ANALYSIS OF THE IMPACT OF THE CHINESE ECONOMY ON THE MAIN INDICATORS OF RUSSIAN ECONOMY

Sokirko A. [1]
Adviser: Tregub I.V.[2]

ИССЛЕДОВАНИЕ ВЛИЯНИЯ ЭКОНОМИКИ КИТАЯ НА ОСНОВНЫЕ ФИНАНСОВО-ЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ РОССИИ

Сокирко А.Ю.
Научный руководитель: Трегуб И.В.

[1]*Sokirko Alexey Yurievich Financial University under the Government of the Russian Federation / Сокирко Алексей Юрьевич – бакалавр; Международный финансовый факультет, Финансовый университет при Правительстве Российской Федерации, г. Москва*

[2]*Tregub Ilona Vladimirovna, Financial University under the Government of the Russian Federation / Трегуб Илона Владимировна - доктор экономических наук, кандидат технических наук, профессор, Системный анализ и моделирование экономических процессов, Финансовый университет при Правительстве Российской Федерации, г. Москва*

Abstract: *The aim of this work is to analyze the current economic situation in the world, the role of Chinese stock exchange in this situation and its impact on the economy of the Russian Federation. Chinese economy is very important for Russia. Highlights of Sino-Russian cooperation in 2014 included the conclusion of large-scale energy deals, the initiation of ambitious bilateral projects in the economic and financial sectors, joint military maneuvers, and the announcement of further arms deals. During this work have been studied promising areas of joint cooperation between two countries, prospects of integration of the economies and other factors contributing to the development of two economies. However, relations between Russia and China are at the early level of development, and to a greater extent they depend on both the American stock exchange. Such statement can be made on the basis of mathematical analysis of relationships between the stock indices of dependent countries.*

Keywords: *Russia, China, stock market, crash, economic relations, world economy, crisis, government, currency management.*

Аннотация: *Целью данной работы является анализ текущей экономической ситуации в мире, роль китайской фондовой биржи и её влияние на экономику Российской Федерации. Китайская экономика важна для России. Основой китайско-российского сотрудничества в 2015 году стало заключение крупных энергетических сделок, инициирование амбициозных двусторонних проектов в экономической и финансовой сфере, совместные военные маневры и контракты на поставку оружия. В ходе данной работы были изучены перспективные направления совместной работы двух стран, перспективы интеграции экономик и прочие факторы, способствующие развитию двух экономик. Тем не менее, отношения двух стран находятся на начальном уровне и в большей степени они обе зависят от американской фондовой биржи. Такое утверждение можно*

сделать на основе математического анализа взаимосвязей фондовых индексов стран.

Ключевые слова: *Россия, Китай, рынок ценных бумаг, падение, экономические отношения, мировая экономика, кризис, правительство, управление валютой.*

JEL *O1, C01*

Introduction

The Chinese stock market crash began with the popping of the stock market bubble on 12 June 2015. A third of the value of A-shares on the Shanghai Stock Exchange was lost within one month of the event. Major aftershocks occurred around July 27 and August 24's "Black Monday."

However, China's stock market might be sinking fast but there's little sign of public panic. It is reasonable reaction on situation. China's share prices had been pumped so high over the past year and a half, partly through government encouragement, that the bull run simply had to end sometime. The trouble is though the adjustment has come at a time when China's real economy is facing strong headwinds. Exports fell steeply in July, factory orders are down and the property industry is struggling. That's why global markets are getting the jitters too. And there's something else. For weeks China's leaders have been throwing everything they've got, trying to prop up the market, but to no avail.

To start with, it is important to understand, why Chinese economy is so important for Russia. As Moscow has become locked in conflict with the West over the crisis in Ukraine, it has moved closer towards its long-time international partner, Beijing. Highlights of Sino-Russian cooperation in 2014 included the conclusion of large-scale energy deals, the initiation of ambitious bilateral projects in the economic and financial sectors, joint military maneuvers, and the announcement of further arms deals.

Source: Bloomberg

During a bilateral meeting held on 05.09, Xi Jinping and Putin stressed their commitment to strengthening the China-Russia relationship even further. Xi and Putin spoke of increased coordination on international and regional issues, with an eye toward safeguarding the post-war world order. Bilaterally, the two leaders focused on finance and investment and the energy sector as areas for continued cooperation. This deals represented a potential $30 billion in investments. However, there is number of (possible!) factors, which may spoil the development of Sino-Russian relations:

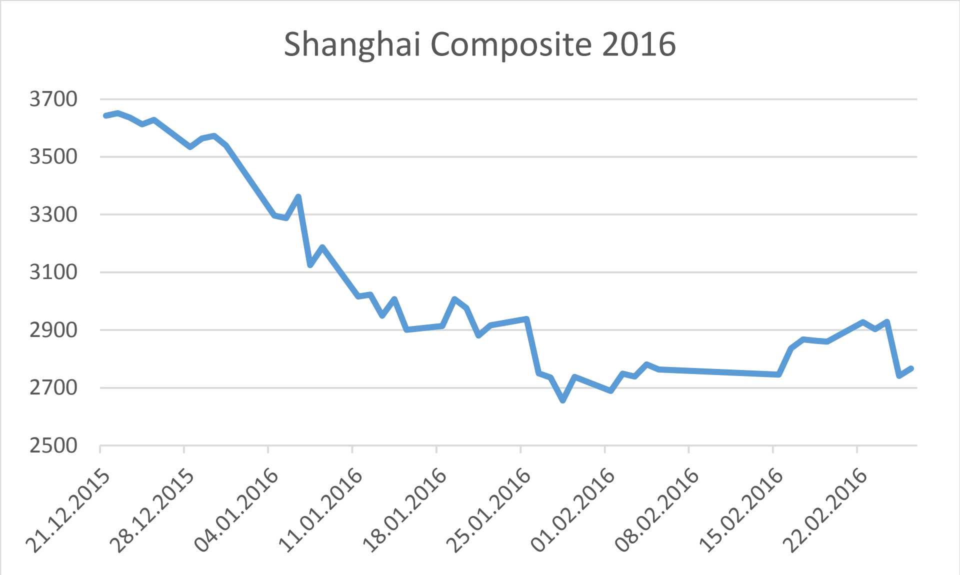
1) Russia will not ally with China because it fears being overshadowed by Chinese power;

2) Russia is concerned about Chinese migrants flooding into Siberia;

3) Russia worries about becoming too close to (and thus too economically dependent on) China;

4) China and Russia do not trust each other enough to form an alliance.

Preconditions of the stock market crash



Source: Bloomberg

In the year leading up to the crash, encouraged by state-owned media, enthusiastic individual investors inflated the stock market bubble through mass amounts of investments in stocks often using borrowed money, exceeding the rate of economic growth and profits of the companies they were investing in. Investors faced margin calls on their stocks and many were forced to sell off shares in droves, precipitating the crash.

For a start, China’s growth rate may be only about half that suggested by official statistics which are so unreliable that even members of the politburo take them with a large pinch of salt. The Chinese premier, is so sniffy about the official data that he looks at rail freight, electricity production and bank loans to judge how well the economy is actually doing.

Between June 2014 and June 2015, China's Shanghai Composite index rose by 150 percent. A big reason for the stock market rally was that a lot of ordinary Chinese people began investing in the stock market for the first time. More than 40 million new stock accounts were opened between June 2014 and May 2015. [1]

And many have been buying stocks with borrowed money. The Chinese government used to strictly limit this practice, but over the last five years the government gradually relaxed those regulations.

By 8–9 July 2015, the Shanghai stock market had fallen 30 percent over three weeks as 1,400 companies, or more than half listed, filed for a trading halt in an attempt to prevent further losses. Values of Chinese stock markets continued to drop despite efforts by the government to reduce the fall. After three stable weeks the Shanghai index fell again on 27 July by 8.5 percent, marking the largest fall since 2007. [2]

Effect on the world economy

On the first glance, it is hard to say how Chinese stock market crash will affect world economy, until, we start considering the indirect impact of China.

1) The role of Chinese consumers.

Not only is China the second biggest economy in the world, its households have finally started to have a major impact on global consumption. Right now, companies in the Standard & Poor’s 500 index of U.S. stocks generate more than 40% of their sales overseas, with Asia Pacific (led by China) accounting for about 8% of revenues.

But for some big American companies, the numbers are actually much, much higher. Right now, around 40 companies in the S&P 500 routinely break out their revenues specifically from China, according to Bloomberg. And Bloomberg reported that those firms — led by companies such as Intel and Yum! Brands — generate more than 18% of their overall sales from this one market.

The trouble is, as powerful as Chinese consumers are, they’ve just been hit with not one, but two market crashes in rapid fire succession. The crash has erased $3.3 trillion worth of wealth. For perspective the value wiped out is equivalent to 14 times Greece’s GDP.

2) The impact on the dollar.

The crisis in China—coupled with the separate debt crisis in Greece—is already being felt by U.S. investors through the dollar. Since the Shanghai market started crashing in mid-June, the U.S. dollar has gained 3% in value against global currencies, as investors seek shelter in the relatively safety of the U.S. economy.

A strong currency sounds like a good thing. But it raises the prices on goods that U.S. exporters sell abroad, crimping their sales and profits.

Even before this bounce in the dollar, U.S. companies have been having trouble lately at generating profit growth thanks to the already strong buck. As the dollar has risen in general in the past year or so, S&P 500 profit growth has slowed from a pace of around 10% last year to less than 1% this year.

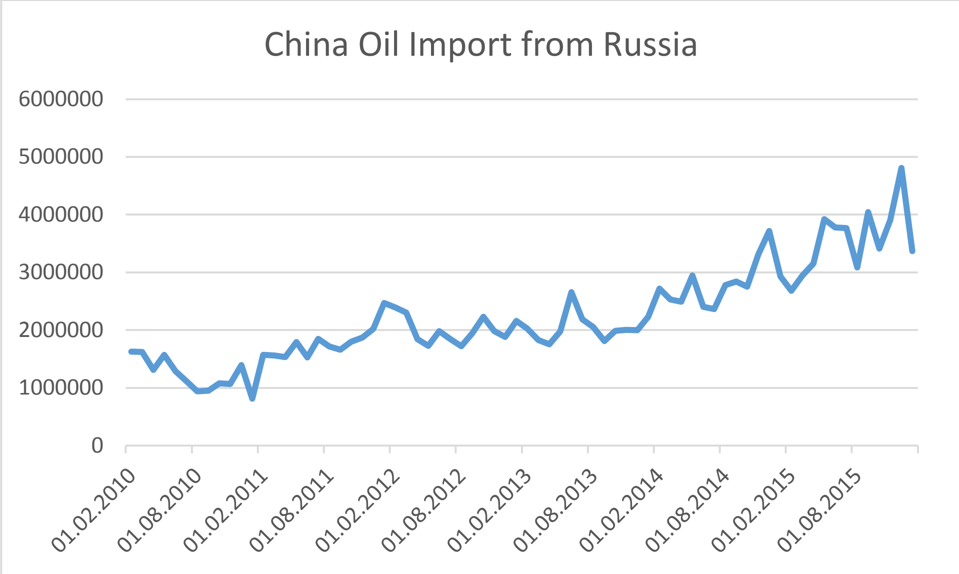
If China’s market continues to plummet, expect more investors—including the Chinese themselves—to seek refuge in U.S.-denominated assets such as Treasuries, stocks, and just plain cash. China is such a large buyer of industrial commodities that the possibility of lower-than-expected sales to the country has also undermined the prices of copper and aluminium, for example.

Effect on Russian economy

The economic situation, occurring in China, can reach Russia through two channels: through oil prices and direct trade.

1) The oil factor

The slowdown in the Chinese economy has a negative impact on oil prices. China is the world's second largest consumer of oil after the U.S., and in recent years the growth in global oil demand was created mainly due to the growing needs of China. [3]



Source: Bloomberg

The slowing economy has reduced demand, which in conditions of excess supply in the market, pushes oil prices down. According to estimates of the International energy Agency, in the second quarter of this year, world oil production was at the level of 96,39 million barrels per day, while the actual demand was 93,13 million. [4]

The lower the price, the higher the loss of the Russian Federal budget, half of the income of which is formed by oil and gas exports. This means that will increase the budget deficit planned by the Russian authorities this year to 3.7% of GDP (2.68 trillion).

However, according to analysts, the oil markets have already reacted the slowdown in the Chinese economy, that's why the further decrease in oil prices because of this factor in the near future should not be expected.

2) Trade factor

For four years China is the first trading partner to Russia; last year turnover exceeded $ 90 billion. [5]

However, in the first quarter of this year, according to the Federal customs service of Russia, the trade turnover between the countries has decreased by 28.7% compared to the same period last year. This decline is partly technical in nature.

The prices of oil dropped for two times compared with the same period last year. That is, while maintaining the same volume of exports, the export revenue in us dollars decreased. However, during the first months of 2015 fell both volume and dollar value of Chinese imports to Russia.

By the end of the year, a number of experts expect a slight recovery of imports and exports, however, it is clear that the target volume of trade, established at the level of $ 100 billion at year-end, will not be succeed. However, the prospects for Russian-Chinese trade, in the long term is higher than the trade between Russia and Europe. Chinese investors will come in many different sectors. And perhaps not only in oil and gas, and agriculture and infrastructure. [6]

Government response

So, what does the Chinese government do in order to overcome this crisis?

The Chinese government enacted many measures to stem the tide of the crash. Regulators limited short selling under threat of arrest. Large mutual funds and pension funds pledged to buy more stocks. The government stopped initial public offerings. The government also provided cash to brokers to buy shares, backed by central-bank cash. Because the Chinese markets mostly comprise individuals and not institutional funds (80 percent of investors in China are individuals), state-run media continued to persuade its citizens to purchase more stocks. In addition, China Securities Regulatory Commission (CSRC) imposed a six-month ban on stockholders owning more than 5 percent of a company's stock from selling those stocks, resulting in a 6 percent rise in stock markets. Further, around 1,300 total firms, representing 45 percent of the stock market, suspended the trading of stocks starting on 8 July. [7]

On 11 August, two months after the crash, the People's Bank of China devalued the renminbi by 1.86 percent to CN¥6.2298 per US dollar. On 14 August, the central bank devalued it to CN¥6.3975 per US dollar.

As of 30 August, the Chinese government arrested 197 people, including a journalist and stock market officials, for "spreading rumors" about the stock market crash. The crime of spreading rumors carries a three-year jail sentence after its introduction in 2013.

The government officials accused "foreign forces" of "intentionally unsettling the market" and planned crackdown on them.

There also was implemented the “Switch” mechanism which stops trading for 15 minutes if the CSI300 index falls or rises by 5% per day, and then suspend trading for the day, if it continues to fall or to rise to 7%. This new measure was immediately tested.

Development of econometric models to predict the behavior of the markets of Russia and China

$$\begin{cases} MICEX = a_0 + a_1 * SHCOMP_{t-1} + a_2 * MICEX_{t-1} + E_t \\ MICEX = a_0 + a_1 * NASDAQ_{t-2} + a_2 * MICEX_{t-1} + E_t \\ MICEX = a_0 + a_1 * NKY_{t-1} + a_2 * MICEX_{t-1} + E_t \\ MICEX = a_0 + a_1 * LSE_{t-1} + a_2 * MICEX_{t-1} + E_t \\ SHCOMP = a_0 + a_1 * NASDAQ + a_2 * SHCOMP_{t-1} + E_t \end{cases}$$

Initial assumption:

Moscow Exchange is mainly influenced not by the Shanghai Stock Exchange, but by the NASDAQ Stock Exchange, which, in turns, affects Shanghai Stock Exchange.

In order to test this assumption, I decided to take five linear equations, which will help us to understand, which international stock exchanges (if any) can affect Moscow Exchange.

1) Moscow Exchange is affected by yesterday figure of Shanghai Stock Exchange and yesterday figure of Moscow Exchange itself.
2) Moscow Exchange is affected by two-days-ago figure of NASDAQ Stock Exchange and yesterday figure of Moscow Exchange itself.
3) Moscow Exchange is affected by yesterday figure of Tokyo Stock Exchange and yesterday figure of Moscow Exchange itself.
4) Moscow Exchange is affected by yesterday figure of London Stock Exchange and yesterday figure of Moscow Exchange itself.
5) Shanghai Stock Exchange is affected by todays figure of NASDAQ Stock Exchange and yesterday figure of Shanghai Stock Exchange itself.

For every equation I perform two tests. First of all, I start with Granger Causality test. All data for further tests was collected from the Bloomberg terminal for the year 2015 (02.01.2015 – 31.12.2015).

Null Hypothesis:	Obs	F-Statistic	Prob.
SHCOMP does not Granger Cause MICEX	258	2.86130	0.0590
MICEX does not Granger Cause SHCOMP		0.03662	0.9640

As we can see from results of our test, with the probability of error not more than 5.9% Shanghai Stock Exchange does cause changes on Moscow Exchange. This indicator shows quite good statistic. We can say that this test is passed if the probability is not more than 10%. This correlates with our initial assumption that Moscow Exchange is influenced by Shanghai Stock Exchange but not on the high level. We will understand this later, but I can assume that this medium-level probability is because of small involvement of Russian companies in the Chinese market. However, this involvement is growing with the time and will possibly be higher in the next year.

Null Hypothesis:	Obs	F-Statistic	Prob.
NASDAQ does not Granger Cause MICEX	258	7.13563	0.0010
MICEX does not Granger Cause NASDAQ		0.60462	0.5471

During the test of Moscow Exchange and NASDAQ Stock Exchange Causality, we receive very interesting figure. With the probability of error not more than 0.1% NASDAQ Stock Exchange does cause changes on Moscow Exchange. This is almost perfect correlation and it shows how strong is dependence of Russian financial market from American one. This can be explained by two factors. At first, the overall dominating position of US markets in the world and the fact that many big Russian companies are listed on the NASDAQ Stock Exchange. This makes Russian market very sensitive to changes of NASDAQ.

Null Hypothesis:	Obs	F-Statistic	Prob.
NKY_10_ does not Granger Cause MICEX	258	4.14283	0.0170
MICEX does not Granger Cause NKY_10_		4.04307	0.0187

The next test is devoted to possible causality between Tokyo Stock Exchange and Moscow exchange. The test shows that with the probability of error not more than 1.7% Tokyo Stock Exchange does cause changes on Moscow Exchange. This figure is very good. Without any additional information we would conclude that MICEX is very dependent from NIKKEI. However, we should remember that Tokyo financial market replicates the behavior of American one. The reason is same. Strong integration of these two economies. If Japan is not the cause for changes on MICEX, maybe Europe is?

Null Hypothesis:	Obs	F-Statistic	Prob.
LSE does not Granger Cause MICEX	258	0.21824	0.8041
MICEX does not Granger Cause LSE		1.40088	0.2483

The test shows that with the probability of error not more than 80.4% London Stock Exchange does cause changes on Moscow Exchange. This means that London Stock Exchange has almost no effect on Moscow Exchange. In my opinion, this can be due to two factors. European stock market is independent and detached, in comparison with Japanese one. Thus it doesn’t replicate NASDAQ. And also, because of huge fall in cooperation between Russia and Europe, we assume that Russian companies are less influenced by European market than it was few years ago.

Null Hypothesis:	Obs	F-Statistic	Prob.
NASDAQ does not Granger Cause SHCOMP	258	2.77675	0.0641
SHCOMP does not Granger Cause NASDAQ		0.65976	0.5179

With the probability of error not more than 6.4% NASDAQ Stock Exchange does cause changes on Shanghai Stock Exchange. This causality is very similar to the casualty between Moscow and Shanghai. The result does not contradict our initial assumption that there exist dependence between Moscow, Shanghai and New York Exchanges.

Least Squares Method for MICEX - X correlation					SHCOMP/NASDAQ
	SHCOMP(-1)	NASDAQ(-2)	NKY(-1)	LSE(-1)	
Probability	0,0703	0,0190	0,0170	0,5763	0,0029
R-squared	0,9067	0,9023	0,9075	0,9056	0,9723
DW statistic	2,0511	2,0705	2,0739	2,0455	1,6553

Least Squares Method confirms that there exist:

1) 1-day lag between Moscow Exchange and Shanghai Stock Exchange,
2) 2-days lag between Moscow Exchange and NASDAQ Stock Exchange, almost
3) no lag between Shanghai Stock Exchange and NASDAQ Stock Exchange.

Least Squares Method denies correlation between Moscow Exchange and London Stock Exchange. However, the correlation between Moscow Exchange and Tokyo Stock Exchange, raises doubts because there is almost no Russian companies, which are listed in Tokyo and it only replicates behavior of NASDAQ Stock Exchange.

In order to make a prediction of data we continue making calculations using our data. With the help of our function, our model shows appropriate results. Next table– Results of the Forecast Based on Different Indicators

	SHCOMP	NASDAQ	MICEX	MICEX (SHCOMP based)	MICEX (NASDAQ based)
January	2737,60	4613,95	1784,92	1731,48	1660,20
February	2687,98	4557,95	1840,17	1733,75	1655,05
March	3003,92	4869,85	1871,15	1719,33	1683,72
April	2938,32	4775,36	1953,05	1722,32	1675,03
May	2825,48	4769,56	1891,33	1727,47	1674,50

As we can see in this table, I took data for the beginning of 2016 and compared it with the data that I've got after performing forecasting. Results are acceptable.

Forecast, which was based on Shanghai Composite Index, shows very precise results, especially for the first month of the forecasting period. Further data is also acceptable, taking into account fluctuations of the Shanghai Composite itself and rapid strengthening of the ruble in the first decade of 2016. As for forecast, which was based on NASDAQ data, we also can see same trend, which is very close to real values. Only problem with NASDAQ-based forecast is connected with almost 10% drop in the first month of 2016, which was not included the model. If there was no such drop, maybe we would get much more precise data. All in all, outcomes of our forecast are very good. This indicates an adequacy of our initial assumption and appropriateness of our model.

Conclusion

Before we come to the final conclusion, let's remember what was our initial assumption. "Moscow Exchange is mainly influenced not by the Shanghai Stock Exchange, but by the NASDAQ Stock Exchange, which, in turns, affects Shanghai Stock Exchange." What can we say concerning this statement after performing all tests? As it was expected, Shanghai Stock Exchange does influence Moscow Exchange. The influence is not as great as, for example, influence of NASDAQ Stock Exchange, but it is also significant. However, we can observe interesting correlation. There exist 2-day lag between Moscow and New York, 1-day lag between Moscow and Shanghai and almost no lag between Shanghai and New York. This confirms our initial assumption that Shanghai Composite influences Moscow Exchange mainly through NASDAQ. As for other exchanges – London Stock Exchange has almost no connection with Moscow. Tokyo, in turns, mainly replicates behavior of NASDAQ index, thus having no real influence on MICEX. Taking into account what was said above, we can conclude that we've confirmed our assumption using mathematical methods.

It is really hard to predict behavior of Chinese financial system. Among possible reasons, we can mention not only governmental regulation, but also the early stage of financial development of nation in the whole. It is obvious that 1.4 billion people will influence market and it is a question of financial literacy – how they will influence it. However, government tries to regulate market, but sooner or later it will become more liberal and then this changes will give ether very good boost for Chinese economy, either they fill lead to collapse of old system. As it was mentioned above, on its own Chinese economy cannot ruin world market yet, but it can give ground for further and deeper crisis in the region. Thus, it is very important to solve this problem as soon as possible.

China is an extremely important player on the world arena. Yes, it is going though severe financial crisis, which was caused by bad regulation. Yes, its financial system and legislation needs revision. Yes, the peak of this crisis is not yet overcome. What is more important is growing influence of Chinese economy not only in the local region, but all over the world. According to some analysts, China already overcame US economy in size and it is a matter of time when it will overcome US in quality. They expect China to be leading player in the world only in few decades. Russia is not an exception.

We are strengthening our ties and betting on a growing economy of China. Yet those ties are weak, but they are also strengthened over time. Maybe now we observe small correlation between Shanghai Composite and Moscow Exchange, but it is to be expected that it will be two very tightly connected economies in few decades. It is important to work on those relations now if we want prosperity and independence of Russia and China in the future.

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