The tokyo stock exchange economics essay

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Oil is one the factors which had the greatest impact on many economies since 1970. For instance, many economies across the world have witnessed recession due to OPEC's oil embargo in 1974 and similar consequences may occur in the future. Oil-price shocks are one of the primary reasons of macroeconomic fluctuations by Benhmad (2012). For example, Hamilton (2008) mentions that nine out of the ten recessions in the United States between 1945 to 2005 were caused by large increase in oil prices. Therefore, due to the vital role of oil in the economy, their relationship merits more scrutiny. In this regard, first it must be defined that which economic sectors have the potential to be affected by oil prices and then it should be clarified what type of events may influence oil prices. According to Arouri and Fouguau (2009), almost all economic sectors can be affected by oil price shocks but the point is some of these influences are instantaneous and some need more time to affect the economy. For example, an oil price shock may affect stock market and transportation instantaneously but other sectors like tourism may be influenced with a delay of couple of months. In general, as the price of oil increases, the cost of non-oil related companies will rise and consequently leads to the decline in total profit. In this case, a public company may decide to reduce dividend payouts which itself sends signal to stock markets about the current situation of this company. Thus, oil-price variations have major impact on stock price volatility in many countries specially developing economies (Basher and Sadorsky, 2006). Over the past quarter century, the role of the stock market has significantly risen in many industrialized countries. Jansen and Nahuis (2003) stated that, stock market capitalizations, expressed as a percentage of GDP, have doubled or tripled since 1985. Due to the substantial role of stock market and oil in the

economy, this dissertation will investigate the relationship of oil-price shocks and stock markets of the G8 countries. 1. 1 Aim and Importance of the StudyThis study empirically investigates the impact of oil price shocks on stock markets of the G8 countries including Canada, France, Germany, Italy, Japan, U. K., U. S., and Russia. Although some researchers have done studies about the effect of oil price shocks on stock markets, but this study differs in term of number and type of countries and also the methodologies used. For instance, two countries of the G8, Canada and Russia, are net oil exporters and the rest are net oil importers. This will create an opportunity to monitor the behavior of stock markets of oil-exporting and oil-importing countries simultaneously. In order to carry out this investigation, some technics and methodologies will be used such as vector autoregressive (VAR), impulse response function (IRF), Forecast error variance decomposition and volatility spillovers. 1. 2 Structure of the StudyThe present study is structured as follows: in Chapter Two, the current theoretical and empirical literature will be reviewed. Later, current situation of oil industry and historical oil shocks will be discussed in Chapter Three. Chapter Four gives some information about history and formation of the stock markets of the G8 countries. In Chapter Five, data and methodologies which have been used in this thesis will be introduced. Empirical analysis will be carried out in Chapter Six. Finally, Chapter Seven will conclude this study and gives some policy implications. Chapter 22 LITERATURE REVIEWThe study of the role of oil price shocks in United States by Hamilton (1983) had a great impact on the literature of macroeconomics of oil shocks. In that research he found that oil price changes has a strong casual and negative correlation with the U. S. real GNP growth. Further, he mentions that oil shocks caused at least some of U.

S. recessions prior to 1972. Sadorsky in 1999 by using a vector autoregression method shows that oil prices and oil price volatility both affect real stock returns significantly. He says that oil price dynamics have changed and for instance, after 1986, oil price changes explain a larger proportion of the forecast error variance in real stock returns than do interest rates. He also gives some evidence that oil price volatility has asymmetric effects on the economy. Papapetrou (2001) examines the effect of oil and stock prices, interest rates, real economic activity and employment in order to understand the connection between thesefactors for the case of Greece and gives a summary that the changes in oil prices affect real economic activity and employment. Gounder and Bartleet (2007) examine the impact of changes in the world oil price on New Zealand's economic growth over the period 1989-2006. They conclude that New Zealand's economy is vulnerable to the world oil price fluctuations. By using causality analysis, the generalized impulse responses and variance decompositions, they confirm that there is a direct negative relationship between the net oil price shock and economic growth. Park and Ratti have done a research in 2008 to find out the linkage between oil price shocks and real stock returns. This study covers the U. S. and 13 European countries over 1986: 1–2005: 12. They found out that oil price shocks have a statistically significant impact on real stock returns contemporaneously and/or within one month. They demonstrate that Norway as an oil exporter shows significant positive response of real stock returns due to an oil price shock. Other results illustrate that only oil importing European Countries show asymmetric effects on real stock returns because of positive and negative oil price shocks. Jbir and Zouari-Ghorbel (2009) used a vector autoregression (VAR) method to

study the relationship between oil prices and macroeconomic indicators of Tunisia overt the period of 1993 Q1 to 2007 Q3. The results indicate that the model using both linear and non-linear specifications of oil price shock has no direct impact on the economic activity. He concludes that oil price shocks affect economic activity indirectly via the channel of government's spending. Al-Fayoumi (2009) examines the relationship between oil price changes and stock market returns in three oil importing countries including Tunisia, Turkey, and Jordan. He used monthly data of oil prices, interest rate, industrial production, and stock market indices and analyzed them using a Vector Error Correction Model (VECM). Based on the data from December 1997 to March 2008, he said that the hypothesis that oil prices affect stock market returns in these countries cannot be accepted. However, the results indicate that the effect of the local macroeconomic variables on the variation in stock market returns is more significant than that of oil prices. Arouri and Nguyen (2010) investigate the responses of stock markets returns in GCC countries to oil price shocks by using linear and nonlinear models. He found out that stock market returns significantly respond to oil price movements in Oman, Qatar, Saudi Arabia and UAE. However, there is no evidence that oil price variations can affect stock market returns of Bahrain and Kuwait. Ono (2011) examines the effect of oil price changes on real stock returns using VAR models for Brazil, China, India and Russia over the period of 1999: 1-2009: 9. The results indicate that although real stock returns positively and significantly respond to the oil price shocks for China, India and Russia, but for Brazil it shows no significant response. Moreover, asymmetric effects of oil price increases and decreases are just significant for India. The forecast error variance decomposition suggests that the effect of oil price shocks to

variability in real stock returns is large and significant for China and Russia. Hamilton (2011) explains that although oil was less important economically in the last century than it is today, but there are interesting interactions between events in that time and more recent developments. He concludes that after each of major post-war oil shocks, the world has seen economic recessions. Berk and Aydogan (2012) investigate the effect of oil price changes on the stock market returns of Turkey. They employed a vector autoregression (VAR) model using daily data of Brent crude oil prices and the ISE-100 of Istanbul Stock Exchange over the period of 1990: 1 to 2011: 11. They also analyzed the relationship among oil prices and stock market returns under global liquidity conditions by using S&P 500 market volatility index (VIX) as a liquidity proxy variable. Variance decomposition results show that global liquidity conditions account for the greater amount of variation in Istanbul's stock market returns rather than oil price shocks. Moshiri (2011) finds that lower oil prices would lead to major revenue slashes and stagnation in the economies of oil-exporting developing countries. Nevertheless, higher oil prices with higher revenues do not lead to a sustainable economic growth. He employed a vector autoregressive (VAR) model with a GARCH-based oil price shocks to evaluate the asymmetric effect of oil shocks on six OPEC members. Lee and Chiou (2011) develop a two-step methodology to examine the asymmetric effect of oil price shocks on stock returns. They also monitored oil price volatility using a regime-switching model. The findings show that unforeseen asymmetric price changes lead to negative impacts on S&P 500 returns. Conversely, the same result does not hold in a regime of lower oil price variations. Finally, they suggest that a well-diversified portfolio with a proper consideration of oil

price shocks, will lead to the betterment of oil price risk hedging strategies. Now, it's time to talk about what is an oil shock and how does it may happen. Hamilton defines that oil shocks just happen when oil-price changes more than what had been experienced in the last 12 months. Although, we know that oil-price shocks will affect the macroeconomic variables but it is also important to know whether these effects are negative or positive. Despite the major role of oil-price spikes prior to recessions, however, large falls in oil prices have not caused high economic growths. As a result, it can be concluded that, oil-price shocks are directionally asymmetric and therefore large positive oil-price shocks are more important that negative ones by Benhmad (2012). There are two major factors that may cause oil-price shocks which are oil supply and oil demand shocks. The oil supply shock can be defined as any event which can change the supply of oil and suddenly changes its price. These shocks can be negative (due to a decrease in supply) or positive (due to increase in supply). Nevertheless, they are almost always negative and seldom positive. The oil demand shock can be defined as any event which can suddenly change the demand either for oil consumption or oil procurement. Obviously, a positive oil demand shock results in oil-price rise and a negative one leads to oil-price fall. Now, it's worthwhile to review some of the major world events which have influenced the crude oil prices. According to Hamilton (2011) and Cavallo and Wu (2006), these events caused substantial crude oil price changes: In this section, the oil industry will be reviewed from both producer and consumer point of views. Nowadays, the oil industry requires a chain of activities such as exploration, extraction, refining and transportation to be done in order to turn the wheels of other industries. This shows the heavy dependency of the

other industries on the outputs of the oil industry ranging from petrol to lubricants and many other petrochemical materials and therefore it is a crucial concern for many nations. From the time of its exploration till now, the oil has remained as one of the most strategic goods for all countries. As Rüdiger Graf (2012) describes, some countries beside of the huge financial benefit from oil production, treat it as a strong weapon to achieve various goals. The most proper example is the OPEC oil embargo in 1974 against Israel and its allies. After this phenomenon, the World familiarized with the " petropolitics" terminology which shows the significant role of oil in today's world. Although, the World has witnessed many improvements and developments in renewable and green energies, but still there is a long way to go to make them more efficient and sustainable. According to the BP Statistical Review (2012), Renewable energies in total account for 2. 1% of the global energy consumption whereas oil's share of global energy consumption is 33. 1% which makes it the world's leading fuel. Also, its annual global production has increased by 1. 3% by the end of 2011. Due to the substantial role of oil in global and national economies, the current situation of this industry will be reviewed infographically in Figures 2-5. Figure 2: Distribution of oil reserves in 2012Figure 3: Oil production in 2012Figure 4: Oil consumption in 2012Figure 5: Oil refinery capacities in 2012Chapter 44 STOCK MARKETS REVIEW4. 1 Toronto Stock ExchangeToronto Stock Exchange (TSX) is the largest stock exchange in Canada and the seventh largest in the world in terms of market capitalization. It is located in Canada's largest city, Toronto; and it is owned and operated by the TMX Group. The oil and gas sector is the flagship of the Toronto Stock Exchange as it hosts more oil and gas listed companies than

any other exchange in the world. Due to this characteristic, real stock return on its main index is very sensitive to oil price shocks. Its main index is " S&P/TSX Composite" and includes the stock prices of the largest companies on the TSX as measured by market capitalization. (www. wikipedia. com, 2013). Figure 6: S&P/TSX Composite Index 1993-20114. 2 Paris Stock ExchangeThe Paris Stock Exchange or " Bourse de Paris" is known as Euronext Paris. In September 2000, the Amsterdam, Brussels and Paris stock exchanges merged to establish Euronext stock exchange. Subsequently, the Euronext expanded its coverage by taking over the Lisbon stock exchange and London's International Financial Futures and Options Exchange. Furthermore, it is the second largest stock exchange in Europe behind the London Stock Exchange. Currently, it is owned and operated by the NYSE Euronext group, which is the first global stock exchange company (nyx. com, 2013). The main index of Euronext Paris is " CAC 40" which is made up of the 40 most valuables French companies, although half of them are owned by foreigners. The CAC 40 is a market value-weighted index but in December 2003, its weighting system has changed from total market capitalization to free float market capitalization in order to be consistent with other leading indices (wikipedia. com, 2013). Figure 7: CAC 40 Index 1993-20114. 3 Frankfurt Stock ExchangeIn terms of market capitalization, it is the tenth largest stock exchange market in the world and it's located in Frankfurt, Germany. This city also hosts the European Central Bank and that's why it is known as " The City of the Euro" since 1998. The Frankfurt Stock Exchange is owned and operated by Deutsche Börse which also owns the European Futures Exchange (Eurex). In 2010, the Frankfurt Stock Exchange agreed to switch from conventional floor trading to full-automated trading and it is

accomplished in May 2011. Today, all trading transactions take place just through the Xetra trading platform. The market's main index is known as DAX and consists of top 30 German companies. DAX is a market-value weighted index and its operator frequently measures the 30 largest companies' performance in terms of market capitalization (wikipedia. com, 2013). Figure 8: DAX Index 1993-20114. 4 Milan Stock ExchangeThis is the main stock exchange of Italy and due to this it's known as " Borsa Italiana" and it is located in Milan. Historically, the today's stock exchange has originated from the " Borsa di commercio di Milano" (Milan Commodity Exchange) which was established in February 1808 and it was privatized in 1997 when it was sold to a group of banks. Later in October 2007, it was merged with the London Stock Exchange Group to create one of the largest stock exchanges in Europe. The main index of the Milan Stock Exchange was S&P/MIB until June 2009 but after the merger with London Stock Exchange Group the Index responsibility was passed to FTSE Group and it has renamed to FTSE MIB. Today, this index consists of stock prices of the 40 largest companies in Borsa Italiana and it's a market-value weighted index (wikipedia. com, 2013). Figure 9: FTSE MIB Index 1993-20114. 5 Tokyo Stock ExchangeThe Tokyo Stock Exchange (TSE) is the third largest stock exchange in the world in terms of market capitalization. The TSE was terminated the conventional floor trading after 120 years on April 30, 1999 seeking for more market efficiency. Now, the TSE hosts 2, 292 listed companies with market capitalization of nearly US$3. 5 trillion by December 2012. In July 2012, the Japan Fair Trade Commission has approved a planned merger with the Osaka Securities Exchange. The new entity, the Japan Exchange Group (JPX) will start operation on January 2013. The main stock

index of TSE is Nikkei 225 and it has been calculated once a day by the Nihon Keizai Shimbun newspaper since 1950. This index is a Yen-denominated price-weighted index and the components are reviewed every year (wikipedia. com, 2013). Figure 10: Nikkei 225 Index 1993-20114. 6 Moscow Stock ExchangeIt is the largest stock exchange in Russian Federation, located in Moscow, trading currencies, equities, derivatives and bonds. It was officially established in December 2011 by the merger of the two largest Moscow stock exchanges, the Russian Trading System and the Moscow Interbank Currency Exchange. Both organizations were shaped in the 1990s and for almost twenty years they were the most important exchanges in Russia, with the MICEX and RTS indices being among the world's top stock indices. This unification formed a single legal entity that is likely to turn into a leading stock exchange. The total market capitalization exceeds US$ 0. 825 trillion by the end of December 2012. Also, this merger will result in unification of MICEX and RTS indices in the coming future. In this study, Russia's real stock return has calculated based on RTS Index. It is a free-float capitalization-weighted index of stocks of the 50 largest Russian companies traded on the Moscow Exchange (wikipedia. com, 2013). Figure 11: RTS Index 1993-20114. 7 London Stock ExchangeThis stock exchange located in London in the United Kingdom. The Exchange was founded in 1801 and by the end of 2012 its market capitalization is US$3. 2 trillion which makes it the world's third largest stock exchange and the largest in Europe. LSE is the most international stock exchange in the world by hosting various companies from more than 70 countries. There are 2869 listed companies in London Stock Exchange. Currently, it's owned and operated by the London Stock Exchange Group. FTSE 100 or, informally, the " footsie" is the main

index of LSE, is a stock index of the 100 companies listed on the London Stock Exchange with the largest market capitalization. It is a free-float capitalization-weighted index and it's maintained by the FTSE Group, a subsidiary of the London Stock Exchange Group. It is one of the most widely used stock indices and is seen as an indicator of business prosperity (wikipedia. com, 2013). Figure 12: FTSE 100 Index 1993-20114. 8 New York Stock ExchangeIt is the world's largest stock exchange and located at 11 Wall Street, Lower Manhattan, New York City, United States. By the end of 2012, the market capitalization of its listed companies has reached US$14. 085 trillion. Moreover, average daily trading value was around US$153 billion in 2008. The New York Stock Exchange is operated by NYSE Euronext, as a result of the merger with Euronext in 2007. The main index is The NYSE Composite index covering all common stock listed on the New York Stock Exchange, including American Real Estate Investment Trusts, Depositary Receipts and foreign listings. Since, the stocks of many foreign companies are in included in NYSE Composite, another leading index, S&P 500 has chosen for this study. This index is made up of stock prices of 500 largest companies listed in NYSE and it is maintained by Standard and Poor's. Like other leading indices, it's a free-float capitalization weighted index (www. wikinvest. com, 2013).