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THE IMPACT OF CHANGES IN OIL PRICE AND RUSSIAN RUBLE EXCHANGE RATE ON KAZAKHSTANI TENGE

Abstract. This article examines the relationship between exchange rates of Kazakhstani tenge, Russian rouble and the oil price. Based on the statistical data in period from 2008-2018 on exchange rates of two currencies compared to US dollar and oil prices denominated in the same currency we conducted correlation analysis and identified that exchange rate of tenge is more dependent on changes in ruble's exchange rate rather than oil prices. In order to strength the research, we interviewed financial experts from Kazakhstan's financial sector and gathered their opinions on the above-mentioned topic. Based on the obtained results we expressed our recommendations to our readers. The results of this article will help to improve and enhance the financial literacy of our readers.

Key words: exchange rate, oil price, Russian ruble, Kazakhstani tenge.

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Аннотация. В данной статье рассматривается взаимосвязь между обменными курсами казахстанского тенге, российского рубля и ценой на нефть. На основе статистических данных за период 2008-2018 гг. об обменных курсах двух валют по отношению к доллару США и ценами на нефть, авторы провели корреляционный анализ и определили, что обменный курс тенге в большей степени зависит от изменений обменного курса рубля, чем цены на нефть. В целях подкрепления результатов исследования проведен опрос экспертов из финансового сектора Казахстана и собраны их мнения по вышеупомянутой теме. На основании полученных результатов авторы предоставили свои рекомендации читателям. Результаты этой статьи помогут улучшить и повысить финансовую грамотность наших читателей.

Ключевые слова: обменный курс, цена на нефть, российский рубль, казахстанский тенге.

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Аңдатпа. Бұл мақалада Қазақстандық теңге бағамдары, Ресей рублі мен мұнай бағасының арасындағы қарым-қатынас қарастырылады. 2008-2018 жылдар арасындағы статистикалық деректерге негізделген АҚШ долларына және мұнай бағасына қатысты екі валюталардың айырбас бағамдары туралы корреляциялық талдау жүргіздік және теңгенің айырбас бағамы мұнай бағасына қарағанда рубль бағамының өзгеруіне тәуелді екенін анықтадық. Зерттеу нәтижелерін нығайту

мақсатында біз Қазақстан қаржы секторының сарапшыларымен сауалнама жүргіздік және жоғарыда аталған тақырып бойынша пікірлерін жинадық. Алынған нәтижелерге сүйене отырып, біздің оқырмандарымызға ұсыныстар бердік. Осы мақаланың нәтижелері оқырмандарымыздың қаржылық сауаттылығын жақсартуға және жақсартуға көмектеседі.

Кілітсөздер: айырбас бағамы, мұнай бағасы, ресей рублі, қазақстандық теңге.

The main goal of this research work is to examine the relationship between crude oil prices, Russian ruble and Kazakhstani exchange rate, and to identify at what extent the exchange rate of tenge depends on changes in oil prices and exchange rate of the Russian ruble.

Volatility of crude oil prices in the past 10 years (2008-2018) has had a great negative impact on the economic development and stability of the main oil-producing countries, as a result, these countries suffered froma sharp devaluation of national currencies, increase in an inflation and other unfavorable consequences, which definitely deteriorated the welfare of society. Since Kazakhstan's economy depends heavily on the oil sector, it accounts for an estimated around 20% of GDP, 50% of fiscal revenues and 65% of exports (according to S&P report). In order to protect national export companies Kazakhstan Government decided to launch a floating exchange rate regime. As per official announcements of National Bank of Kazakhstan, this regime brings many advantages such as the market-based attaining of an equilibrium level of real exchange rate, maintaining competiveness of domestic producers of goods, preventing significant imbalance in the current account and avoiding reduction of national foreign reserves. Nevertheless, different experts argued that it has become quite feasible that the 500 tenge per one US dollar exchange rate becomes reality by the end of 2019 if the oil prices will drop to the 40 US dollar per barrel.

At the end of 2017, the share of Russian imports reached 40% of total imports of Kazakhstan; Russian, Belarus and Kazakhstan founded Eurasian Economic Union, these are the key factors, that Kazakhstan officials and policymakers state on correlation between exchange rates of two countries. In 2015, ruble has been devaluated, rather Kazakhstan's National Bank kept the fixed-exchange rate policy and did not react. That year, Kazakhstan people went to Russia for buying goods, because of the difference in exchange rates. As consequence, those actions were highly criticized by Russian Government.

Above-mentioned statements released by state officials and negativeforecasts on the tenge exchange ratepersuaded us to conduct this research work in order to trim the sails to the wind and be aware of economic changes, which can hurt our financial welfare.

The literature includes 3 (three) transmission channels of oil prices to exchange rate: the terms of trade channel, the wealth effect channel and the portfolio relocation channel. The underlying idea is to link the price of oil to the price level, which affects the real exchange rate. If the non-tradable sector of a country A is more energy intensive than the tradable one, the output price of this sector will increase relative to the output price of country B. This implies that the currency of country A experiences a real appreciation due to higher inflation [1]. Effects on the nominal exchange rate arise if the price of tradable goods is no longer assumed to be fixed. In this case, inflation and nominal exchange rate dynamics are related via purchasing power parity. If the price of oil increases, it is expected that currencies of countries with large oil dependence in the tradable sector to depreciate due to higher inflation. The response of the real exchange rate then depends on how the nominal exchange rate changes, but relative to the impact of any changes in the price of tradable (and non-tradable) goods described above. Overall, causality embedded in the terms of trade channel potentially holds over different horizons depending on the adjustment of prices. The underlying idea of the portfolio and wealth channel is based on a three-country framework. The basic idea is that oil-exporting countries experience a wealth transfer if the oil price rises. The wealth channel reflects the resulting short-run effect, while the portfolio channel assesses medium and long-run impacts. When oil prices rise, wealth is transferred to oil-exporting countries (in US dollar terms) and is reflected as an improvement in exports and the current account balance in domestic currency terms. For this reason, we expect currencies of oil-exporting countries to appreciate and currencies of oil-importers to depreciate in effective terms after a rise in oil prices [2]. There is also the possibility that the US dollar appreciates in the short-run because of the wealth effect, if oil-exporting countries reinvest their revenues in US dollar assets. An appreciation of the US dollar increases the price of oil measured in terms of the domestic currency, and this lowers demand for oil outside the US, resulting in a drop in the oil price, all else equal. Effects on the supply side are potentially relevant but less frequently discussed, mainly because they are subject to several other factors affecting price setting and production. Positive supply responses may stem from a rise in the oil price due to US dollar appreciation if drilling activity and production capacity increases. Oil-exporting companies or countries might also decide to adjust oil prices or supply as a response to exchange rate changes depending on their price strategy.

Following above-mentioned logic, we may conclude that, if oil price increases, the oil-exporting countries such as Kazakhstan, Russia, Middle-East countries and other shall enjoy economic benefits and vice versa.

As mentioned above, Kazakhstan's policymakers, officials and journalists always state that exchange rate of tenge is closely correlated with the exchange rate of Russian ruble as well as oil prices. In order examine these

points and conduct our research, we should find out the answers on the following essential questions:

- Does a correlation truly exist?
- What kind of data do we need to make a research?
- What kind of analysis can be used?
- What are the benefits of the research to external readers?

As mentioned in the introduction of this research project, we decided to examine the following variables: oil prices and US dollar/Ruble exchange rate as independent elements and US dollar/Tenge exchange rateas a dependent variable. Observation period is Jan 2008 – December 2018.

In addition, in order to strength the value of this research project, we gathered opinions of financial experts from Kazakhstan banking sector.

Trough correlation analysis, we can define the linkage between oil price and tenge as well as Russian ruble. We need to run obtained data via gretl program, which can show us whether the correlation between independent and dependent variables exist or not.

The results of interviews can give us qualitative information in combination with statistical results we can formulate our conclusion and recommendations.

The core and most suitabledata collection method in our research project is content analysis. Firstly, it corresponds with the purpose of our project; secondly, it does not require huge financial expenses. Opinions of financial experts obtained via interviews give us qualitative information, which definitely strengths the value of our research project.

Statistical data on oil prices and exchange rates must be obtained from reliable sources, for these purposes we will refer to Bloomberg, that is recognized as one of the most trustworthy source in the financial world. Our financial experts are: CEO and Head of Treasury of a local, commercial bank and senior officer from National Bank of Kazakhstan.

From Table 1.1, we can see that correlation between Russian ruble and tenge exchange rates is significant. R-squared amounted to almost 84%, which that ruble affectstenge at 84%.

Table 1.1: OLS, using observations 2008-05-01: 2018-12-28.
Dependent variable: USDtoKZT
Corr (USDto KZT, USDtoRUB) = 0.91582282
Under the null hypothesis of no correlation t (2714) = 118.807, with two-tailed p-value: 0.0000

	Coefficient	Std.error	t-ratio	p-value
Const	3.95991	1.89976	2.084	0.0372
USD to RUB	4.96755	0.0418120	118.8	0.0000

Mean dependent var	207.6182	S.D. dependent var	85.83499

Sum squared resid	3225880	S.E. of regression	34.47618
R-squared	0.838731	Adjusted R-squared	0.838672
F (1, 931)	14115.07	P-value (F)	0.000000
Log-likelihood	13468.21	Akaike criterion	26940.41
Schwarz criterion	26952.23	Hannan-Quinn	26944.68
rho	0.980866	Durbin-Watson	0.038604

From Table 1.2., we see that correlation between oil price and tengeexist, but it is not so significant as we used to think which is very curious fact.

Table 1.2: OLS, using observations 2008-05-01: 2018-12-28
Dependent variable: USD to KZT
Corr (Oil Price, USD to KZT) = -0.63607630
Under the null hypothesis of no correlation:t(2714) = -42.9445, with two-tailed p-value 0.0000

	Coefficient	Std.error	t-ratio	p-value
Const	373.937	4.07614	91.74	0.0000
Oil price	2.03877	0.0474745	42.94	6.37e-308

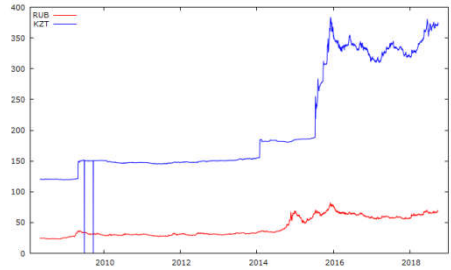
Mean dependent var	207.6182	S.D. dependent var	85.83499
Sum squared resid	11910018	S.E. of regression	66.24472
R-squared	0.404593	Adjusted R-squared	0.404374
F (1, 931)	1844.227	P-value (F)	6.4e-308
Log-likelihood	15241.99	Akaike criterion	30487.98
Schwarz criterion	30499.80	Hannan-Quinn	30492.25
rho	0.994642	Durbin-Watson	0.011367

From the regression analysis, we can summarize that: 1) There is moderate correlation (40%) between oil price and tenge exchange and 2) 84% correlation between ruble and tenge in observed period.

Graph 1.1. Displays exchange rates of ruble and tenge in period from May 2008 until Dec 2018. We can see that until Aug 2015, tenge exchange rate was fixed, however, Russian Central Bank decided to move to floating exchange rate regime. The late reaction of Kazakhstan National Bank may explain the absence of high correlation between 2 (two) currencies.

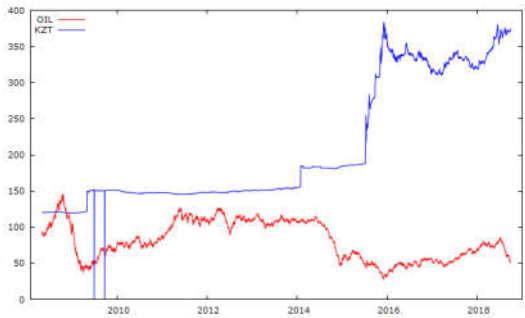
Nevertheless, we can visually see from the Graph the correlation between ruble and tenge.

Graph 1.1: Ruble vs Tenge



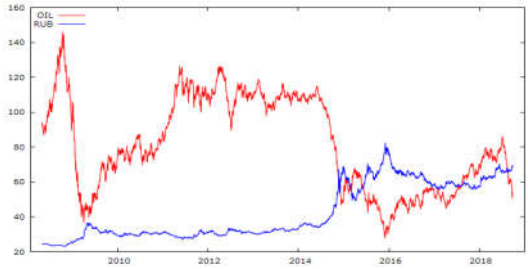
From Graph 1.2. We can see the information on oil price and tenge. As analysis shows us, we can visually identify that there is some negative correlation between tenge and oil price in observation period.

Graph 1.2: Oil price vs Tenge



We can see in Graph 1.3, which displays the information on ruble and oil price in observation period. From Graph, we can see that correlation between ruble and oil price exists. For instance, in 2016 oil price reached its minimum level, which led to the sharp depreciation of Russian ruble.

Graph 1.3: Russianruble vs Oil price



For presentational purposes, we summarized the key points of financial experts in Table 1.3.

Table 1.3: Opinion of financial experts on tenge exchange rates.

CEO	**Treasurer**	**Expert from National Bank**
The role of state	The role of state	Oil price

Big influence of Russia	Absence of developed money and security markets	Ruble exchange rate
Weak economic diversification	Oil price	External factors: US sanctions and trade war between US and China
Oil price		Week banking sector

CEO of local commercial bank mentioned that there are several factors that negatively affect the exchange rate of tenge and Kazakhstan economy:

Factor 1 – "the role of state", as CEO said, the power of state is very strong in Kazakhstan. In fact, Government controls all strategically important assets through sovereign wealth fund SamrukKazyna and Holding Baiterek. The power is concentrated in hands of President.Kazakhstan needs to decrease the share of state participation in business, the market should be competitive and banking sector should be the main investor instead of Government.

Factor 2 – "Big influence of Russia", historically Kazakhstan was a former colony of Russian Empire, and it is obvious that Moscow still has a big influence and power in CIS, including Kazakhstan with its reach mineral resources. In addition, Russia is the main trade partner of Kazakhstan; economies of both countries are highly connected.

Factor 3 – "Weak economic diversification", Kazakhstan economy is dependent on oil and gas sector, the main investments project are launched only in West Kazakhstan, they are related to expansion of Tengiz and Kashagan oil-fields. However, SMEs remain undeveloped, and it comes very difficult for banks to find a good, solvent customer in the local market. The contribution SMEs to the tax revenue of state should be higher. Kazakhstan should learn from Singapore or Japan.

Factor 4–as mentioned before, if crude oil is the main exporting good of a country, its economy will be definitely dependent on changes in oil prices.
Head of Treasury noticed 3 (three) main factors:

Factor 1–Head of Treasuryagreed with the opinion of CEO on role and power of state in Kazakhstan.

Factor 2– shortage of high-quality, stable liquidity in Kazakhstan'sfinancial market affect the banking sector and block the development of lending business. Due to absence of reliable customers, banking sector cannot act as a main investor to support SMEs and individuals. Banking sector should be a keydriver of economic development and ensure diversification of economy away from oil sector. With strong and developed SMEs Kazakhstan will have a change to cope with potential, upcoming crises.

Factor 3 –oil-exporting countries depend on oil prices, because oil as the main exporting commodity formulates the budget of these countries. However, different countries have different management.

Expert from National Bank of Kazakhstan explained the basic things that we hear from media every day, such as volatility of oil prices, sanctions against Russia negatively influence tenge exchange rate, because it is main trade partner of Kazakhstan.

Based on results of this research, we may conclude that the volatility of oil prices does not dramatically affect the exchange rate of tenge, however Kazakhstan policymakers and other stakeholders insist that there is a direct correlation. Based on the analysis of the literature and opinions of financial experts, we can conclude that a direct relationship between tenge and oil price should exist, because Kazakhstan economy totally depends on oil and gas sector, but the change in tenge exchange rate (which is regulated by Kazakh authorities) does not fully correspond to the reality, because we can see that the correlation existed in period from 2008-2015, however, staring from 2016-2018 it has been almost disappeared.From our point of view, Kazakhstan policymakers should regulate exchange rate in compliance with changes in oil price.

Results of analysis have shown a high correlation between exchange rates of tenge and ruble. In this case we may agree with Kazakhstan policymakers due to:

High share of imports from Russia, because as mentioned in the literature review, trade channel plays an important role in the formulation of exchange rate.

Historical connections and big influence of Russia in CIS countries (e.g. cooperation on security and military forces, trade and custom unions, other hidden facts).

Within trade union, Kazakhstan can not afford independent, different pricing and exchange rate policy, because in 2015 when tenge exchange rate was fixed, but Russia implemented floating exchange rate regime, that period, Kazakhstan people could buy the same products at lower price in Russia, which confronts with the core idea and purpose of Eurasian Economic Union.Kazakhstan’s economy is closely connected with Russia’s economy.

From the mentioned above, we may provide to our reader the following recommendation:

- Ensure diversification of your savings and do not focus on a single currency;
- Do not borrow money in foreign currency if your earnings denominated in local currency;
- Keep on watch the situation in financial markets and be aware of current economic trends.

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