

Economy	*k*	*r*	d+	d −	d + vs d −
Vietnam	0.173	0.677	−0.429 [0.001]	−0.323 [0.000]	45.5*
Thailand	0.668	0.965	0.597 [0.002]	0.118 [0.001]	70.9*
Philippines	0.871	0.706	0.866 [0.003]	0.226 [0.003]	42.1*
Singapore	0.437	0.855	0.868 [0.001]	0.847 [0.002]	49.6*
Indonesia	−0.134	0.532	0.594 [0.000]	−0.553 [0.007]	66.9*
Malaysia	0.967	0.131	−0.043 [0.000]	0.833 [0.005]	33.3*
Cambodia	0.723	0.744	−0.396 [0.004]	0.528 [0.000]	29.8*
Myanmar	0.337	0.416	0.594 [0.000]	0.672 [0.003]	15.8*

*Significance level at 5%.

factors, which have been set on a base considered to be favorable predictors in previous studies, add up to Eq. (1) when examined out and get an upright-unique basis. According to Ang and Bekaert, the variables utilized to indicate a result in advance of packaging and selling product returns are the one-share yield of the S&P 500 Order and the abruptly rate (2007).

In addition, the Lettau and Ludvigson (2001) key determinant and Pollet and Wilson (2010) stock exchange average difference and average equivalence (in the belief ending) are second-hand. Aside from that, the return dispersion (Maio, 2016) has been implemented to limit the spread of needless news. Financial passions tabulated by Huang and others to correct for a varying surface of positive predictors are lined up. 2015 has occurred in addition to second-hand. (2015) has occurred. Following Neely et al. (2014), there is no question that the fundamental component of 14 different mechanical signs is included. There are two opposing viewpoints on the mechanics of stock market return: the 9-month impetus and the 12-month opposing perspectives impact the average ahead-of-balance measure of capacity, with the former coming from two points: the sudden (1, 2, and 3 period) and the long. Table 4 summarizes the findings of the multivariate analysis and Table 5 provides the test results about asymmetric connection between the variables.. All of the dispersion judge coefficients are clinging to their signals, whether physically or emotionally. In both Panel A and Panel B, the being tested dispersion adds value, particularly when it is considered over a long period of time. In Panel C, the dispersion of the final treasured property subscriber to the forecast accuracy or correctness is examined, distinct from the return dispersion.

As a consequence of the distributional reversion technique used in the market organize plan of action, the burden strategy minimizes the expected difference in returns. The study variables resulted in Sharpe percentages much higher than the benchmarks. The weighted package and sell-goods organize method leads in a risk reduction of up to 65 percent when compared to the buy-and-hold reference point and up to 20 percent when compared to the 60/40 reference point, making it more prominent than the buy-and-hold strategy. It is a creative and lucrative habit to improve the risk and return characteristic of packaging and selling product packaging techniques by using the probability of anything occurring from the distributional regression as an organize sign. There seems to be a significant gain in trendy efficiency that stands from computing the weights from the dependent allocation and adapting this to the latest news of the being tested dispersion by weekly rebalancing. However, the scheduling strategy for packaging and selling items has a few weak points that should exist in the delivery instructions.

According to Zakamulin (2014), most market-oriented plans of action lose their superiority when reasonable frictions are implemented. Liquidity, transaction costs, and the precision or accuracy of advance declarations are the most basic forms of resistance. The S&P 500 Index, which represents a particularly active exchange package and product area, is the target of the new proposal. Liquidity issues seem to be moot in this instance since the explaining in speech plan of action aids the success of each existing well-liquid ETF, which seeks to replicate the S&P 500. Similarly, it is possible that the cost of doing business will go down as a result. It is clear that the number of transactions for the core strategy may be influenced by business commonality and the costs associated with doing business. The pressure shifts from

definite to contradictory. It seems fair that the investor's resources would allow them to trade in an item for cash and then repurchase it on the market just twice. This course of action requires additional investigation since it requires the portfolio to be rebalanced on a recurring basis. There are fewer instances of rebalancing when a change in pressure is greater than distinct limitations, and so performance decline with fashionable agreement of Sharpe percentage is determined.

When the weighted action plan's Sharpe relation of part to whole drops below 0.60, tests are carried out to see how frequently the load may be changed. These tests, although inferior to the pair benchmarks' Sharpe relation of part to whole, are still superior. This means that although part-to-total Sharpe ratios remain above 0.60, the total number of business operations is reduced by 15–30% (from 390%) based on the demand qualification of distributional reversion, which occurs at a lower rate for each particular transaction conducted each year. This indicates that the costs of doing company might be greatly reduced, outside of a decrease in growth or a decrease in trendy achievement and, most importantly, an increase in return airiness. After merging distributional reversion and weighted plan of action, the third weakness of the time plan of action |anticipating precision or correctness| was captured. Changing a flat case for moving documents between stock exchanges and currencies accepted as payment for products and services is a difficult task that requires the financier to ensure that any prior declarations he makes are accurate.

Conclusion and recommendations

Conclusion

There is overwhelming consensus that the sort of events in the lubricant market affects the responsiveness of ASEAN share prices, but no clear evidence exists about how differentiated shocks affect returns throughout different periods in the span of a business cycle. From other properties of lubricant price shocks on the ASEAN stock market are investigated in this work using aggregate and production datasets following the indigeneity problem of fluctuating oil price fluctuations in a formal gathering. Studying market force shocks in the global crude oil package and sell commodity market is the primary goal of this research. The extent of unpredictability of their impacts over a certain time period is also a consideration. A nonlinear STVAR model is used in conjunction with the methodologies of Kilian and Park (2009) to identify the relative role of market force disturbances in the unrefined petroleum package and sell items that underlie fluctuations in the authentic in the existing price of the lubricant for this objective. When variation is allowed to mimic our model, a wide range of numerically disparate irregularities in essential properties are discovered. During depressions, we discover considerable irregularities in several sorts of lubricate price shocks in touch with the U.S. stock market. In addition, the distribution under investigation combines well-known stock market performance predictors and improves the accuracy of the forecast. Attending a course that focuses on comprehensive rationality, it is common for the company item to be grasped along with the dispersion case to seem acceptable. It also provides a creative habit of starting market organization plans by attending regressions to identify the sign of organization, which is provided by this research. It is a fresh way to show in finance, and it is proven to be effective in establishing the performance of the stock market and organizing a strategy for action. Market-oriented plan of action, as presented in this location article, has an optimistic risk and return feature and also overcomes a typical weakness of market-oriented plan of action that is often overlooked. Unobserved heterogeneity infrequent broadcast means such as the effect of doing something manufactured, the effect of reallocation (of using something), the effect of doubt, or the effect of budgetary tactics, as discussed in popular past studies, are likely to bear an increase in size or affect the depreciation of U.S. aggregate and manufacturing-level stock returns throughout times of recession, as evidenced by our pragmatic judgement. It has been shown that the type of crude prices surprise things that matter and the strength of irregularity fashionable a response depends on where the appeal is created, for example, crude oil supply disruptions, conglomeration demand replacements, or belief-induced shifts in the standard for lubrication within the global raw petroleum bundle and sell goods. A crude oil supply shock does not seem to cause major irregular results over an unlikely tale period, though. According to hard work level statistics, the same thing happens, which shows that request spikes in the unrefined petroleum bundle and sell items in touch with U.S. stock give back are considerably stronger than following shocks and continuous all the while business-related recessions in the ASEAN. Despite this, the unit of measurement for fashionable inconsistency varies greatly throughout hard job in terms of relevance, stability, and organization. In addition, the wrong budget components will show up for some irregular movement, as well as present that lubricating value that appears to be irrelevant all along non-recessions, apart from functioning as one of the most influencing necessities for determining the difference between the U.S. stock market and the rest of the world during recessions.

Anonymized shocks have an uneven influence on U.S. stock returns over the killing phase, and customer shocks have a stronger and longer-lasting impact on U.S. stock returns when financial special interest or pursuit is down. Premature repair-accompanied contemplation, on the other hand, suggests that the changeability of things, along with many other things, seems to play a significant role in the popular idea of an ASEAN-helpless stock market reaction to the fix shock during recessions. It may thus be necessary, as suggested by previous research, to take other forms of changeableness measurements into account in order to better understand that nonlinear link between two sites, namely, the global unrefined petroleum retail and the US stock exchange (for example, Bloom, 2014; Baker et al., 2016; Jurado and others., 2015). This bear might be a research topic in the future since

there is a worry that the nonlinear relationship between the killing cycle and economic conventionalization could be revealed to a higher degree. In addition, to understand the impact of lubricant price shocks ahead of stock market returns, and whether or not this impact is different depending on the type of shock, financiers in lubricant and stock markets, specifically in fashionable oil-connected political territory, consider that the oil–stock connection grants permission to change indifferent time skyline and under various package and sell goods conditions.

Our findings are crucial in helping financiers arrive at the right investment decisions in this situation. Lubricant price shocks have juncture impacts on stock market returns that provide investors a chance to appreciate how lubricant and stock returns are related. Due to benefit distribution and risk management operating an organization's culture bearing continuous attention, this verdict provides recommendations to financiers throughout the globe. As a result, in the event of a negative (definite) change in oil reserves, the financial sector should prepare for a rise (reduction) in their flat scenario for transporting papers' returns. This is due to the negative effect of supply shocks. In spite of this, it is anticipated that the response to a lubricate-demand shock in a trendy lubricate-exporting rural region is likely to be positive in the majority of situations. Our findings, on the other hand, are significant for risk management objectives. Lubricant price shocks are expected to be a risk factor for lubricant send back, and the predicted opportunity-shifting need allows for an effective basis to measure and manage risk.

Recommendations

The inclusive judgment of the study can be valuable for various individuals with a vested interest. For investors, the in better health precision or correctness of package and sell goods risk premium prediction and the something that begins of distributional reversion to timing plan of action maybe worthwhile. Both can improve the exercise and accomplishment of a market-organized plan of action. Particularly, the distributional regression approach maybe comprehensive to different predictors (macroeconomic as well as concerning details) to improve the performance of a specific plan of action. For supervisors, having to do with money resistance of some degree of a market, the being tested dispersion might symbolize a supplementary sign for measuring the package and selling good exposure. It can complement and extend the potential of weighing and quantifying, affecting the entire system's risk in the stock exchange. While it happens intuitive that a group of stocks accompanying an intensely large vegetable can signify a taller likelihood of affecting the entire system question in the following periods, we without doubt need a better understanding of reason the being tested dispersion give facts about future market flow plus in what way or manner this information happens treated marketing. Specifically, a comprehensive statement of results from the examination of the fall in a rush to accomplish concede possibility exist attend in addition to a definitive devote effort to something the spillovers and infection of intoxicated-being tested stocks all along an organized overwhelm. An identification of the being tested dispersion to affecting the entire system imperil rule and economic resistance of some degree can present entertaining awareness around the package and sell goods typical feature that favors crisis-lying down growth. These results are logical accompanying package and sell goods participants change their anticipations during recessions, place services are more exposed, and happen inclined respond to even narrow price shifts. Communicable into concern the rise in the price of an extreme demand person's spirit and vigor merchandise, such as unrefined petroleum, the answer can be very fast all along recessions. Such a reaction can right away carry out services give, overall aggregate demand, and the stock market. Therefore, all the while contractionary periods, it happens crucial for procedure creators to take fundamental walk to make resistant to change unrefined petroleum assess financial value by, such as, give money to get started not foreign builder, lowering tax or fee on person's spirit and vigor imports, and/or give money to get started manufacturing area that exist as soon as possible have connection with lubricate accompanying shocks. These policy conduct grant permission to assist in making smaller belongings of unrefined petroleum products by connecting shocks in contact supply with merchandise package and sell goods.

Future research directions

For labeling this category of shake up and mediating in the stock exchange with excellent adequate resolution, it should take place trendy the oil package to treat the consequence. Stock exchange benefits are derived from several sources, including borrowing rates, the price of currency if traded, and manufacturing costs associated with the creation of products (Al-hajj and others., 2018). As an example, when a lubricant supply (demand) shock occurs, policymakers' strength of mind will likely increase in consideration of the amount paid for money contraction (rise) because of the poetic remembered part of a negative friendship between stock return and lubricant prices. As a result, authorities need to be prepared for the likelihood that stock market returns would increase due to a drop in the value of the lubricant in both lubricant-producing and oil-exporting political area.

A conflict or battle against the impacts of lubricated shocks needs this kind of intervention along with the necessary methods.

As a consequence, governments in lubricant-mean areas remote from the metropolis might, for example, build in imagination or physically an independent source of funding to support their venues while lubricant price rises are taking place. A second course of action, like the use of alternative, self-generated sources of power to reduce dependence on the stock market in the event of an oil shock, might also exist lawfully. Future research may be able to investigate whether or not oil price shocks have a direct impact on the stock market's liquidity. The time-varying impact of various oil price shocks on stock markets under different package and selling product environments is also a promising path for future investigation. Quantile relapse from a crucial point of view may, in this situation, allow one to pick or take anything for oneself.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material; further inquiries can be directed to the corresponding author.

References

Acemoglu, D., Finkelstein, A., and Notowidigdo, M. J. (2013). Income and health spending: Evidence from oil price shocks. *Rev. Econ. Stat.* 95 (4), 1079–1095. doi:10.1162/rest_a_00306

Akhtaruzzaman, M., Boubaker, S., Chiah, M., and Zhong, A. (2021). COVID-19 and oil price risk exposure. *Finance Res. Lett.* 42, 101882. doi:10.1016/j.frl.2020.101882

Al-hajj, E., Al-Mulali, U., and Solarin, S. A. (2018). Oil price shocks and stock returns nexus for Malaysia: Fresh evidence from nonlinear ARDL test. *Energy Rep.* 4, 624–637. doi:10.1016/j.egyr.2018.10.002

Al Refai, H., Zeitun, R., and Eissa, M. A. A. (2022). Impact of global health crisis and oil price shocks on stock markets in the GCC. *Finance Res. Lett.* 45, 102130. doi:10.1016/j.frl.2021.102130

Aljadani, A., Toumi, H., Toumi, S., Hsini, M., and Jallali, B. (2021). Investigation of the N-shaped environmental Kuznets curve for COVID-19 mitigation in the KSA. *Environ. Sci. Pollut. Res. Int.* 28 (23), 29681–29700. doi:10.1007/s11356-021-12713-3

Alsalman, Z., and Herrera, A. M. (2015). Oil price shocks and the US stock market: Do sign and size matter? *Energy J.* 36, 171–188. doi:10.5547/01956574.36.3.zals

Ansell, T., and Cayzer, S. (2018). Limits to growth redux: A system dynamics model for assessing energy and climate change constraints to global growth. *Energy Policy* 120, 514–525. doi:10.1016/j.enpol.2018.05.053

Badeeb, R. A., and Lean, H. H. (2018). Asymmetric impact of oil price on Islamic sectoral stocks. *Energy Econ.* 71, 128–139. doi:10.1016/j.eneco.2017.11.012

Baker, S. R., Bloom, N., and Davis, S. J. (2016). Measuring economic policy uncertainty. *Q. J. Econ.* 131 (4), 1593–1636. doi:10.1093/qje/qjw024

Bala, U., and Chin, L. (2018). Asymmetric impacts of oil price on inflation: An empirical study of African OPEC member countries. *Energies* 11 (11), 3017. doi:10.3390/en11113017

Balcilar, M., Van Eyden, R., Uwilingiye, J., and Gupta, R. (2017). The impact of oil price on South African gdp growth: A bayesian markov switching-VAR analysis. *Afr. Dev. Rev.* 29 (2), 319–336. doi:10.1111/1467-8268.12259

Bams, D., Blanchard, G., Honarvar, I., and Lehnert, T. (2017). Does oil and gold price uncertainty matter for the stock market? *J. Empir. Finance* 44, 270–285. doi:10.1016/j.jempfin.2017.07.003

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors, and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Bashir, M. F. (2022). Oil price shocks, stock market returns, and volatility spillovers: A bibliometric analysis and its implications. *Environ. Sci. Pollut. Res.* 29, 22809–22828. doi:10.1007/s11356-021-18314-4

Bastianin, A., and Manera, M. (2018). How does stock market volatility react to oil price shocks? *Macroecon. Dyn.* 22 (3), 666–682. doi:10.1017/s1365100516000353

Bauer, N., Mouratiadou, I., Luderer, G., Baumstark, L., Brecha, R. J., Edenhofer, O., et al. (2016). Global fossil energy markets and climate change mitigation – An analysis with REMIND. *Clim. change* 136 (1), 69–82. doi:10.1007/s10584-013-0901-6

Bazilian, M., Outhred, H., Miller, A., and Kimble, M. (2010). Opinion: An energy policy approach to climate change. *Energy Sustain. Dev.* 14 (4), 253–255. doi:10.1016/j.esd.2010.07.007

Becken, S., and Lennox, J. (2012). Implications of a long-term increase in oil prices for tourism. *Tour. Manag.* 33 (1), 133–142. doi:10.1016/j.tourman.2011.02.012

Bloom, N. (2014). Fluctuations in uncertainty. *J. Econ. Perspect.* 28 (2), 153–176. doi:10.1257/jep.28.2.153

Bosetti, V., Carraro, C., and Tavoni, M. (2009). Climate change mitigation strategies in fast-growing countries: The benefits of early action. *Energy Econ.* 31, S144–S151. doi:10.1016/j.eneco.2009.06.011

Chen, X., Fu, Q., and Chang, C. P. (2021). What are the shocks of climate change on clean energy investment: A diversified exploration. *Energy Econ.* 95, 105136. doi:10.1016/j.eneco.2021.105136

Choi, S., Furceri, D., Loungani, P., Mishra, S., and Poplawski-Ribeiro, M. (2018). Oil prices and inflation dynamics: Evidence from advanced and developing economies. *J. Int. Money Finance* 82, 71–96. doi:10.1016/j.jimonfin.2017.12.004

Coffman, M. (2010). Oil price shocks in an island economy: An analysis of the oil price-macroeconomy relationship. *Ann. Reg. Sci.* 44 (3), 599–620. doi:10.1007/s00168-008-0271-6

Coffman, M. (2009). University leadership in island energy efficiency mitigation. *Int. J. Sustain. High. Educ.* 10, 239. doi:10.1108/14676370910972558

Considine, J., Hatipoglu, E., and Aldayel, A. (2021). The sensitivity of oil price shocks to preexisting market conditions: A gvar analysis. *J. Commod. Mark.* 2021, 100225. doi:10.1016/j.jcomm.2021.100225

Degiannakis, S., Filis, G., and Panagiotakopoulou, S. (2018). Oil price shocks and uncertainty: How stable is their relationship over time? *Econ. Model.* 72, 42–53. doi:10.1016/j.econmod.2018.01.004

Demirer, R., Ferrer, R., and Shahzad, S. J. H. (2020). Oil price shocks, global financial markets and their connectedness. *Energy Econ.* 88, 104771. doi:10.1016/j.eneco.2020.104771

Diaz, E. M., Molero, J. C., and de Gracia, F. P. (2016). Oil price volatility and stock returns in the G7 economies. *Energy Econ.* 54, 417–430. doi:10.1016/j.eneco.2016.01.002

Dike, J. C. (2014). Does energy efficiency mitigation activity affect crude oil prices? Evidence from dynamic panel model. *J. Energy* 2014, 514029. doi:10.1155/2014/514029

Elder, J. (2004). Another perspective on the effects of inflation uncertainty. *SSRN J.* 36 (5), 911–928. doi:10.2139/ssrn.262182

Engle, R. F., and Kroner, K. F. (1995). Multivariate simultaneous generalized ARCH. *Econ. Theory* 11 (1), 122–150. doi:10.1017/S0266466600009063

Finseraas, H., Høyland, B., and Søyland, M. G. (2021). Climate politics in hard times: How local economic shocks influence MPs attention to climate change. *Eur. J. Political Res.* 60 (3), 738–747. doi:10.1111/1475-6765.12415

Flori, A., Pammolli, F., and Spelta, A. (2021). Commodity prices co-movements and financial stability: A multidimensional visibility nexus with climate conditions. *J. Financial Stab.* 54, 100876. doi:10.1016/j.jfs.2021.100876

Guivarch, C., Hallegatte, S., and Crassous, R. (2009). The resilience of the Indian economy to rising oil prices as a validation test for a global energy–environment–economy CGE model. *Energy Policy* 37 (11), 4259–4266. doi:10.1016/j.enpol.2009.05.025

Hamilton, J. D. (1988). Rational-expectations econometric analysis of changes in regime: An investigation of the term structure of interest rates. *J. Econ. Dyn. Control* 12 (2–3), 385–423. doi:10.1016/0165-1889(88)90047-4

Harvey, M., and Pilgrim, S. (2011). The new competition for land: Food, energy, and climate change. *Food policy* 36, S40–S51. doi:10.1016/j.foodpol.2010.11.009

Herrera, A. M., Karaki, M. B., and Rangaraju, S. K. (2019). Oil price shocks and US economic activity. *Energy policy* 129, 89–99. doi:10.1016/j.enpol.2019.02.011

Hu, C., Liu, X., Pan, B., Chen, B., and Xia, X. (2018). Asymmetric impact of oil price shock on stock market in China: A combination analysis based on svar model and nardl model. *Emerg. Mark. Finance Trade* 54 (8), 1693–1705. doi:10.1080/1540496x.2017.1412303

Huang, J., Dong, X., Chen, J., and Zhong, M. (2022). Do oil prices and economic policy uncertainty matter for precious metal returns? New insights from a TVP-VAR framework. *Int. Rev. Econ. Finance* 78, 433–445. doi:10.1016/j.iref.2021.12.010

Huang, Y., and Feng, G. U. O. (2007). The role of oil price shocks on China's real exchange rate. *China Econ. Rev.* 18 (4), 403–416. doi:10.1016/j.chieco.2006.02.003

Hwang, I., and Kim, J. (2021). Oil price shocks and the us stock market: A nonlinear approach. *J. Empir. Finance* 64, 23–36. doi:10.1016/j.jempfin.2021.08.004

Iqbal, W., Tang, Y. M., Lijun, M., Chau, K. Y., Xuan, W., and Fatima, A. (2022). Energy policy paradox on environmental performance: The moderating role of renewable energy patents. *J. Environ. Manag.* 297, 113230. doi:10.1016/j.jenvman.2021.113230

Jabeur, S. B., Khalfaoui, R., and Arfi, W. B. (2021). The effect of green energy, global environmental indexes, and stock markets in predicting oil price crashes: Evidence from explainable machine learning. *J. Environ. Manag.* 298, 113511. doi:10.1016/j.jenvman.2021.113511

Jiang, Y., Feng, Q., Mo, B., and Nie, H. (2020). Visiting the effects of oil price shocks on exchange rates: Quantile-on-quantile and causality-in-quantiles approaches. *North Am. J. Econ. Finance* 52, 101161. doi:10.1016/j.najef.2020.101161

Jurado, K., Ludvigson, S. C., and Ng, S. (2015). Measuring uncertainty. *Am. Econ. Rev.* 105 (3), 1177–1216. doi:10.1257/aer.20131193

Kassouri, Y., Bilgili, F., and Kuşkaya, S. (2022). A wavelet-based model of world oil shocks interaction with CO2 emissions in the US. *Environ. Sci. Policy* 127, 280–292. doi:10.1016/j.envsci.2021.10.020

Kilian, L., and Park, C. (2009). The impact of oil price shocks on the US stock market. *Int. Econ. Rev.* 50 (4), 1267–1287. doi:10.1111/j.1468-2354.2009.00568.x

Kilian, L., and Vigfusson, R. J. (2011). Are the responses of the US economy asymmetric in energy price increases and decreases? *Quant. Econom.* 2 (3), 419–453. doi:10.3982/QE99

Kilian, L., and Vigfusson, R. J. (2017). The role of oil price shocks in causing US recessions. *J. Money, Credit Bank.* 49 (8), 1747–1776. doi:10.1111/jmcb.12430

Klenert, D., Funke, F., Mattauch, L., and O'Callaghan, B. (2020). Five lessons from COVID-19 for advancing climate change mitigation. *Environ. Resour. Econ. (Dordr).* 76 (4), 751–778. doi:10.1007/s10640-020-00453-w

Kolk, A., and Levy, D. (2003). "Multinationals and global energy efficiency: Issues for the automotive and oil industries," in *Multinationals, environment and global competition* (Bingley, UK: Emerald Group Publishing Limited).

Koop, G., Pesaran, M. H., and Potter, S. M. (1996). Impulse response analysis in nonlinear multivariate models. *J. Econ.* 74 (1), 119–147. doi:10.1016/0304-4076(95)01753-4

Lee, K., and Ni, S. (2002). On the dynamic effects of oil price shocks: A study using industry level data. *J. Monetary Econ.* 49 (4), 823–852. doi:10.1016/s0304-3932(02)00114-9

Lettau, M., and Ludvigson, S. (2001). Consumption, aggregate wealth, and expected stock returns. *J. Finance* 56 (3), 815–849. doi:10.1111/0022-1082.00347

Li, Y., and Guo, J. (2022). The asymmetric impacts of oil price and shocks on inflation in BRICS: A multiple threshold nonlinear ARDL model. *Appl. Econ.* 54 (12), 1377–1395. doi:10.1080/00036846.2021.1976386

Lin, S. M., Feng, J. C., and Ko, F. K. (2012). Assessing Taiwan's energy security under climate change. *Nat. Hazards (Dordr).* 62 (1), 3–15. doi:10.1007/s11069-011-0006-3

Liu, R., Chen, J., and Wen, F. (2021). The nonlinear effect of oil price shocks on financial stress: Evidence from China. *North Am. J. Econ. Finance* 55, 101317. doi:10.1016/j.najef.2020.101317

Liu, Z., Ding, Z., Lv, T., Wu, J. S., and Qiang, W. (2019). Financial factors affecting oil price change and oil-stock interactions: A review and future perspectives. *Nat. Hazards (Dordr).* 95 (1), 207–225. doi:10.1007/s11069-018-3473-y

Malik, F., and Umar, Z. (2019). Dynamic connectedness of oil price shocks and exchange rates. *Energy Econ.* 84, 104501. doi:10.1016/j.eneco.2019.104501

Malik, M. Y., Latif, K., Khan, Z., Butt, H. D., Hussain, M., and Nadeem, M. A. (2020). Symmetric and asymmetric impact of oil price, FDI and economic growth on carbon emission in Pakistan: Evidence from ARDL and non-linear ARDL approach. *Sci. Total Environ.* 726, 138421. doi:10.1016/j.scitotenv.2020.138421

Maio, P. (2016). Cross-sectional return dispersion and the equity premium. *J. Financial Mark.* 29, 87–109. doi:10.1016/j.finmar.2015.09.001

Mohamued, E. A., Ahmed, M., Pypłacz, P., Liczmańska-Kopcewicz, K., and Khan, M. A. (2021). Global oil price and innovation for sustainability: The impact of R&D spending, oil price and oil price volatility on GHG emissions. *Energies* 14 (6), 1757. doi:10.3390/en14061757

Murshed, M., and Tanha, M. M. (2021). Oil price shocks and renewable energy transition: Empirical evidence from net oil-importing South Asian economies. *Energy Ecol. Environ.* 6 (3), 183–203. doi:10.1007/s40974-020-00168-0

Neely, C. J., Rapach, D. E., Tu, J., and Zhou, G. (2014). Forecasting the equity risk premium: The role of technical indicators. *Manag. Sci.* 60 (7), 1772–1791. doi:10.1287/mnsc.2013.1838

Nunes, I. C., and Catalão-Lopes, M. (2020). The impact of oil shocks on innovation for alternative sources of energy: Is there an asymmetric response when oil prices go up or down? *J. Commod. Mark.* 19, 100108. doi:10.1016/j.jcomm.2019.100108

Park, J., and Ratti, R. A. (2008). Oil price shocks and stock markets in the US and 13 European countries. *Energy Econ.* 30 (5), 2587–2608. doi:10.1016/j.eneco.2008.04.003

Pentelow, L., and Scott, D. (2010). The implications of climate change mitigation policy and oil price volatility for tourism arrivals to the caribbean. *Tour. Hosp. Plan. Dev.* 7 (3), 301–315. doi:10.1080/1479053x.2010.502390

Pollet, J. M., and Wilson, M. (2010). Average correlation and stock market returns. *J. Financial Econ.* 96 (3), 364–380. doi:10.1016/j.jfineco.2010.02.011

Prideaux, B., Thompson, M., and Pabel, A. (2020). Lessons from COVID-19 can prepare global tourism for the economic transformation needed to combat climate change. *Tour. Geogr.* 22 (3), 667–678. doi:10.1080/14616688.2020.1762117

Qiang, W., Lin, A., Zhao, C., Liu, Z., Liu, M., and Wang, X. (2019). The impact of international crude oil price fluctuation on the exchange rate of petroleum-importing countries: A summary of recent studies. *Nat. Hazards (Dordr).* 95 (1), 227–239. doi:10.1007/s11069-018-3501-y

Sadorsky, P. (1999). Oil price shocks and stock market activity. *Energy Econ.* (5), 449–469. doi:10.1016/S0140-9883(99)00020-1

Salisu, A. A., Vo, X. V., and Lawal, A. (2021). Hedging oil price risk with gold during COVID-19 pandemic. *Resour. Policy* 70, 101897. doi:10.1016/j.resourpol.2020.101897

Shahbaz, M., Kablan, S., Hammoudeh, S., Nasir, M. A., and Kontoleon, A. (2020). Environmental implications of increased US oil production and liberal growth

agenda in post-Paris Agreement era. *J. Environ. Manag.* 271, 110785. doi:10.1016/j.jenvman.2020.110785

Solaymani, S., Yusof, N. Y. B. M., and Yavari, A. (2015). "The role of government climate policy in an oil price shock: A cge simulation analysis," in 2015 International Conference on Modeling, Simulation and Applied Mathematics (Amsterdam, Netherlands: Atlantis Press), 260–263.

Su, C. W., Huang, S. W., Qin, M., and Umar, M. (2021). Does crude oil price stimulate economic policy uncertainty in BRICS? *Pacific-Basin Finance J.* 66, 101519. doi:10.1016/j.pacfin.2021.101519

Taghizadeh-Hesary, F., Rasoulinezhad, E., and Yoshino, N. (2019). Energy and food security: Linkages through price volatility. *Energy Policy* 128, 796–806. doi:10.1016/j.enpol.2018.12.043

Tang, W., Wu, L., and Zhang, Z. (2010). Oil price shocks and their short-and long-term effects on the Chinese economy. *Energy Econ.* 32, S3–S14. doi:10.1016/j.eneco.2010.01.002

Trnka, M., Feng, S., Semenov, M. A., Olesen, J. E., Kersebaum, K. C., Rötter, R. P., et al. (2019). Mitigation efforts will not fully alleviate the increase in water scarcity occurrence probability in wheat-producing areas. *Sci. Adv.* 5 (9), eaau2406. doi:10.1126/sciadv.aau2406

Van Eyden, R., Difeto, M., Gupta, R., and Wohar, M. E. (2019). Oil price volatility and economic growth: Evidence from advanced economies using more than a century's data. *Appl. energy* 233, 612–621. doi:10.1016/j.apenergy.2018.10.049

Van Hoa, T., and Limskul, K. (2013). Economic impact of CO2 emissions on Thailand's growth and climate change mitigation policy: A modelling analysis. *Econ. Model.* 33, 651–658. doi:10.1016/j.econmod.2013.04.019

Vandyck, T., Kitous, A., Saveyn, B., Keramidas, K., Los Santos, L. R., and Wojtowicz, K. (2018). Economic exposure to oil price shocks and the fragility of oil-exporting countries. *Energies* 11 (4), 827. doi:10.3390/en11040827

Von Uexkull, N., and Buhaug, H. (2021). Security implications of climate change: A decade of scientific progress. *J. Peace Res.* 58 (1), 3–17. doi:10.1177/0022343320984210

Wang, Q., and Li, R. (2016). Impact of cheaper oil on economic system and climate change: A swot analysis. *Renew. Sustain. Energy Rev.* 54, 925–931. doi:10.1016/j.rser.2015.10.087

Wang, Y., Wu, C., and Yang, L. (2013). Oil price shocks and stock market activities: Evidence from oil-importing and oil-exporting countries. *J. Comp. Econ.* 41 (4), 1220–1239. doi:10.1016/j.jce.2012.12.004

Wen, F., Min, F., Zhang, Y. J., and Yang, C. (2019). Crude oil price shocks, monetary policy, and China's economy. *Int. J. Fin. Econ.* 24 (2), 812–827. doi:10.1002/ijfe.1692

Worrell, E., Bernstein, L., Roy, J., Price, L., and Harnisch, J. (2009). Industrial energy efficiency and climate change mitigation. *Energy Effic.* 2 (2), 109–123. doi:10.1007/s12053-008-9032-8

Zakamulin, V. (2014). Dynamic asset allocation strategies basedon unexpected volatility. *J. Altern. Investments* 16 (4), 37–50. doi:10.3905/jai.2014.16.4.037

Zhang, S., Hu, T., Li, J., Cheng, C., Song, M., Xu, B., et al. (2019). The effects of energy price, technology, and disaster shocks on China's Energy-Environment-Economy system. *J. Clean. Prod.* 207, 204–213. doi:10.1016/j.jclepro.2018.09.256