

Цель и задача поставленная перед исследованием выполнены. В частности сравнено КСО топовых банков по активам, выявлены слабые и сильные стороны банков, проанализированы действия банков относительно общества и предпринятые ими меры для решения социальных проблем. Проводя итоги анализа следует отметить, что концепция КСО существует в Казахстане и оно на стадии развития, и банковская индустрия стремительно развивается. Развитие КСО в стране в целом благоприятно повлияет на страну, общество и первыми примерами этого явления становятся банки, так как в ходе исследования было замечено, чем более социально ответственен банк, тем больше у него активов. Также эта гипотеза подтвердилась в ходе исследования Гарри Симпсоном и Теодор Кохэрсомс.

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THE FACTORS THAT AFFECT DOMESTIC CURRENCY VOLATILITY

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Abstract

This paper investigates the main factors that affect the Kazakh Tenge volatility. It finds that there is a positive correlation between oil price and Tenge against US Dollar since the early 2000s, but the correlation enhanced after moving to the floating exchange rate regime. The main purpose of this paper is to find the marginal effect of oil price on KZT/USD exchange rate and suggest the ways to stabilize the domestic economy.

Абстракт

Это исследовательская работа описывает главные воздействующие факторы на волатильность курса Тенге. С начала 2000 годов, было обнаружено что существует положительная корреляция между ценой нефти и соотношением Тенге к доллару США, но корреляция увеличилась с переходом в режим свободного плавания. Основной целью этой работы является вычисление предельного эффекта цены на нефть на курс Тенге к доллару и предложить способы к стабилизации внутренней экономики.

Introduction

Oil plays major role in the economy of Kazakhstan. Nearly 73% of total export consists of oil and related products, whereas 25 % of government budget comes from oil trade. This is a double-edged sword for Kazakhstan, as it makes Kazakh economy dependent on oil exports and vulnerable to fluctuations in the oil price.

Figure 1 plots oil prices against KZT Tenge nominal effective exchange rate / US Dollar. As we can see from the graph in most cases, there is a positive correlation between them, which means decrease in the price of oil leads to depreciation of local currency and vice versa. Tenge exchange rate especially became more vulnerable to oil price after moving to the floating regime in August 2015. What explains this relationship between oil prices and domestic currency? What other factors affect tenge's volatility? What are the ways to stabilize the economy of Kazakhstan? This paper will try to answer to these questions.

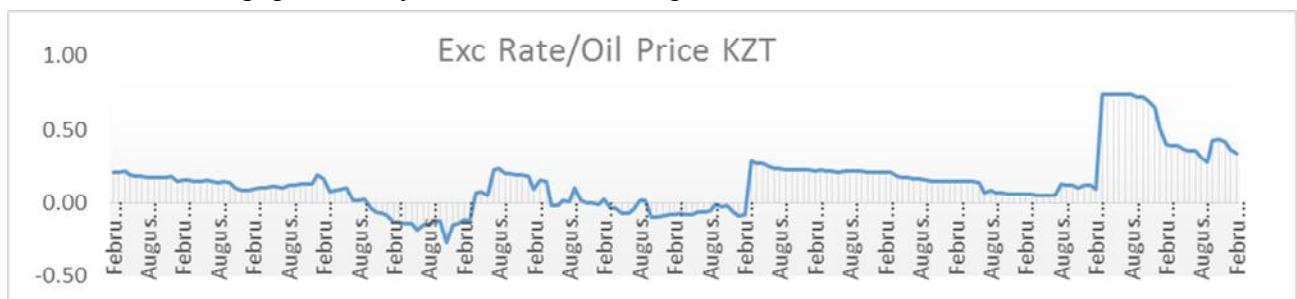


Figure 1: Correlation of oil prices and Tenge nominal effective exchange rate (against US Dollar), using monthly data from February 2000 to December 2015.

While the relationship between tenge exchange rate and oil prices is widely discussed in the popular press and among market practitioners, there is no academic literature on this topic. Therefore, I used academic literature based on other oil exporting countries.

Mr. Gedek (2013) studied the relationship between Ruble exchange rate and oil price. He found that Ruble exchange rate is under the influence of oil price and they are positively correlated. The analysis has shown that the relation was stronger after 2008 world financial crisis.

Another paper by Ms. Katsuya (2012) provides study about the impact of oil price volatility on macroeconomic activity in Russia. This analysis leads to the finding that a 1% increase (decrease) in oil prices contributes to the depreciation (appreciation) of the exchange rate by 0.17% in the long run, whereas it leads to 0.46% GDP growth (decline).

Overall result shows that the Russian economy is greatly vulnerable to oil price volatility.

Mr. Brown (2016) investigates the relationship between oil prices and the Canadian Dollar (CAD) exchange rate and finds that there is a 0.78 % positive correlation. This high correlation indicates that the decrease in the price of oil leads to the depreciation of CAD exchange rate and it shows that the value of the Canadian dollar has declined by 12% while the oil price fell by approximately 48 % over the last six months.

One more paper about the link between CAD exchange rate and crude oil prices by Orr (2009) indicates that there are at least four important additional factors which must to be taken account of before the determining the final net impact of an increase in the price of oil on the Canadian Dollar. If there is an economic slowdown in the US and other oil importing countries, the demand for export from Canada will decline. This is an important impact, partially compensating the initial positive terms of trade impact of an increase in oil prices on the Canadian dollar.

A second indirect impact is an international financial markets impact. High oil prices can weaken global growth and cause instability and fears in international capital markets.

The third additional impact is that the increased oil price raises the cost of doing businesses in the energy intensive sectors of both, oil exporting and importing countries, especially in the transportation sector. The net impact of this on exchange rate is the complex result of the competitive positions of many sectors, therefore the final net impact is considerably small.

The fourth factor that has an impact on the Canadian Dollar is gasoline prices. Increased gasoline prices reduce expenditures of foreign buyers on some items, and these consumer items would have been imports from Canada. To sum up, the direct and indirect impacts of higher gasoline prices have a negative impact on Canadian dollar. This paper proves that there is more than one factor that affect the currency volatility and it is the same in our country's situation.

According to the Inflation Report (2015) of National Bank (NBK) not only low price for oil, but also decreased price for other raw commodities (see Table 1) affect the domestic currency in a negative way. As you may have noticed, all the main indexes like commodity agricultural raw materials index, commodity fuel (energy) index, commodity metals price index, commodity

price index and commodity food price index declines to (-16.68%), (-42.29%), (-20.69%), (-29.82%) and (-8.64%), respectively within a one year.

Commodity	1 Month Change	12 Month Change
Commodity Agricultural Raw Materials Index	0.09 %	-16.68 %
Commodity Beverage Price Index	-1.79 %	-9.89 %
Commodity Price Index	2.02 %	-29.82 %
Commodity Fuel (energy) Index	2.75%	-42.29 %
Commodity Food and Beverage Price Index	0.28 %	-8.78 %
Commodity Food Price Index	0.54 %	-8.64 %
Commodity Industrial Inputs Price Index	2.89 %	-19.05 %
Commodity Metals Price Index	5.00 %	-20.69 %
Commodity Non-Fuel Price Index	1.41 %	-13.61 %
Crude Oil (petroleum), Price index	4.05 %	-43.64 %
Crude Oil (petroleum)	3.78 %	-43.47 %
Crude Oil (petroleum); Dated Brent	7.79 %	-42.69 %
Crude Oil (petroleum); Dubai Fateh	8.66 %	-47.27 %
Crude Oil (petroleum); West Texas Intermediate	-4.26 %	-40.16 %
Diesel	5.72 %	-48.02 %
Gasoline	-5.62 %	-34.16 %
Heating Oil	3.51 %	-48.10 %
Jet Fuel	4.52 %	-44.62 %
Natural Gas	-13.66 %	-31.23 %
Propane	11.66 %	-34.55%
RBOB Gasoline	-26.14 %	-49.79 %

Russian Natural Gas	-5.89 %	-48.44 %
Aluminum	3.39 %	-15.76 %
Gold	9.25 %	-2.25 %
Iron Ore	11.95 %	-26.34 %
Lead	7.26 %	-1.67 %
Nickel	-2.45 %	-43.06 %
Silver	7.52 %	-9.65 %
Tin	13.05 %	-14.39 %
Uranium	-2.89 %	-11.87 %
Urea	-2.34 %	-29.63 %

Table 1: The prices for raw commodities. Data source: IndexMundi available at www.indexmundi.com

Another factor is a depreciation of domestic currencies of our main – trading partners. Especially, Russian Ruble has a direct and strong impact on the domestic economy, as Ruble against US Dollar depreciated to 70 (see Figure 2), the prices for most consumer products become considerably less compared to local prices. Therefore, local consumers started to buy products in Russia at a low price in a huge quantity. Consequently, local producers suffer losses. This phenomenon is called trade creation as a result of economic integration of countries, in our case Eurasian Economic Union (EEU) (3). Hence, the NBK devalued the domestic currency to make parity 1:5 according to the opinion of well – known economic expert Mr. Olzhas Khudaibergenov (4).

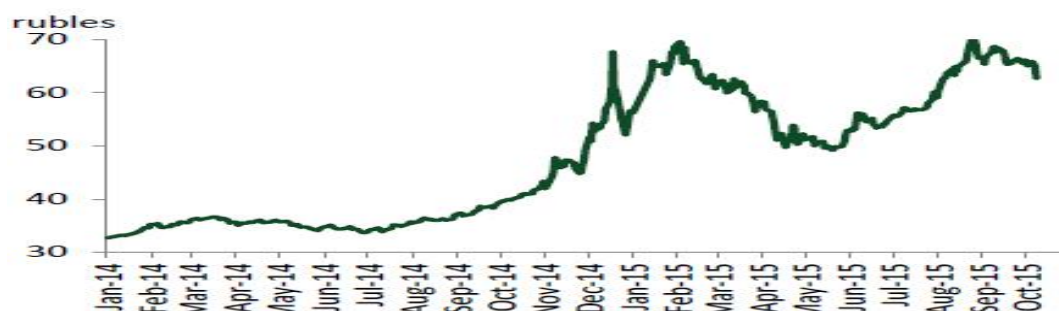


Figure 2: RUB/US exchange rate. Data source: Reuters available at www.reuters.com

The third additional impact is a speculative demand for USD currency. Table 2 shows the purchases/sales of cash US Dollars by exchange offices throughout Kazakhstan between January 2015 and January 2016. This proves that there is a lack of confidence in the tenge by households.

	Purchase	Sales
<i>January 2015</i>	599	1461
<i>February 2015</i>	776	1403
<i>March 2015</i>	700 540	1 088 439
<i>April 2015</i>	733 730	2 142 789
<i>May 2015</i>	724 389	976 240

<i>June 2015</i>	768 579	1 145 228
<i>July 2015</i>	731 801	1 761 008
<i>August 2015</i>	997 836	1 548 391
<i>September 2015</i>	1 117 344	1 525 393
<i>October 2015</i>	673 233	1 180 167
<i>November 2015</i>	738 997	1 097 497
<i>December 2015</i>	746 187	1 668 255
<i>January 2016</i>	858 717	1 071 792

Table 2: Purchases/ Sales of cash US Dollars by exchange offices (Bureaus). (Thousand units of currency)

Data source: National Bank of Kazakhstan available at www.nationalbank.kz

Now, let's turn to oil price, which is the fundamental cause of the domestic currency volatility, as they have a positive correlation.

The research work of Egert and Leonard (2007) sought to uncover whether Dutch disease was at work in Kazakhstan. Their econometric estimations show that the real exchange rate of the non – oil open sector is not linked to the real price of oil implying that oil prices increases do not lead to a real appreciation of this sector's exchange rate. Regarding the nominal exchange rate, the monetary model indicates that rise in the oil price and oil revenues are linked to an appreciation of the nominal exchange rate vis –a –vis the US Dollar. The data range of this study is between 1996 – 2005, and you can notice in the Figure 1 above that starting 2003 till 2005 years, there were negative correlation between oil prices and KZT/USD exchange rate, which means the appreciation of the domestic currency.

Data and Methodology

The dataset comprises the time series of Brent oil prices (SC F- USD per barrel) and Kazakh Tenge – US Dollar exchange rate (KZT/USD). Figure 1 above shows the strong positive correlation between these two variables after moving to the floating exchange rate, that's why I took the data range between August 2015 and March 2016 and the frequency is daily, so the time series' length is 227 items. For running this analysis, I used the Vector Error Correction Model (VECM) for time series data. The VECM is a very popular model because it allows for the existence of an underlying or fundamental link between variables (the long run relationship) as well as for short run adjustments (i.e. changes) between variables, including adjustments to achieve the cointegrating relationship. There are 3 steps in order to run this model:

- Lag Selection
- Johansen Cointegration Test
- VECM

Firstly, I checked how many lags we can use in this model. As you can see from the Table 3 all 5 criteria indicate to choose just 1 lag.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-3107.446	NA	4.43e+09	27.88741	27.91796	27.89974
1	-2327.925	1538.068*	4224088.*	20.93206*	21.02374*	20.96907*
2	-2327.610	0.617190	4366049.	20.96511	21.11790	21.02679
3	-2324.324	6.364905	4394229.	20.97152	21.18542	21.05787
4	-2320.860	6.647817	4415621.	20.97633	21.25134	21.08735

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Next is to test whether the variables are cointegrated or not. Before making this analysis, there is a precondition that has to be implemented. Variables must be non-stationary at the level, but after taking the first difference they have to become stationary. I tested the variables through Correlogram and it is coincided to the rule. According to the result of Johansen test there is a 1 cointegrating equation at the 0.05 level, meaning there can be a long run association between variables.

Finally, I used the VECM in order to test whether dependent variable on the left hand side of a regression can be explained by other variables on the right hand side. According to this test, the relationship between oil prices and Tenge against US Dollar can be written in this equation:

$$\text{Exc Rate} = -0.98 + 0.0177 \text{ Oil Price} \quad (0.00252)$$

Our result find causality between exchange rate and oil prices: a 1% decrease (increase) in oil prices leads to 1.77% depreciation (appreciation) of the domestic currency. The R squared is 51%, which means that more than 50% variation in KZT/USD exchange rate depends on oil prices.

Summary

This paper analyzes the factors that affect the domestic currency volatility. Several important results emerge from our investigation. First, there are main four factors that affect the Tenge and US Dollar exchange rate:

- Oil prices

- Raw commodities prices
- Depreciation of Ruble vis-à-vis US Dollar exchange rate
- Speculative local demand for US Dollars

Secondly, we found that there is a positive correlation between oil prices and KZT/USD exchange rate starting 2000 year, but the correlation enhanced after moving to the floating exchange rate regime in August 2015, correspondingly the domestic currency became more volatile. According to our estimation, a 1% decrease (increase) in the oil price leads to depreciation (appreciation) of Tenge against UD Dollar exchange rate by 1.8% on impact. The restriction of this model is that the data range is narrow, because only a little period of time passed after devaluation.

Overall, this result leads to the conclusion that the Kazakh economy is considerably vulnerable to oil price volatility. It seems reasonable that the country needs to diversify its key industries and enhance the competitiveness of non - resource tradable sectors (usually understood as agriculture and manufacturing) and the non – tradable sector.

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