ECONOMIC INDEX OF OVERBOUGHT AND OVERSOLD STOCK MARKET

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Abstract. Target. Our stock market and exchange infrastructure lag far behind European or American counterparts. Borrowing experience from them and creating and using developments in the domestic market will provide an opportunity to develop the economy. Including foreign indicators, research and sources, most of which are publicly available, can give a boost to young scientists and promising scientists to improve and improve the economic system in general and the development of the stock market in particular. The imperfection of domestic legislation and the lack of transparency in the economic system do not allow for a full and healthy development of the stock market. The goal is to increase the financial literacy of the population, encourage promising professionals to develop the stock market, analyze well-known global sources and economic indicators, to convey the possibility and feasibility of economic analysis based on stock market analysis. It is impossible to find an ideal indicator for each market, for each generation and for each asset, but it is probably possible and necessary to look for ways to analyze and study data to be able to extrapolate them to current economic and geopolitical conditions. The aim of the study is to analyze one of the most well-known in the West, but not widespread in the domestic space indicator in the world of finance and stock quotes on Wall Street.

Forming the goals of the article: to increase the financial literacy of the population; encourage promising professionals to develop the stock market; analyze known world sources and economic indicators; to convey the possibility and expediency of economic analysis based on the analysis of the stock market.

In the conditions of constant evolution of market relations together with them the tools by which trade is carried out are developed, mechanisms of functioning of exchanges are improved and new strategies of conducting exchange game are constantly created.

A significant advantage of this indicator is its consolidated structure and the presence of several evaluation criteria. Easy and clear form of presentation of the result and prognostic character are also additional positive characteristics. Skeptics argue that this index is more of a tool for studying current market sentiment than a predictive indicator, pointing to its volatile nature and not always accurate signals. It is definitely worth using this indicator in your own analytical system, but it should be analyzed in parallel with other macroeconomic indicators.

Keywords: *Stock market, index, investments, shares, bonds, yield, volatility, NYSE, assets, options, risk, derivatives.*

Introduction

The economic cycle consists of several successive phases, each of which has its own specifics and patterns. The world economy is by nature constantly growing, but this growth is accompanied by repeated cycles of decline and growth. Such a wave-like movement of the economy always has good reasons, first of all they include: scientific and technological progress, overproduction, creditworthiness, depreciation of fixed assets, redistribution between sectors of the capital economy and others. Among financiers and analysts, there are many indicators, indicators and multipliers that can study the market and with a certain degree of probability to identify the stage of the economy. But the problem of analyzing the economic situation of a country or an individual company arises not so much in the presence or absence of macro- and microeconomic data, as in the ability to read and use them in these market conditions. The world is changing, and with it change trends, trends, fashion, preferences,

opportunities, technologies, etc. It is not possible to find an ideal indicator for each market, for each generation and for each asset, but it is necessary to look for new and more advanced ways to analyze and study data in order to be able to extrapolate them to current economic and geopolitical conditions. The aim of the study is to analyze one of the most well-known in the West, but not widespread in the domestic space indicator in the world of finance and stock quotes on Wall Street.

Literature review. Well-known American authors and agencies provide a lot of valuable information for self-study and use for scientific and research purposes. As the research topic is completely new and has no analogues in domestic textbooks and sources, materials from foreign sources were used and translated. Richard Yamaroke provided extremely useful information on selected macroeconomic indicators and how to apply them. The Chicago Board of Options CBOE details the importance and role of financial instruments traded on stock exchanges. In his letter to investors, Warren Buffett reveals the problems and risks in the context of financial markets. Victor Likhovydov details the analysis of the currency market and suggests the use of technical indicators to improve trading signals.

Research methology. Theoretical and methodological principles of the study are scientific works of domestic and foreign scientists in the field of stock trading, statistics, mathematical modeling. The following methods are used in the course work: descriptive and comparative analysis, economic and statistical, fundamental, historical.

Research results. Fear and greed have always been and will be the main emotions that guide stock market participants. In fact, quotations are not driven by statistics, political phenomena or the financial results of companies, but by their interpretation by the market majority. When investors are driven by fear and caution about the future growth prospects or stability of an asset, a global sell-off begins and prices move downward. When the market majority is confident of future growth, prices can update new highs on positive expectations in a matter of minutes. A well-known American investor and one of the richest people in the world argued that it is necessary to sell when everyone is greedy and to buy when everyone is afraid of fear (Chairman's 2004 Letter to Investors, 2004).

The world-famous authoritative information resource CNN has created a so-called market sentiment index, which is called the "Fear and Greed Index". The agency monitors daily how the market is overbought or resold as of now. Based on the analysis of this index, it is possible to make predictions about future price fluctuations of assets (Fear and Greed Index. CNN, 2020).

The index is calculated on the basis of seven main indicators:

Impulse of stock prices

The broad US stock index S & P500 is taken as a sample, which includes the 500 largest capitalized companies registered in the United States. The indicator itself is calculated on the basis of the index and its average flow for the last 125 days. If the current price is higher than the 125-day average flow, the market is greedier, if the price is below the average flow, vice versa.

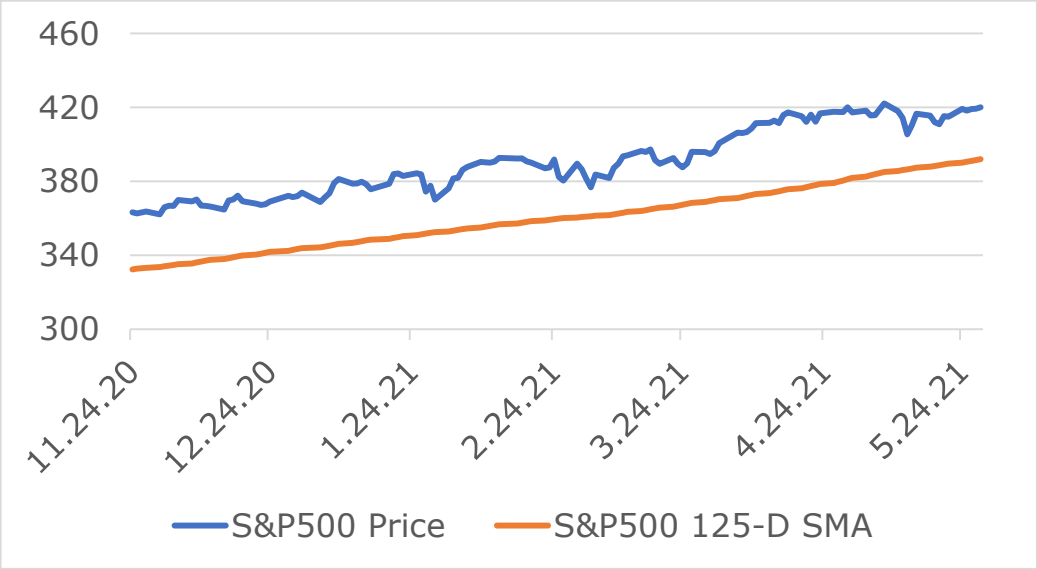
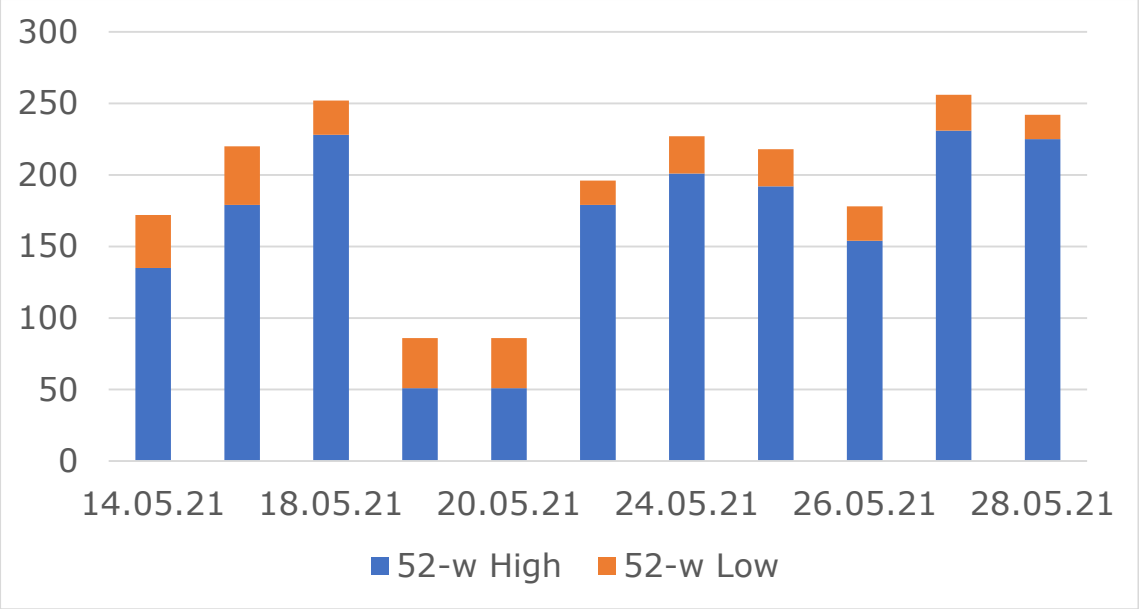


Figure 1. S&P500 price chart and 125-day simple moving average
Source: Yahoo Finance

Stock market strength

It is calculated based on the number of shares of companies that have updated their 52-week highs relative to the number of shares of companies that have updated their 52-week lows on the New York Stock Exchange. The data is updated daily after the closing of the trading session.



Fiure. 2. Number of 52-week high and 52-week low companies on NYSE
Source: Barron's

The breadth of the stock market

It is calculated as the ratio of the traded volumes of shares, which grew as a result of the trading session, to the volumes of shares, which decreased in price. The indicator is based on the McClellan Volume Summation Index (Islam & others, 2018).

Volatility in the stock market

Calculated based on the volatility index of the Chicago Board of Exchange. It is based on the volatility of options on the futures of the S & P500 index and its 50-day moving average. Volatility is a measure of market uncertainty, and some analysts use it to assess risk (Cboe Volatility Index. Chicago Board Options Exchange. 2018). The high value indicates atypical market behavior and too much excitement on the part of bidders for this instrument, which indicates an increase in the likelihood of price deviation from the average of either party and causing negative consequences for invested capital.

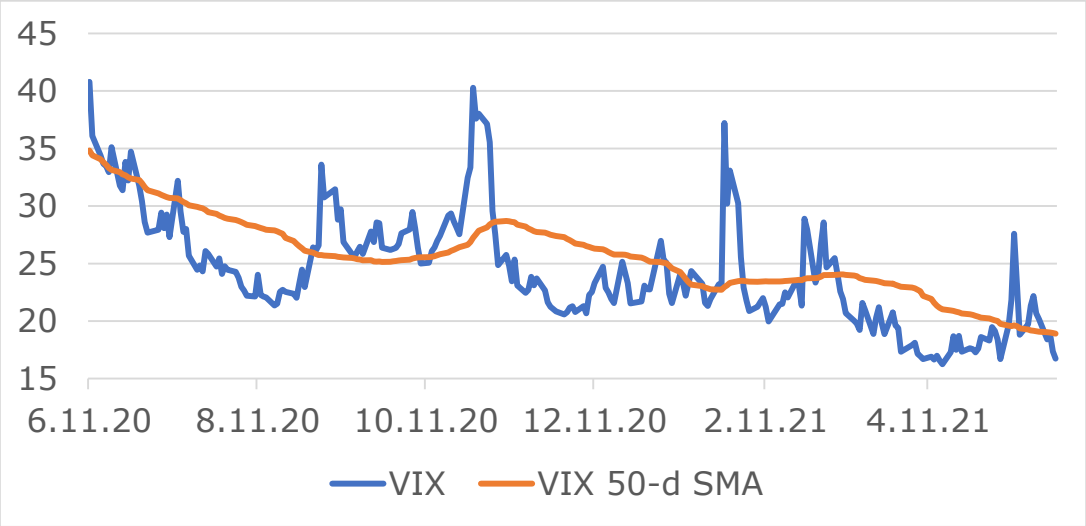


Figure 3. Volatility index of S&P500
Source: Chicago Board Options Exchange

Demand for risky assets

It is calculated on the basis of the yield of high-risk bonds, they are still called "junk or high-yield" corporate bonds. Ratings are assigned to corporations and even entire countries by a credit bureau that conducts ongoing research and monitoring of economic entities. The most authoritative and well-known agencies are the American companies Standard & poor's, Fitch and Moody's. "AAA" and "AA" (high credit quality) and "A" and "BBB" (average credit quality) are considered investment levels. Bond credit ratings below these designations ("BB", "B", "CCC", etc.) are considered to be issuers with a low credit rating and their debt securities are usually called "junk" (Investment grade. Investopedia. 2019).

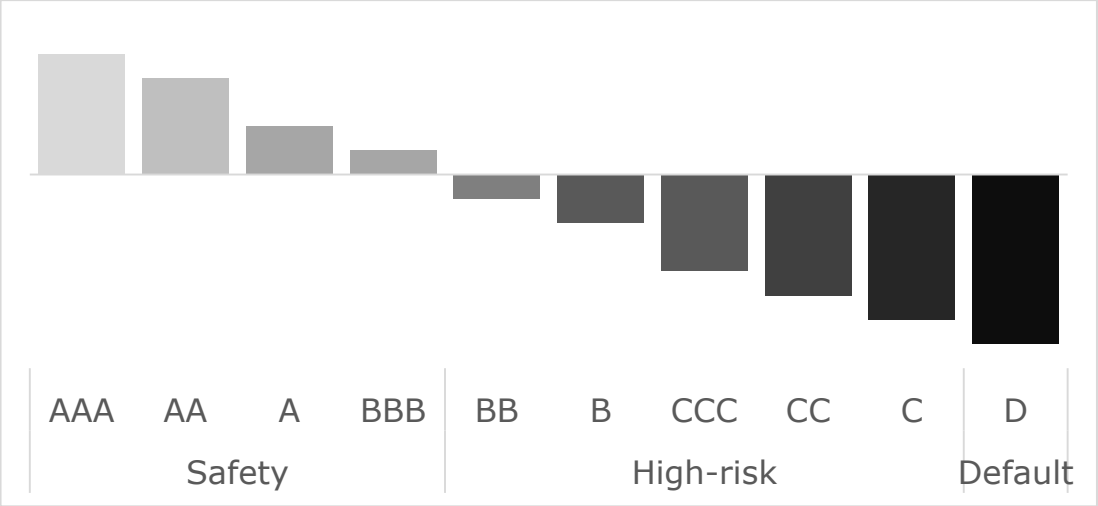


Figure 4. Standard & poor's credit rating scale
Source: S&P Global

Demand for safe assets

It is calculated on the basis of the price difference between the yield of shares and the yield of US Treasury bonds for the last 20 trading days (almost for the last month, in which an average of 22 trading days). Stocks are considered risky assets, and treasury bonds are one of the most conservative and safest instruments of the stock market (Yamarone, 2004). This is confirmed by the fact that the US government has never in history announced a default and did not refuse to pay public debt to bond creditors. High credit rating – means stability and security, but at the same time low yields, at least lower than stock returns (Lyhovidov, 1999). The stock market is more volatile but also more profitable, but when investors begin to prefer protective assets such as bonds and buy them an masse - this indicates questionable market sentiment about the prospects for stock market growth.

Option Call and Put

Calculated based on the ratio of the volumes of Put options and Qty options. If the ratio is less than one, it means that the number of options (the right to buy an asset in the future) is greater than the number of Puts (the right to sell the asset in the future). The opposite situation suggests that a value greater than 1 is an alarm signal, **indicating** that the market is mostly bearish. To smooth the volatility and increase the accuracy of the indicator using a 5-day average flow (How the Fear and Greed Index Can Guide Your Investing, 2019). In general, options are derivative financial instruments based on the underlying asset. Beginning in the 1980s, the derivatives market began to grow rapidly, and exchanges began to introduce more and more similar instruments, which were and are in demand among investors. The equivalent of about $ 1 quadrillion is the total debt on all derivatives in the world. Derivatives are second or even third order instruments. For comparison, the capitalization of the stock market and corporate bonds as of the end of 2018 is almost 70 trillion dollars.

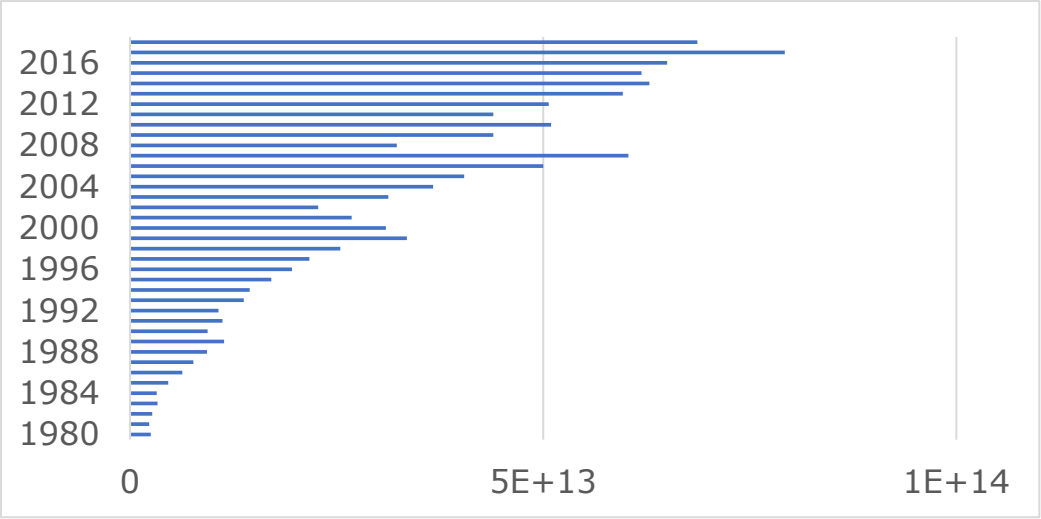


Figure 5. World stock market capitalization
Source: World Bank

The interpretation of each indicator is based on its average normal value for a certain period (for example, for the momentum it is the average 125-day current and for volatility it is the 50-day current). The scale of evaluation of each indicator varies from 0 to 100. If the current value is within the norm - it is assigned a value of 50, if it exceeds the norm by the appropriate percentage, it is assigned a value from 50 to 100, respectively, if below the specified norm is a mirror image. After evaluating each of the seven criteria, they are assigned the same weight and weighed into one total indicator with a scale from 0 to 100. A value of 50 indicates a neutral market; from 25 to 50 and from 50 to 75 – fear or greed, respectively; from 0 to 25 and from 75 to 100 – extreme fear or extreme greed, respectively.

Conclusions

A significant advantage of this indicator is its consolidated structure and the presence of several evaluation criteria. Easy and clear form of presentation of the final digital result and prognostic character are also additional positive characteristics. The disadvantages include the fact that this index is more – a tool for studying market sentiment at the moment, and predictability gives it a person, in addition, pointing to its volatile nature and not always accurate signals. The main problem of such consolidated indicators is the averaging of data for each individual indicator. On the other hand, the index is calculated on the basis of technical indicators, ignoring the fundamental analysis. It is definitely worth including this indicator in your own analytical system, but it should be analyzed in parallel with other macroeconomic indicators, such as GDP, inflation, unemployment, interest rates and others. The best solution is to use modern technologies based on artificial intelligence and create an uninterrupted model for evaluating several series of data simultaneously. The neural network is not characterized by an error of emotion or a bad mood, because the program will perform only the algorithm of actions that is underlying it. In addition, with this model you can test hundreds or even thousands of data simultaneously, which reduces the processing time of information by a person manually to minutes or even seconds.

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