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Bakalářská práce



Kurzové systémy a stabilita měnových kurzů
(případ zemí exportujících ropu)

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Bachelor thesis



Exchange rate regimes and stability of exchange rates
(The Case of Oil-Exporting Countries)

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Declaration

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledged.

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Author signature

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Ekaterina Zaborskikh

ABSTRAKT

Bakalářská práce je zaměřena na kurzové systémy a stabilitu měnových kurzů zemí exportujících ropu. Práce je rozdělena do čtyř kapitol. V první kapitole jsou charakterizovány kurzové režimy, výhody pevného a plovoucího měnového kurzu. Druhá kapitola je věnována historickému vývoji cen ropy, faktorům, které ceny ropy ovlivňují a následkům jejich poklesu. Následně jsou popsány příčiny posledního propadu cen ropy v období 2014–2015 a systém tvorby jejich cen. Třetí kapitola má praktické zaměření a obsahuje spočítané korelační koeficienty mezi vývojem cen ropy a měnovými kurzy vybraných exportérů ropy. Ve čtvrté kapitole jsou popsány kritéria výběru vhodného kurzového režimu pro země exportující ropu.

Klíčová slova: kurzové systémy, stabilita měnových kurzů, vývoj cen ropy, země exportující ropu.

ABSTRACT

This bachelor thesis is focused on exchange rate regimes and stability of exchange rates in case of oil-exporting countries. The bachelor thesis is divided into four chapters. The first chapter describes exchange rate regimes, advantages of fixed exchange rates and floating. The second chapter is about development of oil prices, factors influencing oil prices and economic and financial consequences of the decline in oil prices. Furthermore, the reasons of the sharp drop in oil prices in 2014-2015 and oil pricing system are described. The third chapter is more practically oriented and includes calculated correlation coefficients between oil prices and exchange rates of chosen oil-exporting countries. The last chapter describes criteria for choosing a suitable exchange rate regime for oil-exporting countries.

Key words: exchange rate regimes, stability of exchange rates, development of the oil prices, oil-exporting countries.

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INTRODUCTION

My bachelor thesis is devoted to the theme «Exchange rate regimes and stability of exchange rates (The Case of Oil-Exporting Countries)»

There are two reasons that motivated me to choose this theme. Primarily, my personal interest in the oil industry and exchange rate regimes of oil-exporting countries. Secondly, the recent decline in oil prices in 2014-2015 that makes my theme relevant and important.

The main goal of my bachelor thesis was to analyze exchange rate regimes of oil-exporting countries and their reaction to the changes of the oil prices. For this purpose I chose five oil-exporting countries (Norway, Russia, Saudi Arabia, the United Arab Emirates and Kuwait) with different economic developments and exchange rate regimes. For chosen countries there were calculated correlation coefficients between their exchange rates and oil prices over the last ten years and offered some explanations of their variations.

My bachelor thesis is divided into four chapters. The first chapter is devoted to the exchange rate regimes and includes their description, advantages and disadvantages of both fixed and floating exchange rates.

The second chapter is about the development of oil prices, its history over the past 30 years, factors influencing oil prices, consequences of their declines and reasons of the sharp drop in the oil prices in 2014-2015. Further, the oil pricing system and formula pricing are described.

The third chapter is more practical and includes calculated correlation coefficients between the oil prices and exchange rates (currency units per SDR) of oil-exporting countries. The reason for this choice is their orientation to the oil export and different exchange rate regimes: Norway and Russia have floating exchange rates, Saudi Arabian riyal and the United Arab Emirates dirham are pegged to the U.S. dollar and Kuwaiti dinar is pegged to a weighted currency basket. Furthermore, this chapter includes the explanation of the significant variations between their correlation coefficients.

The fourth chapter is devoted to the description of the exchange rate policies of the oil-exporting countries and includes a set of criteria for choosing a suitable exchange rate regime.

1. THEORY OF EXCHANGE RATES

Classifying Countries into Regimes

There are a number of exchange rate regimes and they can be classified in different ways. In this chapter eight regimes are grouped into the three categories of fixed regimes, intermediate, and floating.

I. Fixed Arrangements

- a) Currency Unions
- b) Currency Boards

II. Intermediate Arrangements

- a) Adjustable pegs
- b) Crawling pegs
- c) Basket pegs
- d) Target zone or bands

III. Floating exchange rates

- a) Managed floating
- b) Free floating¹

1.1 FIXED ARRANGEMENTS

A fixed exchange rate pegs the value of a currency to a stronger foreign currency. Under this regime fluctuations of the particular currency to which the local currency is pegged can cause volatility in the country's economy. For example, the dollar's appreciation from 1995 to 2001 was a period of the appreciation for many currencies pegged to the dollar.

It has many advantages, especially for developing countries that have a lack of confidence in their economic policies. And such pegs have been associated with lower

¹ BORDO, M and J. HAROLD.(1992), Working Paper 92, Exchange Rate Regimes Past, Present and Future.Retrieved March 29, 2016,

inflation. Nevertheless, countries with fixed exchange rates are more vulnerable to currency crises.²

Currency Unions

A currency union is an exchange rate regime under which several countries use the same currency. In some special cases they can have more than a single currency, but currencies should have a fixed exchange rate with each other.

One of the first known examples of currency union was the Latin Monetary Union in the 19th century, when most of the Europe's currencies were made out of precious metal. Although the project failed, it properly worked for a few decades. Nowadays, the best known example of a current currency union is Eurozone, where 19 countries share the Euro.

Exchange rate stability and a full financial integration within the currency union are achieved to the detriment of the monetary independence. There is a necessity to have a common central bank in order to implement competent monetary policy to provide a correct functioning of the currency union.

The impact of currency union on the members' countries has both positive and negative effects. Negative effects include the loss of monetary policy independence, the appearance of problems due to the initial founding of parities or the problems to establish full capital mobility. Positive effects are the absence of the uncertainty in the fluctuation of exchange rates, decreasing of the transaction costs between countries, higher monetary stability and inflation supervision by the central bank.³

Currency boards

A currency board is based on an explicit legislative commitment to exchange domestic currency for a foreign currency at a fixed exchange rate. In order to this regime work properly is necessary to have a long-term commitment to the system and automatic currency convertibility. The essential characteristic of this regime is the existence of a legal barrier to change the exchange rate and legal restrictions on the use of other policy tools.

² FRANKEL, J.A. (2003), Experience of and Lessons from Exchange Rate Regime in Emerging Economies. Retrieved March 30, 2016

³ Exchange rate regimes: Monetary union | Policonomics. Retrieved March 30, 2016

The first currency boards occurred in the nineteenth century in Britain and France's colonies. In 1844 were created official principles of the currency board by the British Bank Charter Act.

Currency board has some advantages such as low inflation, lower interest rates and economic credibility. However, there is no monetary independence because a monetary policy is focused on the maintaining of the reserve's monetary supply at the expense of other internal considerations. Monetary policy is strictly limited and a central bank does not play the role of a lender-of-last-resort.⁴

1.2 INTERMEDIATE ARRANGEMENTS

Intermediate arrangements include four different regimes: adjustable peg - countries can periodically readjust their pegs; crawling peg - the peg is regularly rearrange in a series of devaluations; basket peg - the exchange rate is fixed in terms of a weighted basket of foreign currencies; target zones or bands - authorities intervene if the exchange rate hits pre announced margins on either side of a central parity.

Adjustable pegs

An adjustable peg exchange rate is a system under which a currency is pegged to a certain level against another stronger currency such as the Dollar or Euro. Commonly with a degree of flexibility of 2% against a certain level. If the exchange rate fluctuates by more than the arranged level, the Central bank has to intervene to maintain the target exchange rate peg. An adjustable peg system usually lets countries to overestimate their pegs, if it is essential to regain competitiveness. An example of an adjustable peg system can be the Bretton woods system of the 1960s and 1970s. Nowadays some Asian countries have an unofficial peg against the dollar.⁵

⁴ BALINO, T. J. a C. ENOCH. Currency board arrangements: issues and experiences.

⁵ Adjustable peg exchange rate | Economics Help. Retrieved April 2, 2016, available at <http://www.economicshelp.org/blog/glossary/adjustable-peg/>

Crawling peg

The crawling-peg system is defined by small, frequent changes in the par value of its currency for correction balance-of-payments disequilibriums. Both deficit and surplus nations keep adjusting until the desired exchange-rate level is reached. The term crawling peg means that par-value changes are implemented in a number of small steps, making the process of exchange-rate adjustment continuous. This regime has been used mainly by nations with high inflation rates.⁶

For instance, on October 15, 1991 Poland adopted a preannounced crawling peg regime. The Polish zloty was tied to a currency basket and devaluated with a preannounced monthly rate.⁷

For a further example, can be Mexico in the 1990s, Mexico had fixed currency (Peso) with the U.S. dollar. Due to the significant inflation in Mexico, in comparison to the U.S. It was obvious that the peso would need to be devalued. As a quick devaluation would create instability, Mexico accepted a crawling peg and the peso was slowly devalued toward a more appropriate exchange rate.⁸

Basket Peg

A Basket Peg exchange rate is a system where a currency is pegged to a portfolio of several currencies with different weights (e.g. a basket peg may consist of 40% euros, 35% U.S. dollars and 25% British pounds). These percentages define the basket's value. Pegging to a basket of currencies has the advantage of reducing the transmission of external shocks to the local economy and tempering the exchange rate's exposure to the potentially unpredictable movements of a single currency.⁹

For example, Kuwait was attached to the U.S. dollar till 2007. In 2007 Kuwait shifted to a basket peg, as the U.S. dollar was weak at the time, resulting in high inflation.

⁶ CARBAUGH, Robert J. International economics. Fifteenth edition. Boston, MA: Cengage Learning, 2015. P. 483-484.

⁷ TRENKLER, C. (2000), The Polish crawling peg system: A cointegration analysis, Working Paper.

⁸ What is a "Crawling Peg"? - ForexNews.com. Retrieved April 3, 2016, available at <http://www.forexnews.com/questions/what-is-crawling-peg/>

⁹ Basket Pegs financial definition of Basket Pegs. Retrieved April 5, 2016

An additional example would be the Czech Republic in 1993 a tight peg of the Czech crown to a basket of currencies (65% - the German Mark, 35%- the U.S dollar)¹⁰

Target zone or bands

Target zones are created to stabilize exchange rates. There are many varieties of Target Zone: the edges can be soft or hard, the bands may be either wide or narrow. An Exchange Rate Target Zone is a system under which the flexibility is limited without going as far as fixing or pegging the value of one currency against another. There is a band or zone of values for the exchange rate around a target rate. Within this zone a currency can freely oscillate. If the exchange rate is outside of this zone a central bank has to intervene to keep the rate within.¹¹

1.3 FLOATING EXCHANGE RATES

Floating exchange rates can be divided into: managed floating and free floating.

Managed floating

Managed floating is a system under which a country's exchange rate is not pegged, nevertheless the monetary authorities try to manage it. Central banks attempt to influence the exchange rate by buying currency (when its price is going to fall) and selling (when its price is going to rise) without having an announced target path for the exchange rate. There are several indicators for managing: the balance of payments position, the level of international reserves, and parallel market developments. Another way to influence the exchange rate is macroeconomic policies. Higher interest rates tend to bring inward capital and improve the trade balance; lower interest rates have the opposite effects. Intervention may be direct or indirect. Central banks can intervene directly by using their currency reserves to buy a specific currency in the foreign exchange market and indirectly by increasing their interest rates, thereby attracting a foreign demand for the home currency to buy high-yield

¹⁰ STAVAREK, D. and S. POLOUCEK (eds.). Consequences of the European monetary integration on financial systems. Newcastle, U.K.: Cambridge Scholars, 2008, page. 53

¹¹ Exchange Rate Target Zones. Retrieved April 10, 2016

securities. According to the International Monetary Fund 82 countries used a managed float, or 43% of all countries (2014) (moving to flexible exchange rate, 10).

Free floating

The exchange rate is determined by market forces of demand and supply of domestic and foreign currency. Where government official interventions are nonexistent. In other words, free floating exchange rates change freely and are determined by trading in the forex market. A freely floating exchange rate system allows complete flexibility. Countries keep their monetary independence and focus on the internal aspects of their economy, control inflation and unemployment without disturbing by external aspects. Under free floating countries are more isolated from the inflation of other countries.¹²

1.4 ADVANTAGES OF FIXED EXCHANGE RATES VERSUS FLOATING

The starting point in a comparison of floating and fixed exchange rates should be an identification of the advantages of them. There are **four advantages of fixing**:

- 1) Providing a nominal anchor to monetary policy
- 2) Encouraging trade and investment
- 3) Preventing competitive depreciation
- 4) Avoidance of speculative bubbles.

Advantages of floating include:

- 1) Independence of monetary policy
- 2) Allowing automatic adjustment to trade shocks
- 3) Lower requirement for foreign exchange reserves¹³

Advantages of fixed exchange rates

1) The first advantage of fixed exchange rates is the nominal anchor for monetary policy. A central bank that tend to fight inflation can act more reliably by fixing the exchange

¹² CARBAUGH, Robert J. International economics. Fifteenth edition. Boston, MA: Cengage Learning, 2015. P. 156-157.

¹³ Experience of and Lessons from Exchange Rate Regime in Emerging Economies. Retrieved April 15, 2016,

rate. Employers, firm managers, and other persons responsible for setting salaries and prices realize that inflation will remain low in the future because a central bank is not allowed to expand as the currency is pegged. If employers and firm managers have low expectations of inflation, they set wages and prices accordingly. As a result, the country can achieve a lower level of inflation for any given level of output. The nominal anchor argument assumes that pegging is to a hard currency. In 1991 after the separation of the Soviet Union, most of the 15 newly autonomous states made a decision that the Russian rouble cannot be a good nominal anchor and investigated alternative nominal anchors.

2) The next advantage of fixed exchange rates is elimination of uncertainty because of the exchange rate risk. Exchange rate volatility causes unpredictability that would discourage international trade and investment. In contrast to floating, fixed exchange rate would eliminate exchange rate risk; therefore, encourage international trade and investment. There are three reasons that make academic economists skeptical of this claim. First, exchange rate uncertainty is only the symptom of variability in economic fundamentals. If it is blocked in the foreign exchange market, it will reveal somewhere else, e.g., in the variability of the price level. Second, importers, exporters, borrowers, and lenders and anyone else who is adversely affected by exchange rate variability, can use forward markets to hedge away the risk. Third, it is difficult to distinguish a negative statistical effect from higher exchange rate volatility on trade.¹⁴

3) A third advantage of fixed exchange rates is prevention of competitive appreciation and competitive depreciation. Fixed exchange rates can be effective institution for achieving the cooperative solution against the situation where each country pointless tries to win a trade advantage over its neighbors.

4) Avoidance of speculative bubbles of the sort of that pushed up the dollar in 1985 or the yen in 1995. As was already noted, some exchange rate fluctuations occur irrelevant to economic fundamentals. This investigation allows at least the possibility that, if the exchange rate fluctuations were excluded, there might not be an outbreak of fundamental uncertainty somewhere else.

¹⁴ MACDONALD, R. Exchange rate economics: theories and evidence. New York: Routledge, 2007. P. 31

Advantages of floating exchange rates

There are also three advantages of flexible exchange rates:

1) The leading benefit of flexible exchange rate is the possibility to implement an independent monetary policy instead of obliged monetary policy in case of fixed exchange rates. When the economy was thrown into disorder e.g. a decrease in demand for its goods, the government would like to have full authority to respond so that the country does not go into collapse. Fixed exchange rates always divert monetary policy, at least to some extent, to dealing with the balance of payments. For achievement of internal and external balance this single instrument cannot be applied. The situation is riskier in case of the combination of fixed exchange rates and full integration of financial markets: monetary policy is fully powerless to influence internal balance. The domestic interest rate under these conditions becomes completely tie to the foreign interest rate. An increase in the supply of money gives no effect because the new money flows out by means of a balance-of-payments deficit as rapidly as it was created. After a drop in demand, the recession may continue until wages and prices are bid down, or until some other automatic instrument of regulation takes hold, which may be a long time.

On the other hand, by leaving the currency to float, the country can react to a recession via depreciation of the currency and monetary expansion. This encourages the demand for domestic products and returns the economy to anticipated levels of output and employment more quickly than in case of automatic instrument of regulation on which must rely fixed-rate countries.

2) A second advantage of floating is automatic adjustment to trade shocks. By depreciation of the currency any country can react to negative developments in its export market or other shifts in the terms of trade achieving the necessary real depreciation even in the presence of sticky prices or wages.¹⁵

3) The final argument of a floating rate system is lower requirement for foreign exchange reserves. There is absolute necessity to hold large amounts of foreign currency for countries

¹⁵ MACDONALD, R. Exchange rate economics: theories and evidence. New York: Routledge, 2007 P.30.

with a fixed exchange rate to prepare for a time when they have to intervene in order to defend that fixed rate. These reserves have an opportunity cost.¹⁶

¹⁶ MACDONALD, R. Exchange rate economics: theories and evidence. New York: Routledge, 2007. P.31.

2. DEVELOPMENT OF OIL PRICES

Oil industry is indeed an international business which affects most countries in the world. As the oil is the most consumed energy, it plays a crucial role in economy and social development. Crude oil has different types and qualities (e.g Saudi Arabian Arab Light, Nigerian Bonny Light) that determine the price. Oil is the commodity product which is available globally, therefore forecasting or estimating oil price in the future is sophisticated.

2.1 FACTORS INFLUENCING OIL PRICES

The fundamental factor that determines the oil prices is demand and supply. Demand and supply of oil products change according to the market situation. In any market situation, imbalance between demand and supply can affect prices. For example, in the case of higher demand than supply (undersupply), the price is going to rise. The variables which result in imbalance between demand and supply include:

- Economic growth is the factor that has positive correlation with the price of oil. If the economy grows, oil demand will increase. If the world's production is not able to meet the growth, the price of oil is likely to rise.
- Weather and seasonal changes are another factor which can cause the imbalance between oil demand and production. Mainly, the consumption in Europe and the USA is determined by the season, because in winter the demand of heating oil (especially diesel and fuel oil) is higher than other types of oil. As a result, the price of oil tends to increase.
- OPEC's production capacity. As OPEC countries have high reserves and production capacity, they have strong negotiating power for prices. These countries can manage and control production to meet the consumption. If the OPEC production is too high or too low, the price will be accordingly affected. For example, the prolonged strike of oil workers in Nigeria can have consequences in decreasing production and rising prices.
- Policy of OPEC. The OPEC policy also impacts demand and supply of oil market. As, the world's largest oil producers and reserves, the OPEC's announcement to increase or lower the production level, inescapable influence the oil prices.

- Alternative energy. Technology developments to exploit other alternative energy sources such as natural gas, coal and nuclear that can substitute oil at competitive prices, will decrease the demand and price of oil.

Sentimental factor

The oil market is sensitive to news and occurrences. The sentiment of oil traders is the key factor to drive oil prices to quickly respond to the news. The political and economy occurrences (e.g. major war, acts of terrorism or disturbance) as well as the news about the major oil producers in any region impact the world oil prices. As an example, can be a drop in oil prices in 1990 that was caused by Iraqi intrusion into Kuwait.¹⁷

2.2 HISTORY OF OIL PRICES

Compared to previous occasions of price declines during the past 30 years, the last fall in oil prices (June 2014 - January 2015) is a significant but not the extraordinary occasion. Other events of oil price declines of more than 30 percent in a seven-month period occurred since 1984. These correspond to major changes in the global economy and oil market.¹⁸

1985-1986 crude oil market decrease

The crude oil market crash in 1985-86 was mainly associated with significant changes in OPEC policy. The downturn in the oil demand was caused by the growth in non-OPEC crude oil production, and a global economic recession.¹⁹ New discovers in non-OPEC countries increased amounts of oil that reached the international market from outside OPEC. The increase in non-OPEC production intended OPEC to fight for its market share, and OPEC started producing more. Under those circumstances crude oil prices fell dramatically in 1985-1986.²⁰

¹⁷ Energy Fact Report. Retrieved June 5, 2016, Retrieved April 25, 2016,

¹⁸ BAFFES, J.(2015), Policy Research Note No.1: The Great Plunge in Oil Prices - Causes, Consequences, and Policy Responses. Retrieved April 25, 2016,

¹⁹ KRISTOPHER, G. Analyzing the 4 Major Crude Oil Market Crashes - Market Realist. Retrieved April 25, 2016,

²⁰ FATTOUH, B and L. MAHADEVA. (2013), OPEC: What difference Has It Made. Retrieved April 27, 2016

1990-1991 crude oil market decrease

Iraqi intruded into Kuwait in 1990. It caused a distraction in crude oil production and supply in these regions by 4 million barrels per day. So, the International Energy Agency (IEA) agreed to release 2.5 million barrels per day of its emergency stocks. As a result of inventory quickly entering the market and a faster-than-anticipated end to the war, oil prices dropped.

2008-2009 crude oil market decrease

The 2008-2009 crude oil market crash was caused by the enormous selloff due to the financial crisis. During the financial crisis in 2008 oil prices fell more than 70%. The financial crisis happened because of the opportunity of cheaper borrowing facilities. The low-credit-worthy asset class and high risks were leveraged. Therefore, returns did not come that caused a default and panic started. Thus, a massive selloff resulted across both commodities and equities.

2014-2015 crude oil market decrease

The decline in oil prices in 2014-15 was the third largest over the past 30 years and has interesting parallels with the oil prices crisis in 1985-86, which followed a period of powerful expansion of supply from non-OPEC countries and sudden change in OPEC policy. In the 1970s technological developments enabled to extract oil from different offshore fields such as North Sea and Alaska. As a result, OPEC tried to protect its market share by pumping more oil, which was similar to its actions in the 1985-86.²¹

2.3 THE REASONS OF THE SHARP DROP IN OIL PRICES IN 2014-2015

Underlying demand and supply of oil determine the long-term trend in oil prices, while the short-term trend is also influenced by market sentiment and expectations. In 2014, there were relevant events such as geopolitical conflicts in some oil-producing regions,

²¹ KRISTOPHER, G. Analyzing the 4 Major Crude Oil Market Crashes - Market Realist. Retrieved April 27, 2016

OPEC announcements, and the appreciation of the U.S. dollar. Long-term developments in supply and demand also caused a recent decline in oil prices

Trends in supply and demand

Modern developments in global oil markets happened against a long-term trend of greater-than-anticipated supply and less-than-anticipated demand. Since 2011, U.S. oil production has persistently increased, by some 0.9 million barrels per day (mb/d), about 1 percent of global supply) in 2014. Expectations of global oil demand have been changed downwards on several occasions during the same period as economic growth disappointed. Between July and December 2014 alone, the projected oil demand for 2015 has been revised downwards by 0.8 mb/d. Global growth in 2015 is expected to remain much weaker than it was during the 2003-08 period when oil prices rose substantially. Further, the oil intensity of global GDP has almost halved since the 1970s as a result of increasing energy efficiency and declining oil-intensity of energy consumption.

Changes in OPEC objectives

Saudi Arabia traditionally used its spare capacity to either increase or reduce OPEC's oil supply and stabilize prices within an anticipated band. In November 2014 OPEC changed its policy of stabilizing a certain level of oil prices to protection of its market share by extracting more oil. The OPEC's decision to change its policy objectives from targeting an oil price band to maintaining market share signaled a significant change.

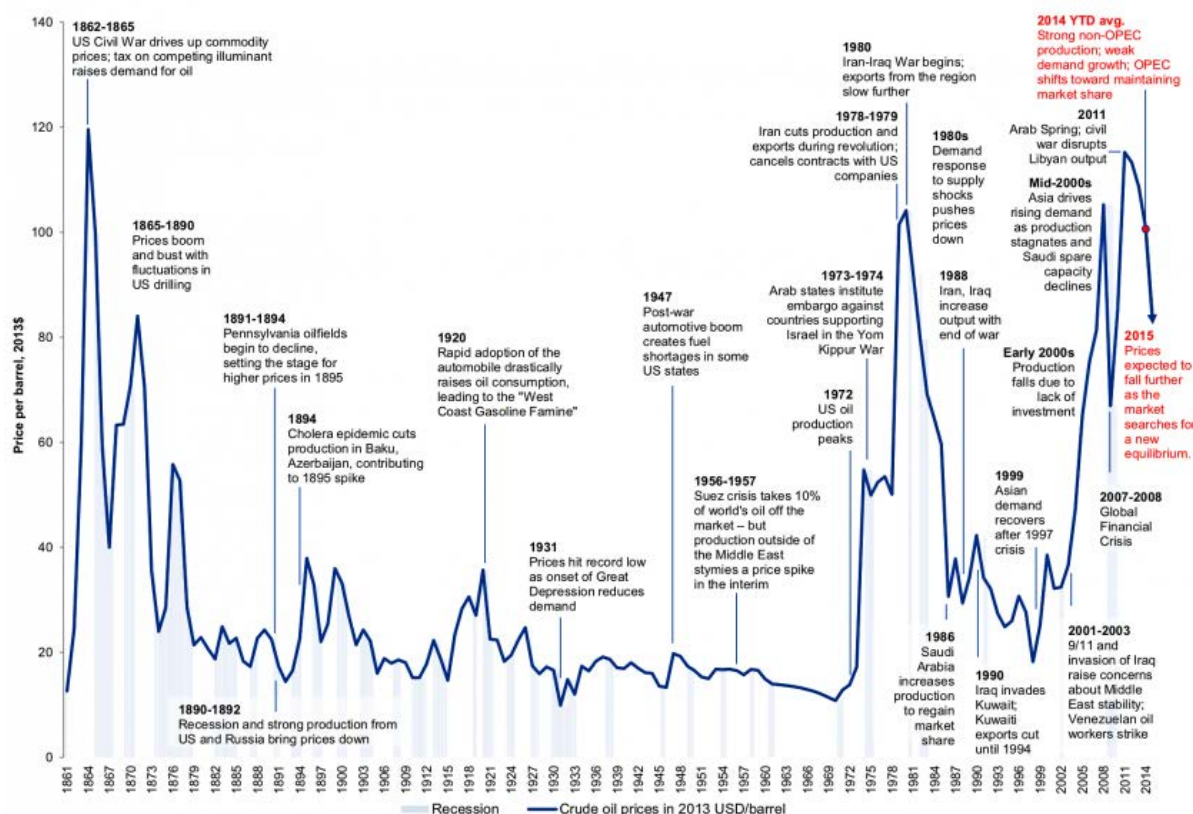
The U.S. dollar appreciation

The U.S. dollar appreciated by 10 percent against many currencies in trade-weighted nominal terms in the second half of 2014. The appreciation of the U.S. dollar had a negative impact on the oil price because demand in countries that experience an erosion in the purchasing power of their currencies. Empirical estimates of the effect of the U.S. dollar appreciation cover a wide range: the high estimates suggest that a 10 percent appreciation is related to a decline of about 10 percent in the oil price, while the low estimates suggest only 3 percent or less.²²

²² BAFFES,J. (2015), Understanding the Plunge in Oil Prices: Sources and Implications. Retrieved April 29, 2016

The exact contribution of each of these factors cannot be quantified with precision, but all these factors together caused a sharp decline in oil prices.

Figure 1 - History of crude oil prices



Source: Statistical Review of World Energy

2.4 ECONOMIC AND FINANCIAL CONSEQUENCES OF THE DECLINE IN OIL PRICES

There are various channels through them oil prices impact economic growth and inflation: direct effects on activities and prices for both importers and exporters; indirect effects by means of trade and other commodity markets; monetary and fiscal policy responses; and investment uncertainty.

The effect of the drop in oil prices may differ significantly between countries and over time, it depends mainly if a country is an oil importer or exporter. In oil-exporting countries the decline in oil prices might cause sharp currency adjustments and contractionary measures

in fiscal policy. There are several indirect effects caused by lower oil prices on oil-exporting economies. In general, government incomes strongly rely on taxing in oil sector, oil-based revenues may account more than half of overall fiscal revenues. Moreover, a decline in oil prices usually deteriorates their current accounts and caused currency depreciations.

While in oil-importing countries declining oil prices cause reduction of inflation expectations below target and reduce external financing pressures, central banks may respond with additional monetary policy loosening, which, in turn, can support growth. In addition, in oil-importing countries falling oil prices should bring some benefits as a decrease in oil prices raises real incomes of corporates and households similar to a tax cut. A 10 percent drop in oil prices may raise growth in oil-importing economies by 0.1–0.5 percentage points, depending on the share of oil imports in GDP. Current accounts of many oil-importing countries usually have substantial improvements but it depends on the underlying drivers of oil price changes and country-specific circumstances.

Unexpected changes in oil prices always increase uncertainty that cause reduction of investment and durable goods consumption. Decrease in oil prices also cut energy costs because prices of competing energy products are forced down as oil-fired electrical power becomes cheaper to produce. For sectors with high energy inputs it should lead to greater profit and supportive conditions for investment and employment.²³

2.5 OIL PRICING SYSTEM

The calculation of oil prices is usually based on the formula pricing that makes a link between the prices of a cargo in long-term contracts to market prices. This formula pricing is the basis of the whole oil pricing system and has two main advantages. Firstly, international traded crude oil has several types with various qualities. Therefore, they have different prices. The pricing formula includes differential to reflect differences in the oil quality and the relative demand and supply of the various types of crude oil.

²³ BAFFES, J.(2015), Policy Research Note No.1: The Great Plunge in Oil Prices - Causes, Consequences, and Policy Responses. (n.d.). Retrieved April 29, 2016, P. 23.

Another advantage of formula pricing is that it enables to increase flexibility of pricing. In case of a lag between the date when a cargo was bought and the date of delivery to its destination, both parties share a price risk through this formula.

The identification of the price of the main benchmarks (e.g. West Texas Intermediate, Dated Brent and Dubai-Oman) is the main point of formula pricing. A key feature of the oil pricing system is the benchmark of crude that is used by oil companies and traders; by banks and other companies to settle their derivative instruments; and by governments to establish their taxation policy.

In 1986-1988 many oil exporting countries adopted the market-related pricing system, it was a global change from a system where oil prices were set up by the large international oil companies in the 1950s and 1960s and by OPEC for the period 1973-1988 to a new system with prices settled by „markets“.

The development of the current oil price system should be analyzed from a historical perspective. It has developed in response to major changes in the worldwide political and economic structures, changes in power balances that radically changed the structure of the oil market.

The Period of the Posted Price

The international oil industry until the late 1950s was characterized by the leading position of Seven Sisters, large multinational oil companies. These countries were vertically integrated and had control of both upstream operations (e.g. exploration, development and production of oil) and downstream operations such as transportation, refining and marketing.

Moreover, they controlled the supply of crude oil goes into the market through joint ownership of companies that functioned in different countries. It enabled the multinational oil companies to control the oil exports from the major oil producers and to prevent from gathering of large amounts of crude oil in the hands of sellers.

Until the mid-1970s the oil pricing system was based on a „posted“ price, which was used to calculate revenues accruing to host governments. Spot prices, transfer prices and long-term contract prices could not play such a fiscal role. The vertically and horizontally integrated oil market meant that oil trading was a question of inter-company exchange with the absence of the free market operating outside these companies control. It caused underdeveloped spot market. The posted prices did not reflect market conditions but were

only used by oil companies to decrease their tax liabilities by moving profits from places with high-tax to low-tax places. As some companies were crude long and others crude short, all transactions happened between the multinational oil companies were based on the long-term contracts.

Oil-exporting countries also were not against posted prices because these were usually higher than contract prices. Furthermore, posted prices sustained the oligopolistic position of the oil companies, and until the late 1960s OPEC countries were not strong enough to change the existing pricing system.

The Pricing System Shaken but Not Broken

By the late 1950s, arrived new oil companies which were able to invest in upstream operations and get access to crude oil industry independently of Seven Sisters. Venezuela became independent mainly from the US, oil was discovered in Libya, two oil development agreements were signed in Iran, the new discovery and development of large fields in the Soviet bloc led to a quick growth in Russian oil exports. In spite of the all changes the total volume of crude oil operating independently of Seven Sisters remained small. Nevertheless, competitive pressures played an important role in decision to cut the posted price in 1959 and 1960.

The Consolidation of the OPEC Administered Pricing System

There was a global increase in demand for oil between 1965 and 1973 with an average annual increase of more than three million b/d during this period. The majority of this increase was met by OPEC which significantly increased its oil production. It allows OPEC to increase its share in global crude oil production from 44% in 1965 to 51% in 1973. Other events such as Libya's production reductions and sabotage of the Saudi Tapline in Syria significantly increased OPEC's power.

In the early 1970s the complex oil pricing system was centered on three different types of prices: the posted price, the official selling price, and the buyback price. This system was not efficient because a buyer got a barrel of oil at different prices, it became more complicated as there was not an adjustment mechanism to ensure that these prices converge. Consequently, this regime was short-lived and was cancelled by 1975.

The new system was based on the model of reference or marker price with Saudi Arabia's oil (Arabian Light) that was chosen marker crude. Individual members retained their

crude prices, but these were now set in relation to the Saudi Arabia's oil (Arabian Light). The differential relative to the marker price depended on a variety of factors such as supply and demand on each kind of crude and the relative price of petroleum products. The flexibility of adjusting differentials by oil-exporting countries made the process of administering the marker price complicated.

The Collapse of the OPEC Administered Pricing System

In the mid-1980s an economic recession and the increase of the non-OPEC crude oil production represented major challenges to OPEC's administered pricing system and were basically responsible for its collapse. New discoveries in non-OPEC countries caused that increasing amounts of oil reached the global market from outside OPEC. The decline in demand for OPEC's oil decreased its market share in the world's oil production from 51% in 1973 to 28% in 1985.

In 1986 Saudi Arabia implemented the netback pricing system to rebuild the country's market share. The netback pricing system guaranteed refining margin to oil companies even if oil prices were to collapse. Under this system, refineries were motivated to work at a high capacity leading to an oversupply of petroleum products. Lower product prices pulled down crude oil prices and caused the destruction of the crude oil price from \$26.69 on 1 July, 1985 to \$9.15 a barrel on the 21 July, 1986. Out of the 1986 oil price crisis, the current „market-related“ oil pricing system emerged. Sometime in 1987 Saudi Arabia finally adopted the pricing formulae. A new chapter in the history of the oil market was opened, administered pricing system was abandoned and the pricing power of crude oil was transferred to the market.

Formula Pricing

In 1986 was adopted new market-related pricing system that became popular among most oil-exporting countries and is still the main method for pricing crude oil in global trade.

Technological innovations that enabled 24-hour trading from any place in the world also made possible more participants and allowed to develop a large number of trading instruments. Price agreements are usually established on the formula pricing which links the price of a cargo in long-term contracts to a market price. Formula pricing is the center of the oil pricing system.

As there are lots of types of crude oil, the price of a specific crude oil is usually set at a discount or at a premium to a marker or reference price that are often referred to as benchmarks.

For crude oil of variety x , the formula pricing can be written as

$$P_x = P_R \pm D$$

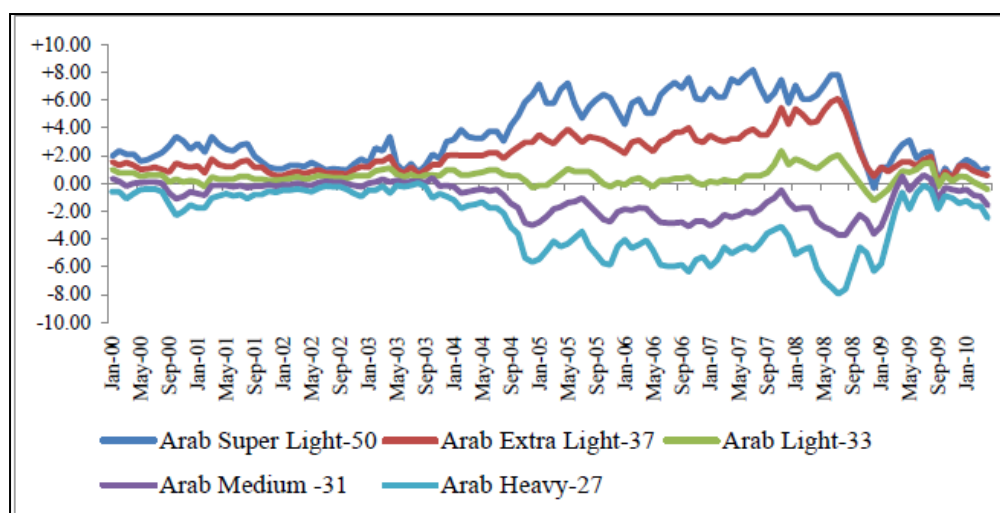
Where: P_x is the price of crude x

P_R is the benchmark crude price

D is the value of the price differential

The differential is often settled at the time when the deal is finished and could be set by an oil exporting country or by price reporting agencies. The different oil quality is not the only factor that influences oil price differentials. Price differentials also reflect movements in the Gross Products Worth obtained from refining the reference crude R and the crude x . Therefore, price differentials change continuously according to the relative demand and supply of the different crudes which are dependent on the relative prices of petroleum prices.

Figure 2 - Price Differentials of Saudi Arabia's Crude Oil to Asia in \$/Barrel



Source: Petroleum Intelligence Weekly Database

This graph shows the differential that Saudi Arabia used to its crude exports to Asia for its different types of crude oil in relation to the Oman/Dubai benchmark. As this graph depicts, both applied discounts and premiums are volatile. For example, at the beginning of 2008, the differential between Arab Heavy and Arab Super Light was more than \$15 a barrel.

Each of the oil-producing countries sets its differential to a benchmark independently and adjusts it monthly or quarterly. It is usually set in the month preceding the loading month. As the setting prices involves long time lags and is based on outdated information, the price differential often does not reflect the real market conditions at the time of loading and much less so by the time the cargo reaches its final destination.

Oil-exporting countries consider not only the differential between their crudes and the reference crude, but also pay attention how their close competitors are pricing their crude in relation to the reference crude. The timing of setting the differential is important, especially in a slack market. Oil-exporting countries which announce their differentials first, face the risk to be undercut by their closest competitors. This motivates them to delay announcement of the differential. Competition between different exporters implies that crude oils of similar quality and destination usually are traded at very narrow differentials.²⁴

²⁴ FATTOUH, Bassam. An anatomy of the crude oil pricing system. Oxford: Oxford Institute for Energy Studies, 2011

3. CORRELATION BETWEEN OIL PRICES AND EXCHANGE RATES OF THE OIL-EXPORTING COUNTRIES

All 5 countries that were analyzed are oil-exporting countries and play an important role in the world oil industry. Despite this fact, correlation coefficients between their exchange rates and oil prices are totally different (variations are from -0,85156 to 0,729746). A possible reason is discussed in this chapter.

Table 1 - Correlation coefficients between the oil prices and exchange rates

Correlation coefficient (KWD/Oil price)	0,098688
Correlation coefficient (NOK/oil price)	-0,85156
Correlation coefficient (RUB/oil price)	-0,7262
Correlation coefficient (SAR/oil price)	0,729746
Correlation coefficient (AED/oil price)	0,727863

Source: UNCTADSTAT, personal calculations

Correlation coefficients were calculated between the oil prices and currency units per SDR (direct quotation). The currency value of the SDR based on a basket of five major currencies: the U.S. dollar, euro, the Japanese yen, pound sterling and the Chinese renminbi. It means that decreasing values of currency unions per SDR reflect appreciation of the currency, and increasing values reflect depreciation.

The reason for significant variations between their correlation coefficients can be their different exchange rate regimes. Norway and Russia have floating exchange rates. Saudi Arabian riyal and the United Arab Emirates dirham are pegged to another single currency that is the U.S. dollar and Kuwaiti dinar is pegged to a weighted currency basket.

3.1 COUNTRIES WITH FLOATING EXCHANGE RATES

In this bachelor thesis countries with floating exchange rate regimes are represented by Russia and Norway.

Russia

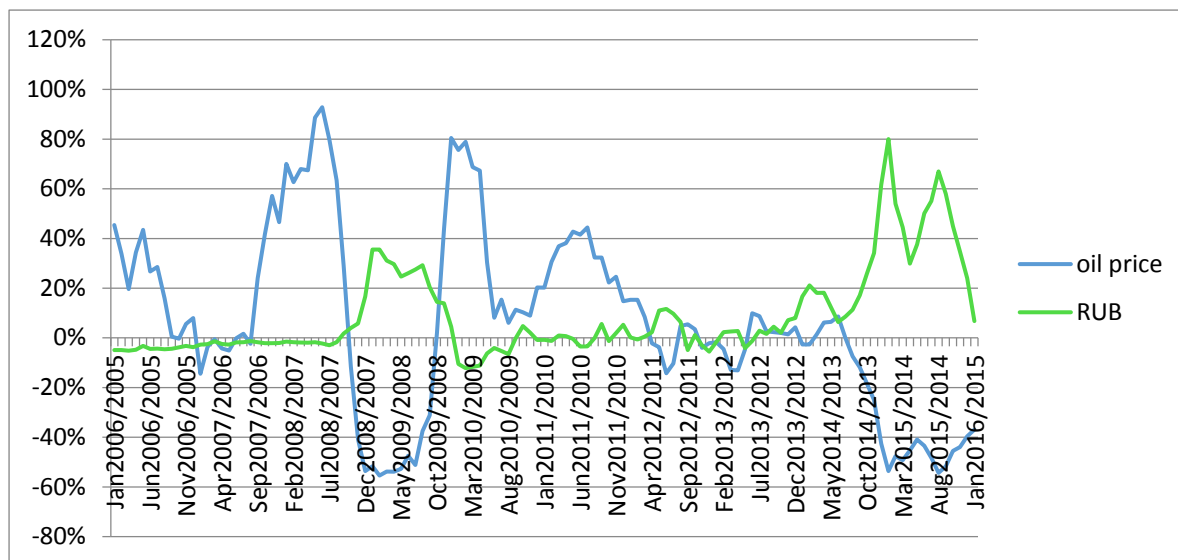
Nowadays Russia has a floating exchange rate regime. The ruble exchange rate is not fixed and there are no agreed targets either for the exchange rate level or its fluctuations. The ruble exchange rate is determined by supply and demand in the foreign exchange market.²⁵

Since 1999, the Bank of Russia implemented the managed floating exchange rate regime, which enabled to smooth the influence of changes in external conditions on Russian economy. In 2005, the US dollar and euro basket was introduced by the Bank of Russia as the anchor of its exchange rate policy. The operational band was agreed and regular interventions were implemented to limit fluctuations. In October 2010, the Bank of Russia abandoned the currency basket peg and started to implement the managed floating exchange rate regime. Any fixed restrictions for the level of the ruble exchange rate or any target levels were not set. In November 2014 Russia changed the managed floating exchange rate regime to free floating to prevent exhausting of its foreign currencies reserves.²⁶

²⁵ Monetary Policy | The Bank of Russia FX policy | Банк России. Retrieved May 5, 2016

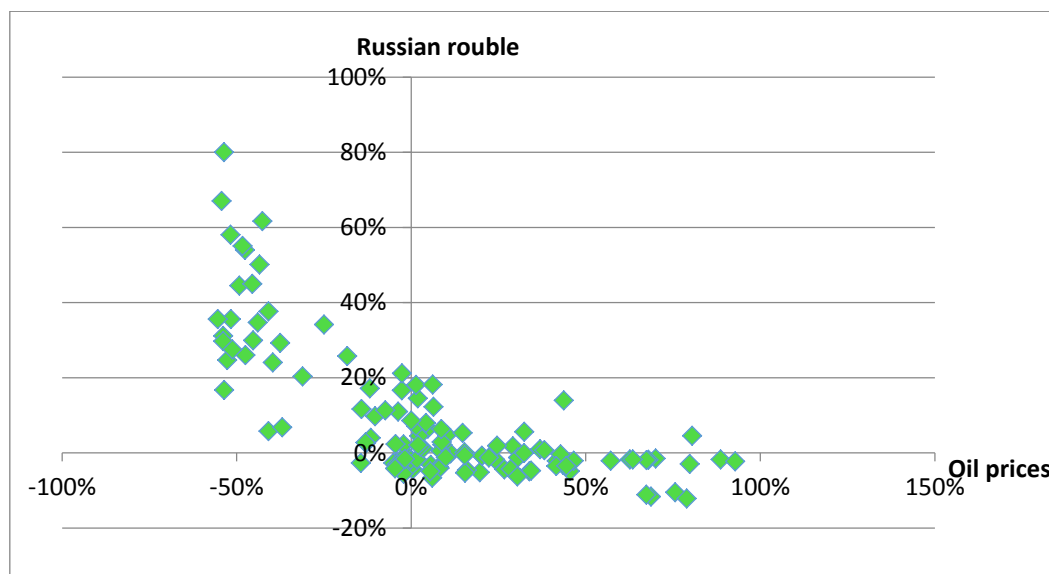
²⁶ Monetary Policy | The History of the Bank of Russia FX policy | Банк России. Retrieved May 5, 2016,

Figure 3 - The development of the oil prices and exchange rate of the Russian rouble (percentage changes).



Source: UNCTADSTAT, personal calculations

Figure 4 - Oil prices and exchange rate of the Russian rouble (percentage changes, January 2006/2005-January 2016/2015)



Source: UNCTADSTAT, personal calculations

Norway

Norway has a floating exchange rate, the exchange rate is fixed by supply and demand on the international foreign exchange market. In other words, the exchange rate reflects the international value of the Norwegian krone.

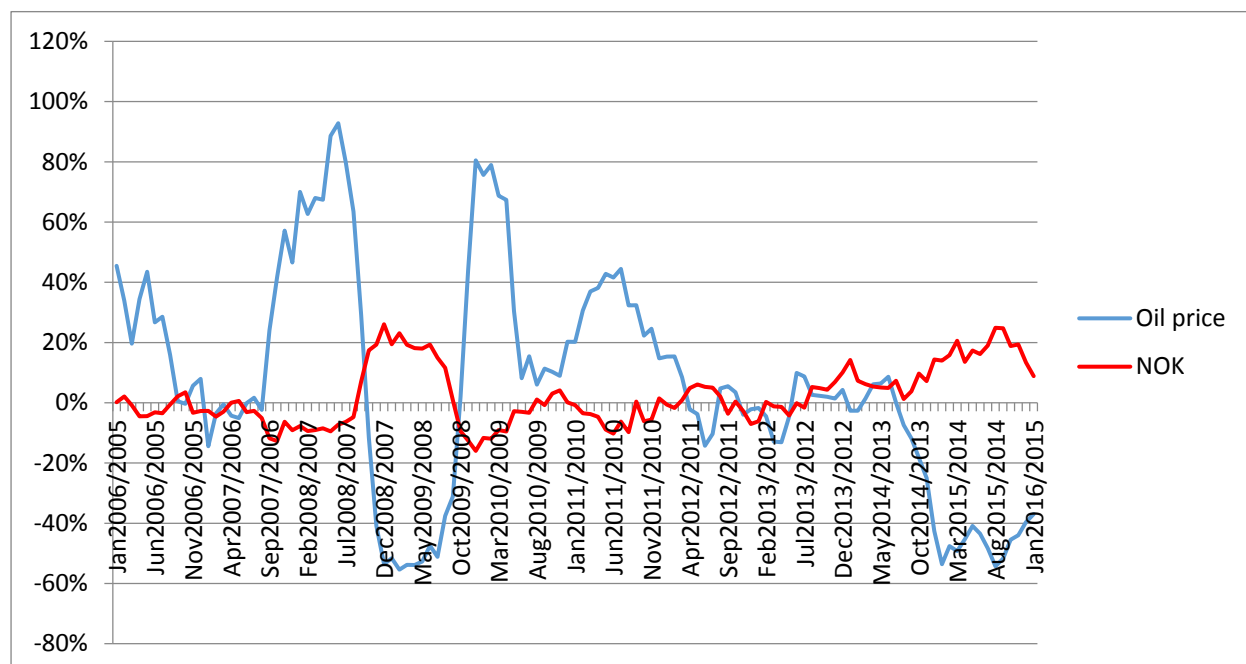
Over the period between December 1992 and March 2001 Norway changed the objective of maintaining a fixed exchange rate against a currency index to a floating exchange rate within an inflation targeting regime.

In December 1992, Norway suspended the fixed exchange rate for the Norwegian krone, the Minister of Finance, Sigbjørn Johnsen, determined that the Government was aiming to establish a fixed exchange rate for the krone as soon as international conditions allowed. However, it was problematic to specify the timing. Thirty days later the conditions to return to a fixed exchange rate policy were still not specified. On 8 January 1993, Royal Decree decided that the krone would be allowed to float until further notice.

In May 1994 was established a new exchange rate system for the Norwegian krone. The international value of the Norwegian krone was determined by the exchange rates in the foreign exchange market. There were not fluctuation margins and Norges Bank was not obliged to intervene in the foreign exchange market.²⁷

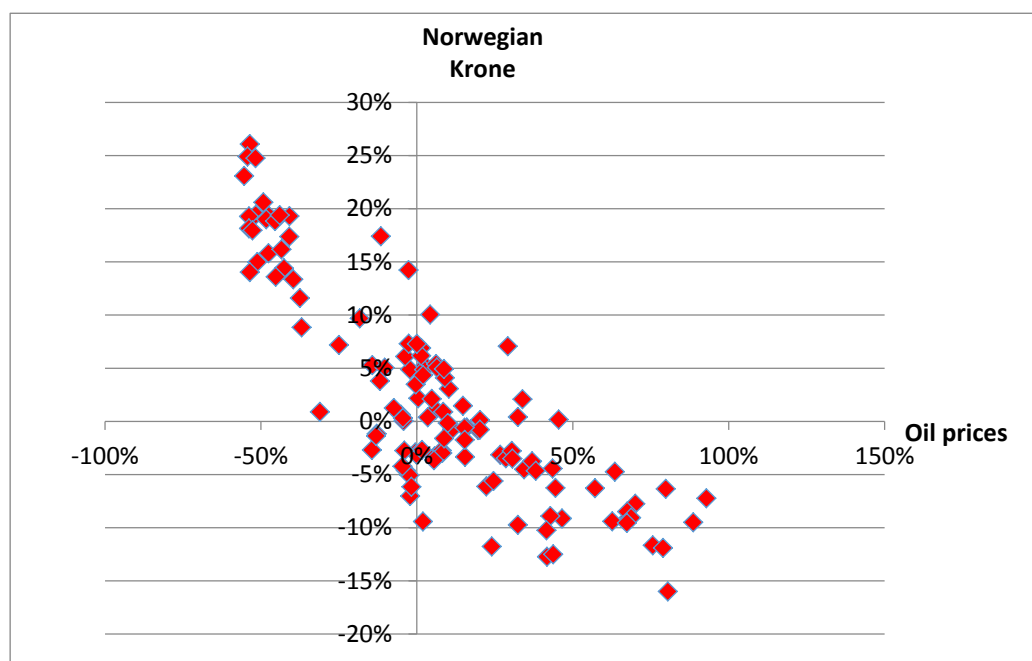
²⁷ KLEIVSET, C. (2002), From a fixed exchange rate regime to inflation targeting. Retrieved May 7, 2016

Figure 5 - The development of the oil prices and exchange rate of the Norwegian Krone (percentage changes).



Source: UNCTADSTAT, personal calculations

**Figure 6 - Oil prices and exchange rate of the Norwegian Krone
(percentage changes, January 2006/2005-January 2016/2015)**



Source: UNCTADSTAT, personal calculations

As these graphs (Figure 3 - Figure 6) show both countries with floating exchange rates (Russia and Norway) have negative correlation coefficients (RUB/Oil prices = -0,7262, NOK/Oil prices = -0,85156) with oil prices. It means that if the oil prices go down, the value of the currency unit per SDR increasing that reflects the depreciation of the currency. On the contrary, if the oil prices go up, the value of the currency unit per SDR decreasing that reflects the appreciation of the currency. These graphs depict that the last decline in the oil prices caused depreciations of the Russian ruble and Norwegian Krone in the period 2013-2014. Especially, the last drop in the oil prices damaged Russian exchange rate stability and make Russia abandon the managed floating exchange rate regime.

3.2 COUNTRIES WITH EXCHANGE RATES FIXED AGAINST THE U.S DOLLAR

Countries with fixed exchange rate regimes in this bachelor thesis are represented by Saudi Arabia and the United Arab Emirates. Their currencies' values are fixed against the U.S dollar.

Saudi Arabia

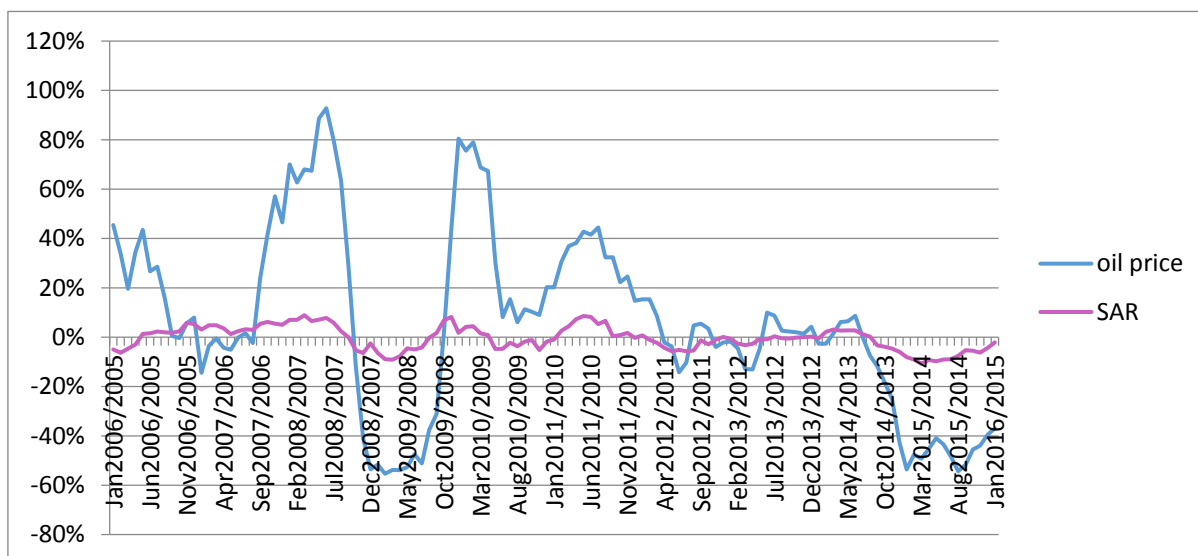
Nowadays Saudi Arabia has a fixed exchange rate regime with a dollar peg.

Saudi Arabia fixed its currency to the U.S dollar in June 1986 (SAR 3.7500 per USD). Saudi Arabia pegs the riyal to the US dollar because the U.S dollar reflects the country's revenue and expenditure pattern.²⁸ Saudi Arabia took advantages of fixing its currency to the U.S dollar. Firstly, in the period between 1986 and 2015 the annual inflation rate varied between -3.6% and 6.8%, it is noticeably less volatile than during the 1973- 1986 period. Secondly, economic growth of the private sector has been considerably smoother.²⁹

²⁸ Al-HAMIDY, A. Monetary policy in Saudi Arabia. Retrieved May 8, 2016

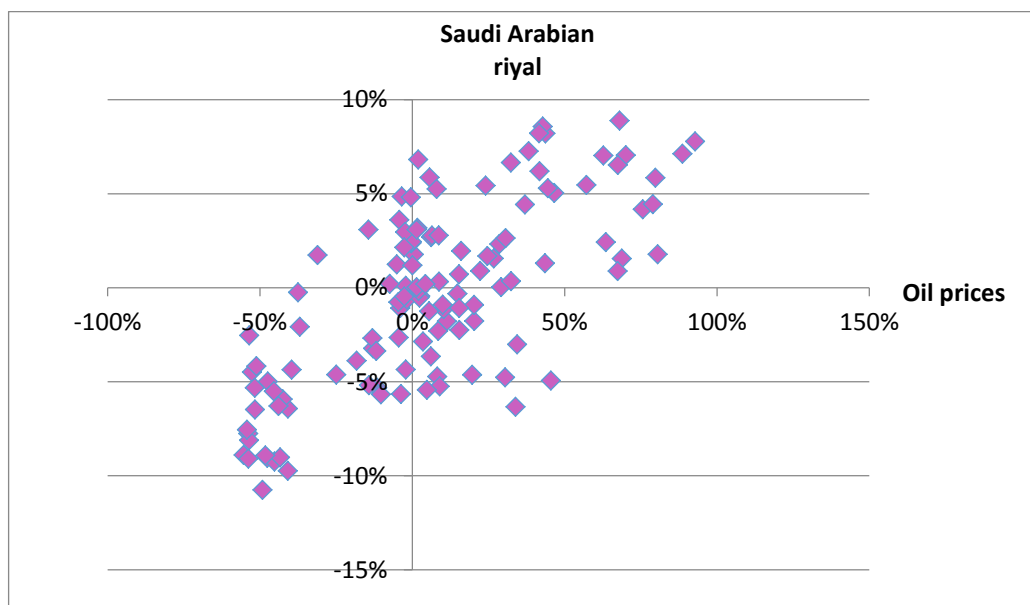
²⁹ ALKHAREIF , R.M and J.H. QUALLS, (2016), Saudi Arabia's Exchange Rate Policy: Its Impact on Historical Economic Performance. Retrieved May 8, 2016

Figure 7 - The development of the oil prices and exchange rate of the Saudi Arabian riyal (percentage changes).



Source: UNCTADSTAT, personal calculations

Figure 8 - Oil prices and exchange rate of the Saudi Arabian riyal (percentage changes, January 2006/2005-January 2016/2015)



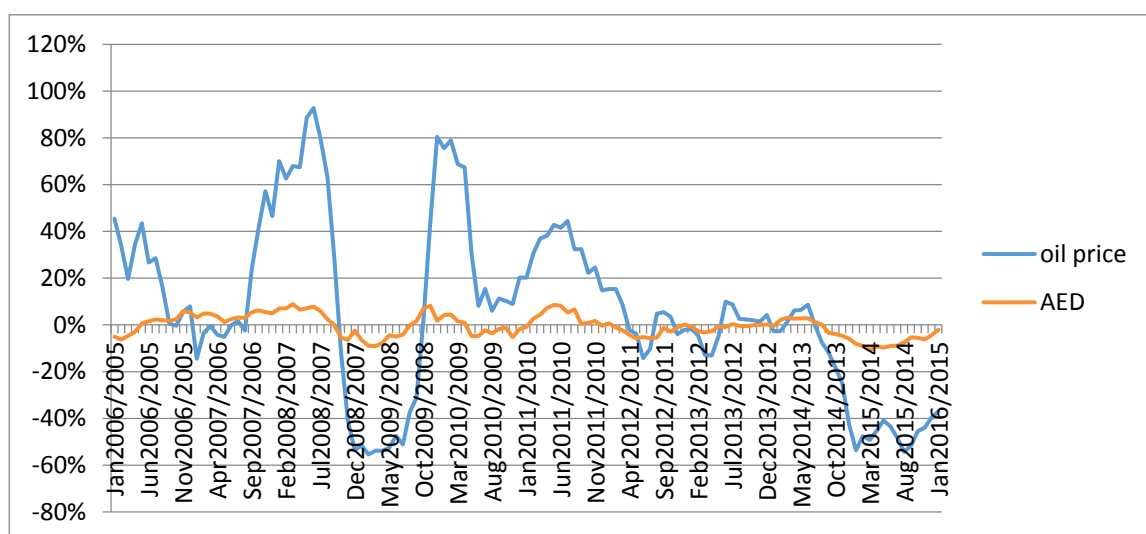
Source: UNCTADSTAT, personal calculations

The United Arab Emirates

The United Arab Emirates have a fixed exchange rate regime, which has been fixed at a rate of 3.6725 to \$1 since 1997.³⁰

Before 1966 The United Arab Emirates used the Gulf Rupee, it was a currency issued by the Government of India and was equivalent to the Indian rupee. Later the Indian government reduced the value of the Gulf rupee and, as a result, much of the trade lost its value, while the cost of living significantly increased. As a result, the United Arab Emirates abandoned the rupee and began to use the Saudi riyal.³¹ In 1973 the UAE Dirham went into circulation. During several weeks, other currencies in use were replaced by the UAE Dirham. In 1997 the Dirham became officially pegged to the USD.³²

Figure 9 - The development of oil prices and exchange rate of the United Arab Emirates dirham (percentage changes).



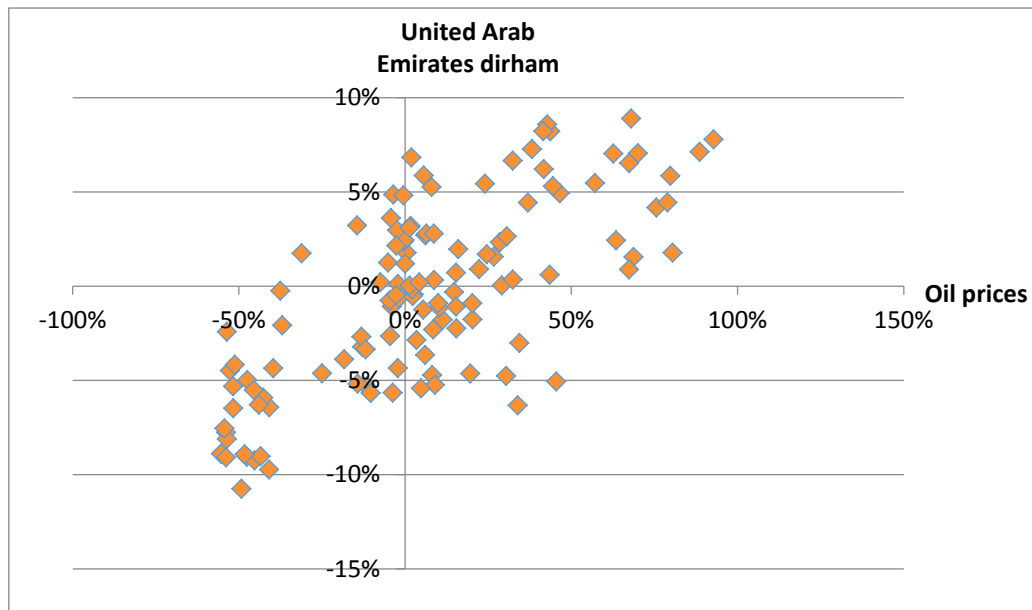
Source: UNCTADSTAT, personal calculations

³⁰ The World Factbook. Retrieved May 9, 2016

³¹ AED | Utd. Arab Emir. Dirham | OANDA. Retrieved May 9, 2016

³² History of the Central Bank of the U.A.E. Retrieved May 10, 2016

Figure 10 - Oil prices and exchange rate of the United Arab Emirates dirham
(percentage changes, January 2006/2005-January 2016/2015)



Source: UNCTADSTAT, personal calculations

In contrast to the countries with floating exchange rate regimes, exchange rates of the countries that are pegged to the U.S dollar (e.g. Saudi Arabia, the United Emirates) have positive correlation coefficients with the oil prices (SAR/Oil prices= 0,729746, AED/Oil prices= 0,727863). As Saudi Arabian riyal and the United Arab Emirates dirham are pegged to the U.S. dollar, they fluctuate in the same way. The strong dollar contributes to oil-price weakness. The organization of petroleum exporting countries (OPEC) behaves like a monopolist in the oil industry. OPEC countries determine their prices according to the development of the USD value. If the USD appreciates, OPEC countries are satisfied with the lower oil prices. If the USD depreciates, they require higher oil prices. As the United Arab Emirates dirham and the Saudi riyal have fixed exchange rates to the U.S dollar the result is a positive correlation between the development of the oil prices and the exchange rate of the United Arab Emirates dirham and the Saudi riyal to the SDR.

On these graphs (Figure 7 – Figure 10) is demonstrated if the Saudi Arabian riyal and the United Arab Emirates dirham appreciate (in other words, the value of the currency union per SDR decreases), the oil prices go down. If the Saudi Arabian riyal and the United Arab Emirates dirham depreciate (the value of the currency union per SDR increases), oil prices go up.

3.3 COUNTRIES WITH EXCHANGE RATES PEGGED TO WEIGHTED CURRENCY BASKETS

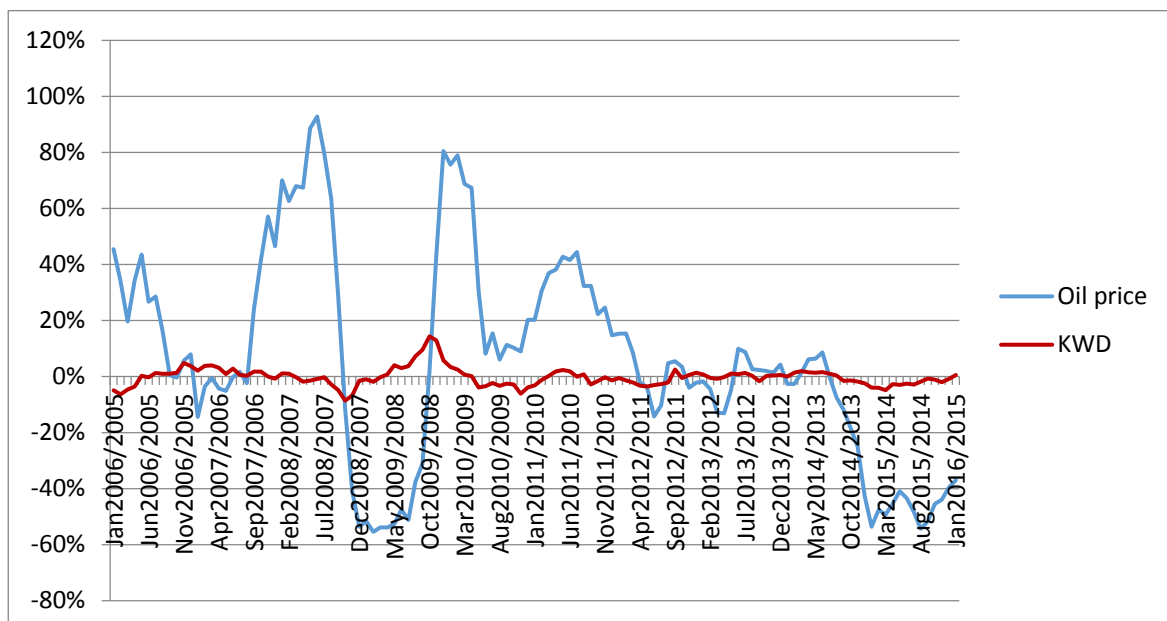
Countries with exchange rate policies of pegging currency to a portfolio of several currencies – a currency basket are represented by Kuwait.

Kuwait

The Kuwaiti Dinar was introduced in 1961 to replace the Gulf Rupee. At first it was equivalent to British Pound Sterling. When Iraq invaded Kuwait in 1990, the Iraqi Dinar replaced the Kuwaiti Dinar. Coins and a large quantity of banknotes were stolen by the invading forces. After liberation, the Kuwaiti Dinar was returned as the country's currency and a new banknote series was introduced. Till the end of the year 2002 was adopted an exchange rate policy pegging the Kuwaiti Dinar to a weighted basket of major currencies that have significant trade and financial relations with Kuwait. This exchange rate regime was expected to be effective in achieving a high degree of the stability of the Kuwaiti Dinar exchange rate against major world currencies. During the period from 5 January 2003 to 19 May 2007, the Kuwaiti Dinar was pegged to the U.S dollar. On 20 May 2007 the Kuwaiti Dinar was repegged to a weighted basket of international currencies of Kuwait's major trade and financial partner countries.³³

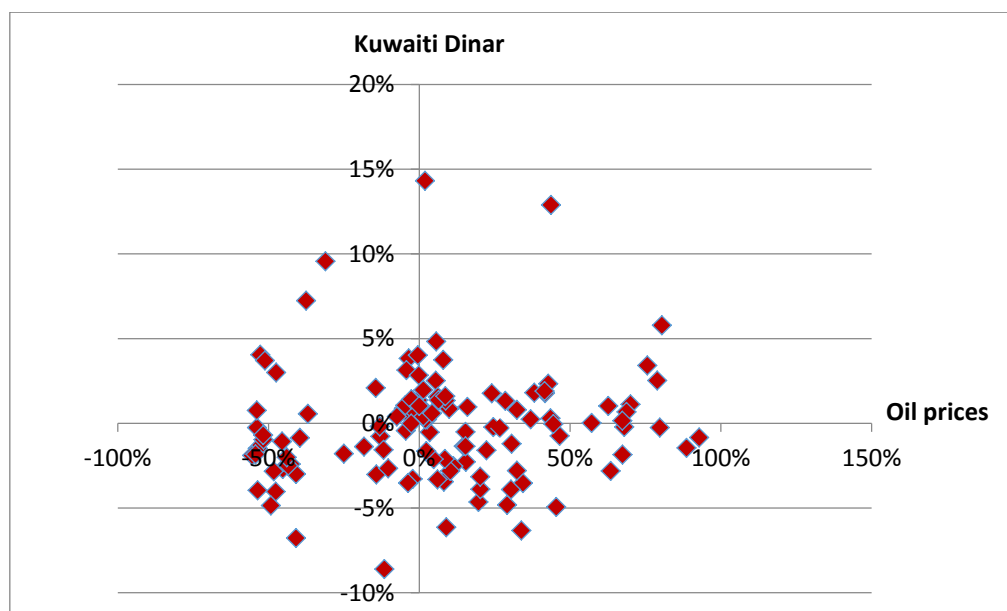
³³ Central Bank of Kuwait: Exchange Rate Policy. Retrieved May 12, 2016

Figure 11 - The development of the oil prices and exchange rate of the Kuwaiti Dinar (percentage changes).



Source: UNCTADSTAT, personal calculations

Figure 12 - Oil prices and exchange rate of the Kuwaiti Dinar (percentage changes, January 2006/2005-January 2016/2015)



Source: UNCTADSTAT, personal calculations

A correlation coefficient between the exchange rate of the Kuwaiti Dinar and the oil prices is 0,098688. As the value of the correlation coefficient is fairly low, it may be concluded that there is no relation between changes in the oil prices and exchange rate of Kuwait.

The reason can be that the U.S dollar constitutes only a part of its currency basket. Consequently, any changes in the oil prices caused by changes in the U.S dollar value do not correlate largely with the Kuwaiti Dinar.

4. EXCHANGE RATE POLICIES OF THE OIL-EXPORTING COUNTRIES

The volatility of oil prices prepares a serious test for the stability of the macroeconomic and monetary policy of oil-exporting countries. For the majority of oil-exporting countries, the framework is an external anchor through peg to the U.S dollar, the euro or a basket of currencies with low inflation. The U.S dollar usually dominates as external anchor in oil exporting economies because it is the invoicing currency of export revenues. However, the attractiveness of the peg to the US dollar started to decline since the volatility of the US dollar go with the oil price shocks that cause procyclical monetary policies and inflationary pressures in oil exporting countries. On the other hand, potential alternatives of monetary exchange rate regimes (e.g. Inflation targeting), seem to have some disadvantages, at least at present, for their implementation in less developed oil-exporting countries. In this part will be analyzed different exchange rate regimes of the main oil exporters. Oil exporter countries have a strong predilection for exchange rate pegs and their monetary policies are limited to the choice of what form of peg should be accepted.

4.1 THE DEBATE ON EXCHANGE RATE POLICIES IN OIL-EXPORTING ECONOMIES

According to the IMF classification of exchange rate regimes, 14 out of 24 oil exporters' economies where oil creates more than 50 per cent of their exports such as Saudi Arabia have a traditional peg to the US dollar. Other 7 oil-exporting countries (e.g. Kuwait) peg their currencies to a basket of currencies including the U.S. dollar and the Euro or have a managed floating. Only three oil exporters in the CFA franc zone peg to the Euro.

There are two reasons explaining the prevalence of the US dollar as external anchor:

First, oil prices are invoiced in US dollar and the peg to the US dollar stabilizes profits. Second, the status of the dollar as a strong international currency allows oil producers to invest their revenues from the sale of oil in financial markets denominated in the U.S dollar, minimizing the currency risk. As a peg to a single currency has greater transparency, it is preferred to the anchoring to a basket of currencies. A peg to the currency of another country with a low inflation lets a small open economy to anchor domestic inflation expectations and monetary stability.

A variety of alternative exchange rate regimes are available for oil exporting countries, including the acceptance of an external anchor different from the US dollar, introducing exchange rate flexibility through a managed float, pegging to the real price of oil or adopting an internal anchor (e.g. Inflation target) and allow the exchange rate free floating.

The price of a single commodity, such as oil, or a basket of commodities, can be fixed to the local currency - for countries that are specialized in the production of one or few commodities. The main advantage of this regime is stabilization of the export incomes in domestic currency, regardless of the fluctuations of commodity prices in the global markets. This regime can produce optimal automatic responses to conflicting in the terms of trade shocks affecting export prices. However, it has a considerable disadvantage, especially for oil exporters because a peg to the real price of oil would pass on the volatility of price of oil (in the U.S dollar) to the nominal exchange rate. In case of sharp nominal appreciations, the costs would fall on the other exporting sectors or the domestic sectors competing with foreign products. Conversely, large declines in the nominal exchange rate could destabilize stability through sharp deterioration in the terms of trade.

Another potentially possible alternative can be inflation targeting. Inflation targeting was adopted by several commodity exporters such as Australia, Canada, Chile, New Zealand, South Africa and particularly an oil exporting country such as Norway. The announcement of a quantitative target for inflation gives a good anchor to the economy.

Nowadays inflation targeting is only a potential opportunity for oil exporting countries. Inflation targeting needs independence of a central bank, a well-developed technical infrastructure, and effective inflation control through developed financial markets. Many oil exporting countries have a lack of the technical competence, developed financial markets, and the policy instruments to establish an independent monetary policy, that's the reason why it is only a "potential" alternative.

4.2 THE CHOICE OF THE EXCHANGE RATE REGIME

There are a number of the economic criteria that should be satisfied before abandoning part of the monetary sovereignty by pegging to another currency.

This set of criteria represents a reliable instrument to choose the exchange rate regime:

- The size of the economy
- Degree of openness to trade
- Diversification of export
- Flexibility of the labour market

These criteria can be used to analyze exchange rate policies of the oil exporting countries. They are all relatively small economies with the level of GDP at purchasing power parity always inferior to 1% of world GDP in 2007, with the exception of Russia (3.2%). As already noted, the US dollar plays an important role in their exchange rate regimes, either explicitly as in the case of Saudi Arabia and U.A.E., or implicitly as in Algeria and Kuwait where there is no official peg to the US dollar but where the US currency is de facto the main external anchor.

Fixing or floating? Degree of openness, diversification of exports and labour market flexibility

The optimum currency area theory claims that small countries with diversified exports and flexible labour markets, which are open to trade, may gain full advantage from a pegged exchange rate or a currency union.

The higher the openness, the higher the expected pass-through of exchange rate depreciations, the less effective the nominal exchange rate as shock absorber, the lower the cost of adopting a fixed peg.

According to statistics, oil exporting countries are open to trade. In 2007, exports and imports of goods and services formed from 52% in Russia to more than 100% in Libya, up to around 150% in the United Arab Emirates as share of GDP (see Table 2).

Table 2 - Degree of openness to trade in goods, services and reliance on oil exports

Country	Exports % of GDP	Imports % of GDP	Trade % of GDP	Oil exports % of total goods exports
Russia	30,1	21,6	51,5	48,8
Kuwait	67,6	30,5	98,1	95
Saudi Arabia	62,3	34	96,3	89,9
U.A.E	86	62,6	148,6	50,8
Nigeria	38,6	29,8	68,4	88,3
Libya	80,1	38,2	118,3	97,5
Algeria	47,3	24,4	71,7	98,5
United States	11,8	16,9	28,6	3,3
Euro area	22,5	21,3	43,8	3,3
Japan	18,4	16,5	34,9	0

Source: IMF World Economic Outlook database

The share of total imports to GDP in oil exporting countries is between 20% and 40% in most of the countries. Some countries with lower incomes such as Libya, Algeria and Nigeria may have higher shares of tradable goods in their consumption baskets and consequently a higher pass-through to domestic prices - for a given degree of openness - and dislike large exchange rate fluctuations.

The degree of diversification of exports is another essential criterion. The greater diversification is, the lower are impacts on the whole economy caused by specific shocks that should be accommodated by an exchange rate changes. All oil exporting countries rely on exports of one or few commodities (Gas is particularly important in Algeria and Russia). Economies with such specialization desire to maintain some monetary independence to recover from sector specific shocks, such as a large increase or decrease in oil prices.

Furthermore, potential anchor countries – such as USA, countries with the Euro or Japan –are all net energy importers and there is the risk that their macroeconomic policies will react to an oil price shock in the opposite way than it was expected by oil exporters.

Another important prerequisite to adopt a fixed peg is a flexible labour market. The lack of currency flexibility assumes that the problem of reaction to exogenous shocks falls on real wages. If real wages are inflexible this burden falls on employment. Consequently, a flexible labour market decreases the cost of refusal of exchange rate flexibility and play important role in adopting a fixed peg. All oil exporters may be separated into two groups. The first group is a group with flexible labour market and includes the GCC countries, as well as Russia and Nigeria. All these countries are obviously above the median according to labour market flexibility. Another group includes Algeria and Libya that are defined like countries with lower flexibility of labour market. In these countries labour market inflexibilities may raise the cost of adopting a fixed peg.³⁴

³⁴ HABIB, M.M and J, Strasky. (2008), Oil Exporters In Search Of An External Anchor. Retrieved May 5, 2016

CONCLUSION

In the first chapter exchange rate regimes are divided into three groups: Fixed arrangements (Currency Unions and Currency Boards), Intermediate arrangements (Adjustable pegs, Crawling pegs, Basket pegs and Target zone or bands) and floating exchange rates (Managed floating and Free floating). The advantages of fixed exchange rates are providing a nominal anchor to monetary policy, encouraging trade and investment, preventing competitive depreciation and avoidance of speculative bubbles. Floating Exchange rates have also their advantages: Independence of monetary policy, allowing automatic adjustment to trade shocks and lower requirement for foreign exchange reserves.

In the second chapter is analyzed the development of oil prices. The last drop in oil prices in 2014-2015 is a significant but not the extraordinary occasion. Over the past 30 years there were several oil drops of more than 30 percent: in 1985-1986, 1990-1991 and 2008-2009 years. There are several reasons of the sharp drop in oil prices in 2014-2015: changes of the trends in supply and demand, changes in OPEC objectives and the U.S. dollar appreciation.

The third chapter that was practically oriented includes the analysis of the stability of the exchange rates of the oil-exporting countries. The analysis is based on the calculated correlation coefficients between the oil prices and exchange rates of Norway, Russia, Saudi Arabia, the United Arab Emirates and Kuwait. It was ascertained despite the fact that all countries are oil-exporting their correlation coefficients are totally different. The reason for significant variations between their correlation coefficients can be their different exchange rate regimes. Norway and Russia have floating exchange rates and both countries have negative correlation coefficients (RUB/Oil prices = -0,7262, NOK/Oil prices = -0,85156) with the oil prices. Saudi Arabian riyal and the United Arab Emirates dirham are pegged to the U.S. dollar. In contrast to the countries with floating exchange rate regimes, their exchange rates have positive correlation coefficients with the oil prices (SAR/Oil prices= 0,729746, AED/Oil prices= 0,727863). Kuwaiti dinar is pegged to a weighted currency basket and its correlation coefficient with the oil prices is 0,098688. It means that there is no relation between the changes of the oil prices and Kuwaiti dinar.

The last chapter is devoted to the description of the exchange rate policies of the oil-exporting countries and includes a set of criteria for choosing a suitable exchange rate regime: the size of the economy, degree of openness to trade, diversification of export and flexibility of the labour market. Small countries with diversified export structures and flexible labour markets, which are open to trade, may gain full advantage from a pegged exchange rate.

In my bachelor were not considered other important exportable raw materials (e.g. gas). The more detailed analysis would enable to evaluate precisely the stability of the exchange rates.

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