MONTHLY BEHAVIOUR OF INDEX OF KYRGYZSTAN STOCK EXCHANGE

IN TRANSITION ECONOMY

İsmail KASAP

Kyrgyzstan Turkiye Manas University, Bishkek, Kyrgyzstan

ABSTRACT

The aim of this study is to discuss the monthly behavior of index of Kyrgyz Stock Exchange (KSE). The monthly indices are analyzed by performing Markov Processes as in the case of a single stock model based on daily closing prices. Past and present of KSE are evaluated from the point of view developing capital markets in transition economy. Additionally, the market capitalization of Kyrgyz, Kazakh, and Uzbek Stock Exchanges are compared.

Key Words: Markov Processes, Kyrgyz Stock Exchange, Monthly Index

I. Introduction

1.1 Macro Indicators of Kyrgyzstan Economy

Kyrgyzstan had been invaded in 1864 by Russia, and in1936 it became one of 15 provisions of USSR. After the collapse of the USSR, Kyrgyz Republic declared its independence on August 31, 1991. On May 10, 1993, the national money Som has been circulated. Population is 4.753.003 and area is 198500 km^2. The major natural resources are hydropower, golden, coal, and low amount of petrol and natural gas. Because of insufficient amount of natural resources and much steppe areas provide zoological production and agro industry. However, the neighbor countries Uzbekistan and Kazakhstan have petrol and gas highly.

Since the date of independence, Kyrgyzstan has tried to establish a competitive market economy. Therefore, an economic reform process has been performed mainly privatization focused in transitional economy. In the transition process, privatization is backbone of economic reforms. Kyrgyzstan started the privatization by transferring publicly owned enterprises to private hands! The major privatization policy of the country has relied on some kind of mass privatization.

Deliktaş and Emsen (2002) explain that vouchers are primary privatization methods in rapid privatization process in Kyrgyzstan. As a result of coupon method, each citizen is hoped to obtain a piece of state property slated for privatization. The 71 percent of total state owned enterprises was privatized between 1991 and 2001. The rates are 90,46% in industry, 43,27% in agriculture, 81,63% in whole service sector.

Koichuev at al. (2001) report that the policy of voucher privatization was governed by the ideology of "socialist justice", the desire to make everyone a property owner. However, it is observed that this aim has not been achieved in the first decade in transition economy. The key

enterprises such as Kyrgyztelecom, Kyrgyzenergy, Kyrgyzgas, and Kyrgyz Airlines, and 10 large size and 131 medium size enterprises will be privatized by 2003.

At the end of the first decade in transition, the most important question is unfortunately corruption in economic life and shadow economy as well as in all transitional countries. Emsen and Egeli (2002) state that the percent of shadow economy in the GDP has increased in Kyrgyzstan from 1993 to 2000. On the other hand, especially in between 1996 and 2000 average growth rate is realized as 5.4%. If this rate is attained, the economy will reach the level of 1990 by 2008. Even though the market mechanisms don't work effectively, public sector has lost the power in economy. At the same time, low level of incomes decreases savings and investments. In other words, due to the reduction of governmental budget, a powerful investment actor is absent in the country. Economy is not reliable and unstable, the principles, methods and mechanisms of liberalism are not known. In transition to market economy, "learning by doing" process causes a big damage in economy. Banking, insurance, money and capital market systems have been carried out in recent years with the help of partner countries and international organizations.

1.2 Kyrgyz Stock Exchange

The Kyrgyz Stock Exchange was officially opened on 25 May 1995. Establishment of the KSE was the natural result of Kyrgyzstan's transition to market economy. With the privatization of publicly owned enterprises, there arose a need for a non-commercial organization whose sole mission would be to provide a fair and transparent mechanism for trading stocks and bonds. The KSE's first priority is to protect the rights and interests of the investors.

The KSE was created through the joint efforts of professional securities market participants within the regulatory framework of the State Securities Agency of the Kyrgyz Government (transformed in September 1996 into the National Securities Commission NSC). The KSE has 16 members, including banks and brokerage houses. KSE members come from Kyrgyzstan, Turkiye, Kazakhstan and Pakistan. The Istanbul Stock Exchange (ISE) is the biggest member of the KSE. The ISE provides technical and training support from the beginning. The USAID has also provided advice and assistance to the KSE.

In September 1995, the KSE Training Center was opened. This Center delivers broker-dealer licensing courses and other training seminars and workshops throughout the year. In the same year, the KSE joined the Federation of Euro-Asian Stock Exchanges. President of the Kyrgyz Stock Exchange, former Prime Minister of the Kyrgyz Republic, was elected in 2000.

The future outlook is declared by the president of KSE in FEAS Yearbook 2001/2002, pp. 51-54:

- improve trading conditions on the KSE trading floor;
- introduce new financial instruments;
- organize trades with future and forward contracts, bonds and certificates;
- enhance the automated trading system for trading in corporate
- stocks and bonds, as well as state treasury bills and futures;
- participate in the **State Privatization Program**, including the selling of state shares, through the KSE;
- Negotiate with government agencies to float both primary and secondary issues of treasury bills over the KSE.

The Table 1 shows the five-year statistical comparison of KSE. The numbers are obviously too small to analyze a stock exchange. As a matter of fact that the main role of the KSE has been to give public and private sector managers training for seven years. Those stock managers will help the government in order to privatize key enterprises such as Kyrgyztelecom, Kyrgyzgas, and Kyrgyzenergy.

Table 1. Five-Year Statistical Comparison

CATEGORY	1997	1998	1999	2000	2001
# Companies traded	40	51	63	80	54
Market capitalization (US$ millions)	8.8	9.1	3.9	3.8	4.7
Total volume-stocks (US$ millions)	0.8	2.3	7.5	22.8	17.9
Total volume-stocks (# shares millions)	3.2	4.7	9.5	172.0	83.8
Avg. daily vol.-stocks (US$ millions)	0.003	0.009	0.03	0.09	0.07
Avg. daily vol.-stocks (#shares millions)	0.013	0.018	0.04	0.68	0.33
Total volume-bonds (US$ millions)					1.1
Avg. daily vol.-bonds (US$ millions)		Historical data not available			0.004
Total volume-other (US$ millions)					n/a
Avg. daily vol.-other (US$ millions)					n/a
Monthly averaged turnover ratio	0.10	0.25	0.16	0.35	0.38
Index	197.0	122.0	81.5	53.0	64.0
Currency/US$	17.4	29.4	45.4	48.0	48.0

Source: Federation of Eurasian Sock Markets (FEAS) Yearbook 2001/2002, www.feas.org.tr

1.3 Kazakh, Uzbek and Kyrgyz Stock Exchanges

The Tashkent Stock Exchange (TSE) was established in 1991, and the Kazakhstan Stock Exchange was founded in 1993. The youngest and smallest one is KSE in Middle Asia. Kazakhstan and Uzbekistan have natural resources more than Kyrgyzstan. The more the country has natural resources, the larger the stock exchange realizes market capitalization as shown in Fig. 1. The leader of Middle Asian Stock Markets is Kazakhstan in which the country has cooperated with western countries more than Uzbekistan and Kyrgyzstan. While there are more than 50 foreign missions in Kazakhstan, this number is 11 in Kyrgyzstan. Not only Kazakhstan have more natural resources but also it makes risky decisions related to its stocks market to integrate the developing world economy. In our opinion, all of the Middle Asian Countries are too different than Middle East countries according to economic development in transition. At the end of the first decade, they have been learning states how to develop their special capital markets, banking and insurance systems. However, the essential need is changing paradigm and finance in these countries. The populations are well educated to manage the desired change. Turkiye and other countries have also supported for specialists and students to learn the principles and applications of market economy by schools, universities, banks, and especially businessmen more than ten years.
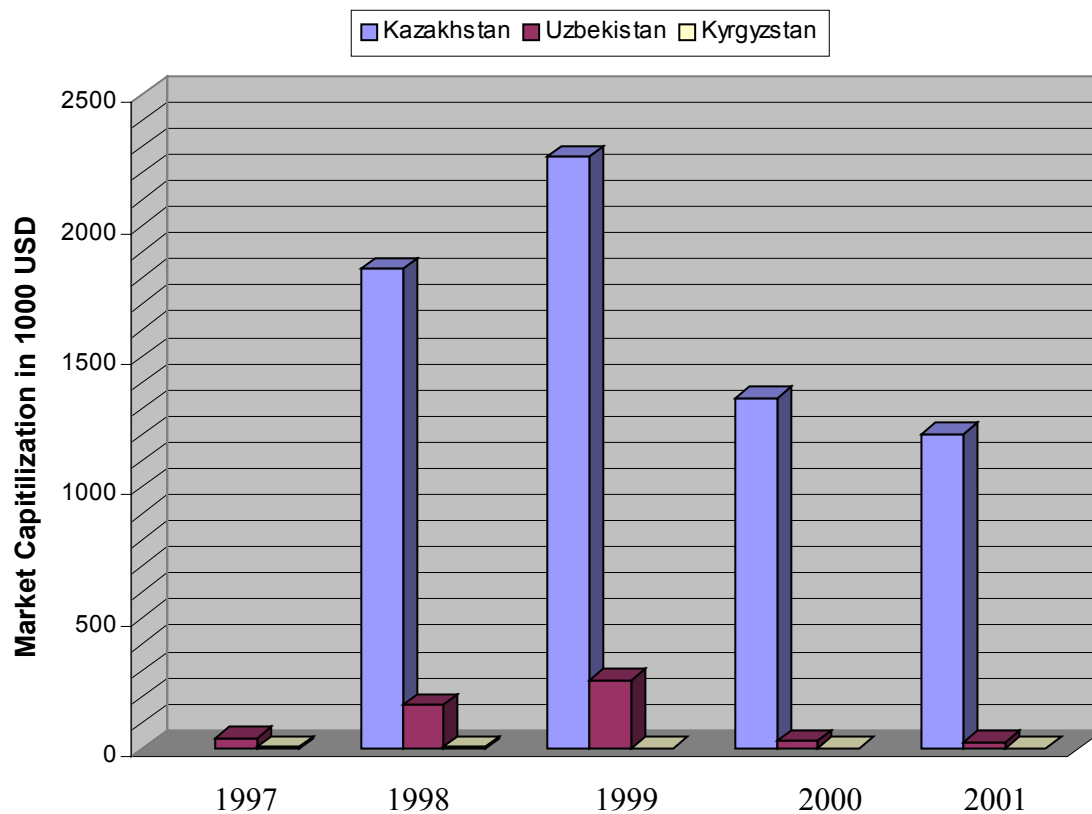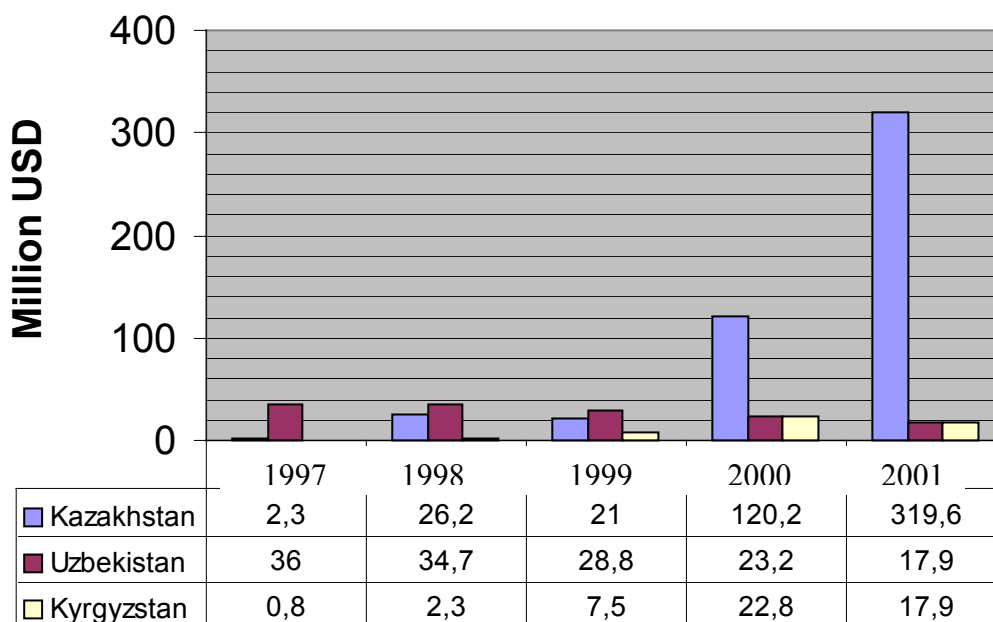
Figure 1. Five-Year Market Capitalization

	1997	1998	1999	2000	2001
☐ Kazakhstan	2,3	26,2	21	120,2	319,6
☐ Uzbekistan	36	34,7	28,8	23,2	17,9
☐ Kyrgyzstan	0,8	2,3	7,5	22,8	17,9

Figure 2. Five-Year Total Volumes

2. Monthly Behavior of KSE

Since 1996, the KSE has calculated an index that reflects the current condition of the KSE's securities market. The KSE's index is calculated by weighting current values of the largest listed companies of the KSE, shown in Fig. 3. The method of calculating the index complies with International Standards and is analogous to the Standard&Poor 500 (KSE 2000 Fact Book).
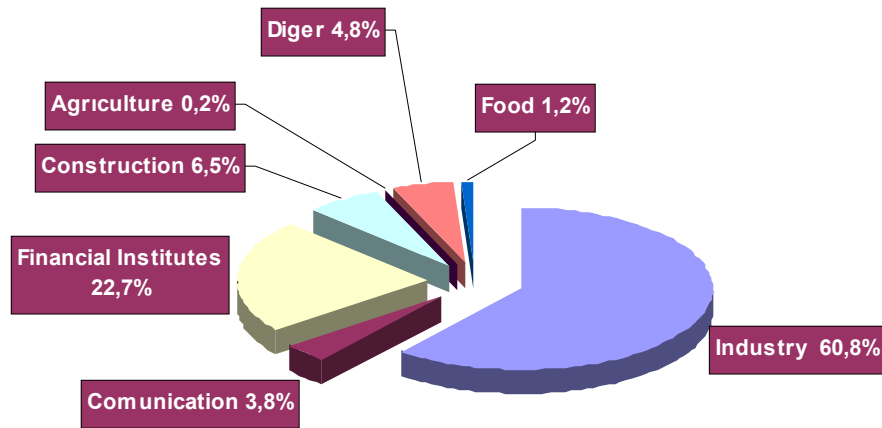
Figure 3. Listed Companies by Sector in 2001

2.1 Data and Methodology

Over the last forty years, Markov Processes have been used in the analysis of statistical data of stock markets. Fielitz and Bhargava (1973), McQueen and Thorley (1991), Shiyun at al. (1999) applied Markov chain based tests on stock markets. Tan and Yılmaz (2000) has given a good review of past work about these kinds of tests with small and large sample. In this section, we discuss the data and also the Markov chain methodology for analyzing the monthly KSE index and total volume data. Shiyun at al. (1999) described a composite state by combining the information of volume and volatility changes.

Data

The sampling is from January 2000 to June 2002. The primary data set consists of monthly index and volume records. No thick data are available for index and volume behaviors. Only monthly data are available for the trading volumes and indices. The broker company Niet Araket provided all data. Because of thin trading, some day-to-day data of the month are not available. Therefore, it will be analyzed that the monthly index and trading volume data in the sampling period 2000-2002.

Analysis of Monthly Behavior of Index

The monthly index will be analyzed using theory of Markov chains, which are a special form of Markov processes. We employ a long-run probability model by using a second-order Markov chain to study the monthly pattern of transition between states making use of the one-month interval data. More specifically, we construct a second-order Markov chain for each month during the whole sample period.

Employing the second-order Markov chain, and letting HH≡1, HN≡2, HL≡3, NH≡4, NN≡5, NL≡6, LH≡7, LN≡8, LL≡9, where HH denotes a high volatility state followed by a high volatility state, and so on. We then obtain a first-order transition matrix.

3. Conclusions

This study examines the monthly properties of KSE index and trading volume changes from 2000-2002. The Markov chain methodology is used to examine the transition patterns of monthly index and trading volume data. Unlike there are the many studies with daily data of

stock prices, our study is based on monthly data of index. Therefore, the results are different than previous studies.

Tan and Yılmaz (2000) review a study that addressed the importance of the time-homogeneity property of Markov chains. In that study, it is used Markov chain time-dependence test to investigate the independence of forecast errors in *monthly* forward foreign exchange rates for British, Canadian, French, German, Italian and Japanese currencies vis-a-vis US dollar between 1974 and 1981. In this study, the sample size of data is 96 for 8 years. In our study, the size of data is, unfortunately, only 30 for 3 years, because of difficulties to retrieve enough and correct data in these kinds of scientific researches in transition economies. The index was calculated on some months, not on some other months. On the other hand, the number of listing companies is changing too many times to use the index information for tests.

Because of institutionalization stage in transition economy, KSE data don't permit investigating itself with Markov processes for tests and forecasts. However, the results of our study show that the KSE is on good course if the stability of macro economy is maintained. Particularly, if the key enterprises are privatized on KSE in a reliable environment, the foreign investors will join these enterprises immediately.

REFERENCES

Deliktaş, E. and Emsen, Ö.S., (2002), "The Evaluation of Privatization Process in Kyrgyzstan: 1991-2001", Proceedings of International Science Conference in Modern Societies, 17-18 June, Osh State University, Kyrgyzstan

Emsen, Ö.S. and Egeli, H.A., (2002), "Geçiş Ekonomilerinin Makroekonomik Performansları ve Kırgızistan Üzerine Bir İnceleme", Küreselleşme ve Geçiş Ekonomileri Uluslar arası Sempozyumu, 2-4 Mayıs, Kırgızistan Türkiye Manas Üniversitesi, Bişkek, Kırgızistan

Fielitz, B.D. and Bhargava, T.N., (1973), "The Behavior of Stock Price Relatives-A Markovian Analysis", Operation Research, November-December, pp. 1183-99

Koychuev, T., Koychuev, P., and Toktomatov, R., (2001), "Kyrgyzstan's Development Dynamics and Problems", Reforma, No: 1 (9), pp: 4-13

McQueen, G., Thorley, S., (1991), "Are Stock Return Returns Predictable? A Test Using Markov Chains", J. Finance 56, 239-263.

Tan, B. and Yılmaz, K., (2000), "Markov Chain Test for Time Dependence and Homogeneity: An Analytical and Empirical Evaluation", Koc University, Istanbul, Turkiye

Shiyun, W., Guan, L.K., and Chang, C., (1999), "A New Methodology for Studying Intraday Dynamics of Nikkei Index Futures Using Markov Chains", J. Int. Fin. Mark. Insts.&Mon. 9, pp. 247-265.