

## Introduction

In 2015 there had been a breakdown in value of the Chinese main stock exchange index, the Shanghai Stock Exchange Composite. During one half of the year, the index had fallen almost 50%. The goal of this research paper is to check, what were the macroeconomic fundamentals of this happening. Hypothesis is that the stock market bubble had place.

The asked question is even more needed, because financial markets may face significant, and in the view of fundamental analysis, baseless price disturbances. It is an investing phenomenon well known at least from 1630, when the Netherland's Tulip Bubble could have been observed.<sup>1</sup> Concerning the fact that China is still considered as an emerging market, by definition there should be an expectation of an increased stock prices volatility. However, such a radical downfall, which took place, would point to sudden wide system-level changes. Indeed, the Chinese government has introduced in its latest 5-year plan, that in the close future the main force of resources allocation would be given to the market and also that Chinese economy's focus would concentrate more on domestic consumption, than on exports. It is also worth to have in mind manufacturing cost changes, which are creating an equilibrium between China and the United States and some European countries.<sup>2</sup> It is a serious international challenge, because on the one hand it may boost

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<sup>1</sup> N. Roubini, S. Mihm, *Crisis Economics: A Crash Course in the Future of Finance. Polish Edition*, Wolters Kluwer Polska, Warszawa 2011, p. 39; M. Otte, *Der Crash Kommt*, Studio Emka, Warszawa 2009, p. 45.

<sup>2</sup> H.L. Sirkin, M. Zinser, J. Rose, *The Shifting Economics of Global Manufacturing*, The Boston Consulting Group, April 2016, <http://www.slideshare.net/The-BostonConsultingGroup/bcg-global-mfg-cost-competitiveness-index-final> (accessed 28.08.2016).

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reindustrialization of the Western countries, but on the other hand: it could change global directions of capital flows, causing in the meantime a potential slowdown of Chinese GDP growth.

In this paper there will be certain ratios analysed, as follows: GDP growth rate, GDP structure, inflation, foreign reserves, retail sales of consumer goods, ease of doing business, exports level, imports level, foreign direct investments, industrial production growth rate and value of the main index of Shanghai Stock Exchange.

The choice of the ratios is done in order to show the Chinese economy's state in the wide spectrum during 10 years, which is considered as a long investing period. The data shows this country in both the time of distress and renewal after the global financial crisis, which presents a diversified scale of economic statuses. The chosen time period will allow to observe potential manifestation of signals of the first slowdown of economic breakdown.

### **1. Macroeconomic indicators**

GDP growth rate did suddenly collapse during an outrage of the recent global financial crisis from more than 14% to about 9%. Nevertheless there had been a quick bounce back to the region of 11%, a clear downturn could have been seen since 2010. Since 2012, the slowdown has become evident and lasting with a declining tendency.

The Chinese economy is in the process of system-level transformations, which turning point took place in 2012. It was then, when the services sector has caught up with the manufacturing sector and after that it kept raising its share in GDP. According to research provided by F. Holmes, this uptake began in the 80s<sup>3</sup>. The agriculture sector decline however started even in the late 70s. In the period 2006–2015 agriculture's share drop was continuing, as the industry's. It could be considered as

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<sup>3</sup> F. Holmes, *World's Second-Largest Economy In Flux*, Forbes, 27.10.2015, <http://www.forbes.com/sites/greatspeculations/2015/10/27/worlds-second-largest-economy-in-flux/#47ca282b4dc8> (accessed 8.08.2016).

the beginning of leaving the low-cost manual-rich<sup>4</sup> production model in favour of the service sector, more knowledge-rich sector model.

Table 1  
Change of Chinese GDP (year over year), 2006–2015

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
12.69	14.19	9.62	9.23	10.63	9.48	7.75	7.68	7.27	6.90

Source: The World Bank, *World Development Indicators*, [http://databank.worldbank.org/data/reports.aspx?Code=NY.GDP.MKTP.KD.ZG&id=af3ce82b&report\\_name=Popular\\_indicators&populartype=series&ispopular=y](http://databank.worldbank.org/data/reports.aspx?Code=NY.GDP.MKTP.KD.ZG&id=af3ce82b&report_name=Popular_indicators&populartype=series&ispopular=y) (accessed 6.08.2016).

Table 2  
Sectors' share (% of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Agriculture	10.71	10.37	10.34	9.88	9.62	9.53	9.53	9.41	9.17	8.99
Industry	47.40	46.69	46.76	45.67	46.17	46.14	44.97	43.67	42.74	40.53
Services	41.89	42.94	42.91	44.45	44.20	44.32	45.50	46.92	48.09	50.47

Source: The World Bank...

The data mentioned before is even more enforced by the low inflation, which became peculiarly clear since 2012 (this data goes in pair with the slowdown of GDP growth). It points at a relatively stable macroeconomic situation and trust of citizens concerning governmental economic actions. As its engrossed levels could be well understood given the uptake in economic activity before the crisis' outbreak and that it could have been expected that it could return right after the crisis (or on the contrary – because of the fear concerning the future of the economy), a clear tendency of reaching lower prices could have been observed (there was even deflation taking place). It is encouraging concerning the

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<sup>4</sup> P.R. Krugman, M. Obstfeld, *International Economics. Theory and Policy*, 7th ed. [Polish edition], Vol. 2, Wydawnictwo Naukowe PWN, Warszawa 2007, p. 365.

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future of the Chinese economy, as inflation is considered as a meaningful gauge of society's stability.<sup>5</sup>

As far enlisted data is a clear signal of consequent increasing of Chinese society's wealth and preserving it. It is a crucial factor of the long term development. Wages and savings are not consumed by inflation significantly (although the occurrence of its elevated levels and deflation as well should arouse caution), the growth of wealth is long-term and monetary policy – thoughtful.

Table 3  
Inflation in China

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
3.90	7.83	7.81	-0.11	6.94	8.14	2.39	2.23	0.82	-0.45

Source: The World Bank...

Chinese foreign reserves had value of 3,33 trillion USD at the end of December of 2015. Between 2011 and 2012 there was a significant slowdown of their growth. They have reached their highest value of more than 3,8 trillion USD in 2014. In spite of this, a process of sudden shrinking of them started in the middle of 2014<sup>6</sup>. In the very December of 2015 they diminished of 108 bln USD, which is a record in their measurements. It is a very concerning phenomenon, but the rest of the reserves is a strong safety buffer, given the fact that the whole Chinese GDP is more than 10 trillion USD. It does not change the fact though, that year 2012 should have signalled clearly, that a significant change in their growth pattern has arrived. At the end of 2014, no one should have had any illusions, that something is wrong.

Another worrying phenomenon is declining share of total reserves as percent of total external debt. Since 2009 there has been a gradual

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<sup>5</sup> P.A. Samuelson, W.D. Nordhaus, *Economics*, 19th ed. [Polish Edition] Dom Wydawniczy Rebis Sp. z o.o., Poznań 2012, p. 623.

<sup>6</sup> *China Foreign Exchange Reserves*, <http://www.tradingeconomics.com/china/foreign-exchange-reserves>.

diminishing of its value, which may point to potential worsening of external funding servicing costs. Although the percentage is significant and should not cause any serious volatility concerning financial stability, the pace of decline may be alarming.

Table 4  
Foreign exchange reserves in China, trillions of US dollars

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1.07	1.53	1.95	2.4	2.85	3.18	3.31	3.82	3.84	3.33

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*, [http://www.pbc.gov.cn/eportal/fileDir/image\\_public/UserFiles/english/upload/File/Annual%20Report%202010.pdf](http://www.pbc.gov.cn/eportal/fileDir/image_public/UserFiles/english/upload/File/Annual%20Report%202010.pdf); <http://www.pbc.gov.cn/english/130739/3105326/3105334/2016072210452220636.pdf> (accessed 6.08.2016).

Table 5  
Total reserves as % of total external debt

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
333.07	411.67	515.04	541.78	512.01	450.95	443.71	440.90	402.20	.

Source: The World Bank...

In spite of Retail Sales of Consumer Goods rising in the given period all the time, its growth rate has worsened. The decline of it could have been seen since 2011 and it is continuing constantly, which is not a surprise given the rise of services in the GDP, which is a typical sign of maturing economy. It should be considered, whether this decline is here to stay. Given the development of Chinese consumer market and other emerging markets,<sup>7</sup> which populations are huge, there is a question whether we will see another period even if not of accelerated growth, then maybe just sustained.

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<sup>7</sup> J. O'Neil, *The Growth Map* [Polish edition], Studio Emka, Warszawa 2013, p. 167.

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Table 6

Retail Sales of Consumer Goods, trillion of yuans, change  
(year over year), 2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value	7.64	8.92	10.85	12.53	15.70	18.72	21.44	24.28	27.19	30.09
Change	13.70	16.80	21.60	15.50	18.30	17.10	14.30	13.10	12.00	10.70

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*...

Since 2008 there has been a gradual worsening of Chinese environment for business conducting. The country fell from the 86<sup>th</sup> position in that year to 99<sup>th</sup> position in 2012.<sup>8</sup> Apparently, the Chinese government has focused on resolving this problem, given the fact that in 2013 there was a progress made and in 2014 there was a sudden jump to the 83<sup>rd</sup> position. However, it was not sustained as there was small fall resulting in 84<sup>th</sup> place in 2015. In this ratio there is once again, as in some different ones, problem concerning the year 2012, which is characteristic of deterioration of many ratios in this research.

Exports has seen an exceptionally high growth in some years of the given decade. Its value more than doubled, but in the meantime it did not avoid downfall concerning the global financial crisis. In 2015 there was another significant downgrade. It has been clearly approaching since 2011, but it was the global financial crisis, which has started its downward tendency. It could have been seen already in 2007.

Table 7

China's Exports, trillion of US dollars, change (year over year),  
2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value	0.97	1.22	1.43	1.20	1.58	1.90	2.05	2.21	2.34	2.28
Change	27.20	25.70	17.20	-16.00	31.30	20.30	7.90	7.80	6.00	-2.80

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*...

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<sup>8</sup> *Ease of Doing Business in China*, <http://www.tradingeconomics.com/china/ease-of-doing-business>.

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There was a similar situation concerning imports, as there was also a sudden downfall during the financial crisis and in 2015.

Table 8

China's Imports, trillion of US dollars, change (year over year), 2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value	0.79	0.96	1.13	1.01	1.40	1.74	1.82	1.95	1.96	1.69
Change	20.00	20.80	18.50	-11.20	38.70	24.90	4.30	7.20	0.50	-14.20

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*...

Also in a matter of foreign direct investments there was a downgrade of value in 2012 and since then the growth additions were generally lower in comparison to years before it (apart from 2009, when the first strike of the global financial crisis could have been observed).

Table 9

China foreign direct investment, trillion of US dollars, change (year over year), 2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value	13,327,255	15,624,934	17,153,465	13,105,705	24,370,344	28,007,222	24,121,387	29,092,843	26,809,718	24,985,892
Change	-4.1	13.6	23.6	-2.6	17.4	9.7	-3.7	5.3	1.7	5.6

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*...

The core of the problem, which China is currently facing, is well seen in the industrial production growth rate. It comes out, that the recent breakdown of the Chinese stock exchange should have been expected for a long time. Actually, it should have been not only expected, but should have never happened. A clear slowdown in industrial production value added growth had place already since 2011. The former breakdown was caused by the global financial crisis, so it should be treated as an anomaly.

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What happened later however, could be considered as a long-term trend signalling not only a change of the global economic situation, but also balance of geostrategic strengths and capital flows directions. The key aspect in this context is a gradual growth of production costs, and what comes with it: the need of changing the economic model from relying on manufacturing basic products and cheap workforce to designing, production and services in the advanced technologies sectors. Until the end of this research however, the pace of industrial value added growth fell from about 12.1% in 2010 to 5.9% in 2015.

In looking for the beginnings of the slowdown one can go even further: actually, the downgrade tendency began already in 2005.<sup>9</sup> A conclusion could be stated here, that it was not and still is not the global financial crises to influence slowdown in Chinese economy the most in the long term, but the whole economic model needs a fundamental change of its nature. Indeed, the Chinese government is conducting this process right now.

Table 10  
Industrial value added, trillion of yuans, change (year over year),  
2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Value	9.04	10.74	12.91	13.46	16.00	19.16	20.45	21.73	22.81	22.90
Change (year over year)	15.50	13.50	9.50	8.30	12.10	10.80	7.90	7.60	6.90	5.90

Source: People's Bank of China, *Annual Report 2010*, *Annual Report 2015*...

## 2. The Shanghai Stock Exchange index behaviour

The analysis of the behaviour of the main Shanghai's stock exchange index leads to a very concerning conclusion. Although the downfall of the index's value after 2009 is totally understandable and reflects to

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<sup>9</sup> *China Industrial Production*, <http://www.tradingeconomics.com/china/industrial-production>.

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some extent the downgrade in the industrial value added growth rate, inconceivable was almost doubling the value of the index on the verge of 2014/2015 and also a radical growth between 2006 and 2007. Those sudden additions of value absolutely do not mirror the fundamental ratio of the industrial value added change. What is more, in the annual view there were no sudden additions to the retail sales change, nor in exports or imports, which deteriorated. The GDP growth rate was decelerating and there should be no sudden additions of value when macroeconomic ratios do not provide basics for it. Additionally, in 5 out of 10 years the capitalization of all companies listed on the Chinese stock exchange was about 40% of GDP, only two times it was above 70% (including 2015) and once it was almost 130% (in 2007).

Table 11

Market capitalization of listed domestic companies (% of GDP)

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
41.96	127.13	39.02	70.62	66.69	45.54	43.70	41.61	58.01	75.35

Source: The World Bank...

Table 12

The Shanghai Stock Exchange Index value, 2006–2015, trillion of yuans

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7.16	26.98	9.73	18.47	17.90	14.84	15.87	15.12	24.40	29.52

Source: Shanghai Stock Exchange, <http://english.sse.com.cn/indices/statistics/historical/> (accessed 7.08.2016).

A possible explanation of the recent upward jump in value could be the fact, that the Chinese government is currently conducting a system-level transformation of the economy in direction of a full or almost a full free market. Still, it had not found mirroring in the macroeconomic data. Quite on the contrary: many of them deteriorated. The high expectations of wider international opening of the Chinese economy and therefore adding dynamics to it could have been the cause of volatility, but it

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should have been avoided given the present macroeconomic fundamentals. The transition of the Chinese economy is a process, which will take years, and so stock market should align gradually to those changes – not in a few months time.

Table 13

Chosen macroeconomic ratios and the Shanghai Stock Exchange index value comparison, year over year, 2006–2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Industrial value added change	15.5	13.5	9.5	8.3	12.1	10.8	7.9	7.6	6.9	5.9
Retail sales change	13.7	16.8	21.6	15.5	18.3	17.1	14.3	13.1	12.0	10.7
Export change	27.2	25.7	17.2	-16.0	31.3	20.3	7.9	7.8	6.0	-2.8
Import change	20.0	20.8	18.5	-11.2	38.7	24.9	4.3	7.2	0.5	-14.2
GDP change	12.69	14.19	9.62	9.23	10.63	9.48	7.75	7.68	7.27	6.90
SSE index change	210%	277%	-64%	90%	-3%	-17%	7%	-5%	61%	21%

Source: People’s Bank of China (industrial value added, retail sales of consumer goods, China’s exports, China’s imports), The World Bank (Chinese GDP change), author’s calculations based on Shanghai Stock Exchange data (SSE index change).



Figure 1. The Shanghai Stock Exchange Composite Index value, 2015

Source: Shanghai Stock Exchange, *SSE Monthly Market Statistics 12.2015*, <http://english.sse.com.cn/indices/publications/monthly/c/4033491.pdf> (accessed 8.08.2016).

Another proof of inappropriate price occurrence is a median 12-month trailing Price to Earnings ratio of the whole index.<sup>10</sup> It clearly shows a sudden growth up to an alarming value of about 90 in 2015, whereas the average value is 39.1. A similar situation occurred in the time before the breakdown of the ratio's value in 2007.

### Conclusions

The breakdown of value of the Shanghai's main stock exchange index in 2015 was possible to predict since, at least, 2011. Actually, it should have been not a breakdown, but a gradual alignment of the index's value to GDP's dynamics, retail sales, exports, imports and, most of all, industrial production value added growth, which was the clearest warning sign. All of these ratios should have been also perceived in the context of diminishing foreign reserves. The sudden jump of the index's value in 2015 and its similarly sudden downfall at the end of that year, disconnected from the macroeconomic fundamentals, allow to conclude, that an asset price bubble occurred. The author's hypothesis turned out to be correct.

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<sup>10</sup> F. Holmes, *China's Economy Is Undergoing a Huge Transformation That No One's Talking About*, U.S. Global Investors, 28.08.2015, <http://www.usfunds.com/investor-library/investor-alert/chinas-economy-is-undergoing-a-huge-transformation-that-no-ones-talking-about/#.Vr3En85FyUk> (accessed 28.08.2016).

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