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The impact of global oil price shocks on the Lebanese stock market

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ABSTRACT

This study investigates the dynamic linkages between oil prices and stock markets, also known as the oil price–stock price nexus. Within the framework of a VAR (vector autoregression) we examine dynamic interactions between daily Brent spot prices and several Lebanese stock prices. As expected, we find evidence of oil prices Granger causing stock prices, but no evidence of the opposite relationship. To better understand how shocks in the oil market are transmitted to the stock market, the orthogonalized impulse response function is examined. The behavior of all stocks examined is very similar; they all respond positively to a shock in crude oil prices on the same day and the day after the shock, with the impact of the shock disappearing thereafter. As for the variance decomposition analysis, it shows that the forecast errors of the stocks are largely attributable to their own innovations and the percentages do not change much with time. Only around 1% is attributable to oil shocks, increasing to around 3% after a few days and remaining at that level. Thus, our main conclusion is that the estimated level of the impact of an oil price shock on the Lebanese stock market is positive but marginal.

1. Introduction

The role of oil prices as a crucial determinant of economic growth and international stability has been widely documented starting with Hamilton's [1] influential study. In his paper, Hamilton [1] shows that in the period since World War II every single recession in the USA except one has been preceded by a spike in oil prices. In a recent testimony to the Joint Economic Committee of the US Congress, Hamilton [2] states that:

> "Big increases in the price of oil that were associated with events such as the 1973–74 embargo by the Organization of Arab Petroleum Exporting Countries, the Iranian Revolution in 1978, the Iran-Iraq War in 1980, and the First Persian Gulf War in 1990 were each followed by global economic recessions."

A related strand of literature has investigated the impact of oil price fluctuations on the stock market performance. Theoretically, this relationship can best be explained using an equity pricing model, which suggests that the current price of any equity can be calculated as the present value of the discounted future cash flows. Based on the discounted cash flow method, a stock valuation model, changes in oil prices affect stock prices through two main transmission channels. First, in the absence of substitutes and given that oil is a direct or indirect factor of production for most firms, a rise in oil prices causes a decline in firms' expected earnings resulting in lower cash flows and thus leading to a fall in the stock price [3,4]. Second, higher oil prices imply inflationary pressures leading Central Banks to raise interest rates in order to control prices. Both inflation and higher interest rates result in the use of higher discount rates in the discounted cash flow method, leading to lower stock prices [5].

Practically, it is suggested that traders look at both the commodity (particularly oil) and stock market movements to predict the directions of both stock indices and commodity prices and make their investment decisions [6]. Also, as a result of oil spikes, economic downturns and/or higher inflation will negatively affect consumer confidence, slowing overall consumption and investments [7]. Consequently, it is natural to expect that oil fluctuations will somehow impact the stock markets.

As the world increases its dependence on oil today, and as stock markets continue to grow and develop, researchers are showing growing interest in the relationship between the two. One of the earliest of such studies was that by Kling [8] who investigated the effects of oil shocks on the US stock markets for the period 1973–1982. Although, earlier studies were mostly focused on developed

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countries, this past decade has witnessed greater interest in examining the relationship between international oil prices and stock markets of developing countries [9–14]. However, research on the MENA (Middle East and North Africa) region markets remains very scant including only a few studies focusing on the GCC (Gulf Cooperation Council) countries [15–23], and none on Lebanon.

Studying the relationship between oil prices and the Lebanese stock market is important for several reasons. First, the Lebanese economy in contrast to most other MENA countries, is highly dependent on imported oil products used as a fuel for transportation, heating, electricity generation as well as for other sectors. Therefore, the economy is expected to be highly sensitive to global oil prices and variations in oil prices are expected to eventually propagate to profits, dividends, investments, and stock prices. According to the United Nations Economic and Social Commission of Western Asia [24], the share of total primary energy consumption in 2010 was 96.2% from imported oil products and only 3.8% from domestic sources, specifically from hydro.

Second, oil consumption in recent years is growing at a fast rate making the country even more dependent on imported oil and hence more vulnerable to oil price shocks. Lebanon ranked third among the 14 ESCWA Arab member countries experiencing high oil consumption changes in the period 2007–2010, a period during which the Lebanese oil consumption increased by 34% in just three years [24].

Third, existing studies have produced conflicting results; some find that there is no significant effect of oil price shocks on stock prices, others find a significant positive relationship, while still others find a significant negative effect. Hence, the evidence from the existing literature on the magnitude and sign of the impact of oil price changes on stock prices is still inconclusive.

Lebanese stocks are traded at the BSE (Beirut Stock Exchange), which is the second oldest stock market in the region following the Cairo and Alexandria Stock Exchanges in Egypt. It was primarily established by a decree of the French Commissioner in 1920. Throughout the 1950s and 1960s, the Lebanese stock market was significantly active. However, during the civil war, the BSE witnessed a decline in its trading activity and eventually halted its operations in 1983. The BSE remained closed for thirteen years before it re-opened in January of 1996. GDR (Global Depository Receipts), investment funds shares, preferred stocks, priority shares, and other forms of tradable derivatives were listed and traded at the BSE starting in 2000 [25]. As of January 2013, 28 different types of stocks (common, preferred and GDR stocks) are listed on the BSE. The stocks are categorized into five main sectors, namely: development and reconstruction, banking, trading, industrial, and funds. Table 1 lists the issuers of the Lebanese securities classified under each sector. It is worth noting that the most active stocks on the BSE are those belonging to the banking and development and reconstruction sectors.

Table 1
Issuers at the Beirut Stock Exchange.

Sector	Issuer
Banking	Bank Audi
	BLC Bank
	Bank of Beirut
	Byblos Bank
	Banque Bemo
	BLOM Bank
Development and reconstruction	Solidere
Funds	Beirut Preferred Funds
Industrial	Holcim Liban
	S.L. des Ciments Blancs
Trading	Rasamny Younis Motor Co.

Source: Beirut Stock Exchange [25].

The Lebanese market capitalization amounted to approximately $10,163 million in 2011 making it one of the smallest market capitalizations in the region, while Gulf countries have the highest market caps with Saudi Arabia ranking first ($338,874 million). Comparing the size of the Lebanese market cap on a world scale, it is close to that of Kenya, Panama, and Zimbabwe [26].

Understanding the type of relationship between oil prices and stock prices is beneficial to portfolio managers, investors, financial market regulators, and energy analysts and policymakers. The findings can be utilized to build profitable portfolio strategies for traders. In particular, international investors and their portfolio managers can use this relationship to help them in managing the risk inherent in their portfolios [27,28] by identifying which stocks (or sectors) offer a means of diversification during large swings in oil prices [29]. Stocks of industries or specific companies which are positively correlated to oil prices are recommended when oil prices are expected to rise. On the other hand, stocks with negative sensitivity are considered better investments in times of declining oil price forecasts. Also, portfolio managers can benefit by rebalancing portfolios with stocks from different sectors if these stocks react differently to changes in oil prices. This will allow for risk diversification opportunities to be achieved through investing in stocks across sectors rather than within a sector [27].

Also, in case oil prices are proven to affect the stock market of a certain country, Fayyad and Daly [19] advise policymakers to raise the contribution of non-oil sensitive sectors to GDP (Gross Domestic Product) and to take appropriate measures in order to minimize the impact of any oil shock on the market. Furthermore, governments of oil-importing countries can protect themselves from oil-supply shocks by increasing strategic oil reserves and saving measures through improving energy efficiency, promoting energy conservation and using alternative fuels whose prices are independent from oil prices. Governments of oil-importing countries can also enhance dialog with oil-exporting countries to increase multilateral cooperation and to minimize shocks with unpleasant effects on the economies [12].

This paper contributes to the literature that examines the linkages between oil prices and stock markets of developing oil-importing countries. We use the unrestricted vector autoregression approach together with the impulse response and variance decomposition analyses to investigate the relationship in question. Given the strong evidence provided by existing studies that the impact of oil price shocks differs between sectors, we examine the stocks listed under the development and reconstruction sector in addition to the aggregate stock index. The findings in all cases indicate a significant positive effect. However, this effect is not persistent and disappears within two days of the initial shock.

The remainder of this paper is structured as follows. Section 2 provides a review of the existing literature. In Section 3 we describe the data and the methodology used followed by a presentation and discussion of the empirical results in Section 4. Finally, in Section 5 we offer some concluding remarks on the findings together with suggestions for future research.

2. Literature review

There exists a substantial body of literature investigating the relationship between oil price changes and stock prices. The first study in this strand of literature was conducted by Kling [8] who employed vector autoregression analysis to examine the effect of oil spikes on the S&P500 and the price indexes of five US industries using monthly data for the period 1973–1982. Later, Hamao [30],

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