Interrelation of the Dynamics of Stock Indexes and Economic Activity in Trading and Service Industries

Y.V. Razumova and Y.A. Grebenyuk

School of Economics and Management, Far Eastern Federal University, Vladivostok city, Russia
School of Natural Sciences, Far Eastern Federal University, Vladivostok city, Russia

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Abstract: The article reveals peculiarities of the Russian stock market operation. A stock index value for real economy companies is determined. Trends of volume indices of the activity of trade organizations and service industries of Primorsky Krai are reviewed and their dependence on the dynamics of stock indices is substantiated, which may be of interest for market participants of the Asian and Pacific Region who are interested in business cooperation with Primorsky Krai. A correlation analysis based on the random selection of US dollar rate, MICEX and RTS stock indices and wholesale and retail trading volumes for 2009-2012 is performed. Results of correlation ratio calculations and time dependence of the activities under research are set out. The necessity to use analytical results of stock markets and forecasting indices of economic activity as information for the management decision making in the sphere of circulation is argued. Relevance of addressing the theme of microeconomic fluctuations while training experts within the bounds of academic disciplines in Economics of enterprises and organizations is pointed out.

Key words: Trading and service industries · Development of stock indexes · Indexes of economic activity · Globalization

INTRODUCTION

Stock indices in the business world are conventionally attributed to the indicators of performance and dynamics of the stock market. Through the comparison of the current value of the index with its previous values the behavior of the participants of exchange trade, their response to certain changes in the macroeconomic situation, various corporate events and speculative processes are evaluated. Comparison of the dynamics of indices of various sectors of economy reflects the rate of change in the value of shares of the companies of the mentioned sectors, which is a testament to their business activity and the pace of development. An evidence of this is the study of foreign scholars in this area [1, 2 and 3]. Historically, the main purpose of the stock market is financing of the real sector of economy. The securities market allows businesses to: mobilize the resources that are cheaper than in the credit market, accumulate savings of private investors to generate large financial flows, choose methods of economic policy at the enterprise (with the change of ownership structure through the issue of shares or without the change of ownership structure through bond issues). However, the Russian stock market has a number of features. Russia's stock market is a developing market. Despite the strong increase in turnover on the Russian stock exchanges, the total annual volumes of securities transactions remain very low compared to the developed country markets. Practically inefficient legislation regulating insider activity significantly increases the risk of transactions. It is worth mentioning high political, social and economic risks affecting the Russian stock market. This is primarily due to the fact that the bulk of the gross domestic product is based on the oil and gas sector. The market capitalization is largely due to oil money that come into the state budget and become the source of the growth of speculative intermediary operations and due to unprofitability of financial investment of the "long" money in the reovation of fixed assets, the development of the processing industry and production, the generation and promotion of innovation [4]. However, Russia has integrated into the global financial market, enabling the issue of new securities both aimed at the Western market of state and
municipal Eurobonds and corporate securities (ADRs of different levels, the GDR, Eurobonds), the issuers of which have become the most promising Russian companies.

Typically, the information on stock indices is relevant to a range of professionals whose work is related to the work on the exchanges (brokers, employees of banking, investment companies, companies whose shares are available or planned for placement on the stock exchange). This article is intended to draw attention to the relationship between the dynamics of stock indices and indicators of trade organizations and services in the Primorye Territory. Along with a justification of relevance, the authors adhere to the following targets:

As noted above, the processes of globalization have leveled the link between currency and commodity exchange, thus conditioning interrelation between the dynamics of stock markets and business investment activity of participants in the global economy and thus each individual enterprise, irrespective of its size and type of activity and in practice, regardless of the region where the company operates. Accordingly, for the successful business management in the sphere of circulation in the Primorsky Krai it is necessary to monitor the dynamics of not only domestic stock markets, but also of the world ones;

The organizations in the sphere of circulation in the domestic economy are mainly small and medium-sized businesses (not taking into account the cellular companies). Consequently, their management must gain experience of venture enterprise, which for centuries has been accumulated in the countries with the developed market economies. This risk management, in particular is based on the forecasts of the stock exchange experts and leading (diffusion) indicators of business activity. The use of such information will determine the strategic development plans and antirecessionary policy in the long-term not "blindly", as it was before the crisis of 1998 and 2008, but using the information from a wide range of domestic and international experts;

Company management according to a retrospective analysis widely used in domestic practice is not relevant in today's highly volatile economy. There is a need in methodological approaches that will allow preparing a circle of specialists and top managers of the companies with not a retrospective but perspective managerial thinking, aimed at modeling the development of economic situations in a volatile external environment. They should not be focused only on internal management issues, but capable to look at the perspectives of activities based on global trends in the industry and the economy as a whole. Hence, knowledge about the dynamics of stock indices is important not only for future professionals in the field of finance and securities, but also for job seekers according to specialization "Economics of enterprises and organizations," the Master's program "Economics of the firm and industrial markets."

The most informative in Russia are the MICEX and RTS indices – the barometers of the domestic stock market. The MICEX index originates from the similarly named the Moscow Interbank Currency Exchange. This is the composite stock price index weighted by market capitalization and including 30 most liquid shares of the largest and most dynamically developing Russian companies, whose economic activities are performed in rapidly developing sectors of economy. The mechanism of forming the base for index calculation is transparent and in line with international standards. Shares used to calculate the MICEX index, are included in the index not in equal proportions. Some papers have a greater value and some less. The first four of the issuer (Gazprom, Lukoil, Sberbank and Rosneft) cover almost half of the MICEX index weighting (46.66%). A similar picture emerges for the RTS Index as well. The percentages are slightly different, but the first four are leading there as well. The RTS index was first calculated on the St. Petersburg Stock Exchange, on the basis of the fifty securities of the most capitalized Russian companies. Its difference from the MICEX index is that it reflects the current total market capitalization of the stocks in the list of issuers in relative units (expressed in U.S. dollars). The total capitalization of the issuers on September 1, 1995 was taken as 100\(^1\).

The interrelation of the dynamics of stock indices and indicators of business activity of Russian companies is as follows. Companies producing and exporting oil sell it at market prices, set in the international commodity and specialty oil markets. Sale proceeds of these companies directly depend on the world oil prices. The higher the sales are, the larger their income is and vice versa. Consequently, this affects the stock quotes. Given the fact that the shares of commodity companies are the basis of the capitalization of the Russian stock market, rise of oil prices has an impact on stock prices of oil companies, which is immediately reflected in the change of the weight index values (Fig. 1).

\(^1\)MICEX and RTS stock exchanges officially merged in the middle of December 2011. New Charter entered into force on 29 June 2012. This was announced in press-release of MICEX and RTS. The United Stock Exchange “MICEX and RTS” was renamed to Moscow Stock Exchange. Source: http://www.rg.ru/
The dollar, in turn, continues to maintain a leading position as a universal means of payment. The dynamics of the dollar rate in the domestic market is inversely proportional to the price of oil. Along with reduction of oil prices in the world market (this indicates an increase in the production and supply of oil by OPEC member countries, which account for most of the world's oil exports, or the reduction of the rate of growth of the world economy, etc.), US dollar exchange rate rises. The interrelation between the change in the value of oil and dollar fluctuations is studied in the works of foreign experts that makes the authors' interest in the considered subjects topical [5, 6 and 7]. In view of export oriented domestic economy and import oriented consumption, along with the rise of US dollar the purchasing power of Ruble falls, incomes of Russians decrease in value, domestic demand decreases, the economy is "shrinking" that is the pace of its growth slow down, which has an immediate effect on the dynamics of the indicators of activities of trade and servicing enterprises (Figure 2).

Clearly, within the exchange session the traders instantly react to the changes in oil price in world markets. Dependence reflected in Figure 1 can be traced in seconds (re-counting of stock indexes is performed every 30 seconds during the auction). The dependence, depicted in figure 2 has a substantial time lag. This is due to the specifics of the real economy, its speed and ability to adapt to changing environmental conditions. Anyway, the process involves all sectors of economy in the RF to a greater or lesser extent. According to experts, the correlation of macroeconomic indicators, GDP and stock index, is high enough. For GDP and RTS index pair the value of the correlation coefficient is \( R = 0.91356 \) and for a pair GDP and MICEX index, \( R = 0.93917 \) [8]. It should be noted that the correlation coefficient of RTS and MICEX indices is very high: \( R = 0.98501 \). In Figure 3 we can observe the dynamics of changes in the values of stock indices and the dollar.

As an illustration (described above) of the dependence of economic performance of the enterprizes of trade and service sectors on the dynamics of changes in stock market indices consider a number of charts that are based on statistical data for the Primorye Territory [9]. To monitor the dynamics the authors took into account the relative indicators – physical volume indices of the studied parameters in comparable prices, in percentage of change from the previous year, as they are not affected by inflation and therefore more objectively reflect the real situation in the economy.

The data of the constructed diagrams reflecting the dynamics of volume indices of turnover in wholesale and retail trade (Figure 4) and the volume of fee-paying services (Figure 5) clearly illustrate the "drawdown" of volume indices during the crisis of 2008 and the years after the 2009 crisis. It would be inappropriate to talk about the exceptional correlation with stock indices, but there is a clear repetition of trends in the time interval - one year can be traced.
Fig. 3: The dynamics of stock index of MICEX and RTS, USD exchange rate of the Central Bank of the Russian Federation for 2005–2011.

Fig. 4: Indices of physical volume of turnover of wholesale and retail trade in Primorye territory for 2005 – 2011.

Fig. 5: Indices of physical volume of fee-paying services in Primorye territory for the years 2005 – 2011.

Dynamics of investment in fixed assets of enterprises by the types of activity is presented in Figure 6. To plot the graph, based on official website of Primorskstat, the sampling was performed on the types of activities of interest for the article in accordance with the classifier of the state statistics bureaus [10].
Investment in fixed assets is an indicative criterion of business activity. If the share of investment in one of the activities in the total volume is reduced, this may be an evidence of the negative trends in economic development associated with a reduction in investors’ attention to investment in the industry, or a sector of the economy (in this case - the type of activity) from the point of view of economic expediency, or insufficient funds from investors. According to the results of the graphs the conclusions are as follows. The share of investments in the total volume for such activities as wholesale and retail trade, hotels and restaurants, financial services, health care and social services not only decreased during the crisis in 2009, but did not gain an upward trend. This proves that the impact of the global financial crisis was considerable.

Enterprises today target to gaining "pre-crisis" indicators of sales proceeds and have no free resources for investment. The only exceptions are transport, communication and education (these data are not shown in Figure 6, since their high indicators level visibility from the dynamics on the reflected types of activity). In "transport and communication" in 2009, there was an increase in the share of investment by 13.8% in relation to 2008 and in 2010 relative to 2009, the figure dropped by 20%. This is due to the expansion of telecommunication companies in the market and a dynamic advancement into new markets, expanding the range of rendered services during the period from 2008 to 2009. This trend is specific not only for the market of Primorye, but for many regions of the country. Increase in the share of investment in education is associated with the creation of the Far East Federal University.

For a more detailed evaluation of the above dependence we have carried out the correlation analysis based on the data on the dollar rate, stock indexes of MICEX and RTS and the volume of wholesale and retail trade for 2009 - 2012 years.

In the first step, using the R programming language and Rstudio package, the objective to study the obtained data was formulated. In particular, the Shapiro-Wilk test has showed that not all the random variables have normal distribution. As a result the Spearman’s method for studying correlations was chosen.

The hypothesis that the effect of world figures on the economy of the region becomes apparent after a while has justified. The calculations and graphs made during the study show that the response in wholesale trade is observed in five months and the highest correlation with retail trade falls on the eighth month.

The obtained correlation matrix and the corresponding graphs give the following results: the coefficients of 0.73 and 0.71 between the rate of change of the volume of activity in the retail and wholesale trade, respectively and the MICEX index suggest a significant association of investigated parameters.

**CONCLUSION**

Thus, we see that business activity in the market of goods and services of the Primorsky Territory is subject to the directions of dependence of the demand for goods and services on the dynamics of stock indices. This is one of the illustrations of contemporary globalization. We have already mentioned the high degree of correlation of the MICEX and RTS indices [11]. Here (speaking of globalization), you should pay attention to the fact that the correlation between domestic stock market indices with global stock indices - S&P500, Dow Jones and others is similarly high. This suggests that implementing the strategic planning of the individual companies, it is necessary to take into account the macroeconomic trends, regardless of where these businesses are located geographically. The results of the study may also be of interest to foreign business partners planning investment projects on the territory of Primorsky Krai.
REFERENCES


