Forecasting of gold price return volatility using a nonparametric GARCH model and compare with parametric GARCH models

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Abstract

In recent years, investment in gold has been remarkable for investors because of a recession in stock exchange. This increase in demand of gold caused increase in gold price. Because of increase in gold price, dealing of gold expanded and so volatility of gold price return increased intensly. So we have to use a model to predict volatility beside return to make decision for investment. Find a model that it can do a better forecast of price return volatility is a debatable topic in the finance literature. Around this topic some models have been presented and these models have some advantages and disadvantages. These models have been applied for predict of volatility of crude oil and exchange rate more than other fields. Between all models, GARCH models have been more applicable than others. So we use this group of models too, but in a different way. This way is a nonparametric approach to GARCH model that presented by Buhlman and McNeil for first time in 2002. In this research we use this approach to forecast volatility of gold price return and compare it with other GARCH models by two loss function (QLIKE-MSE). The result of this research shows that nonparametric GARCH has a better performance than the other GARCH models based on QLIKE loss function with a statistical significance, but based on MSE loss function we can't judge.

Keywords: GARCH, Nonparametric method, Gold price return

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An Investigation On Improvement Of Explanatory Power Of ARCH And State Space Models Using The Haar Wavelet Transform Approach And The Monte Carlo Simulation Method (Case Study: Forecasting the TEPIX Index)

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Abstract

Regarding The Importance Of Forecasting And Its Precision And Accuracy Significance In Various Economic Conditions, This Research Is An Attempt For Denoising Of Stock, By Implementing Of Wavelet Transform (A Branch Of Physic And Specially Signal Analysis) Considering TEPIX Index. Results Indicate That Existence Of Noises Lead To Reduction In Predictive Power Of The Models And Denoising Cause To Improvement In Compatibility Of Dataset With The Models And Finally Improve Predictive Power Of The Models. In This Respect, The ARCH And State Space Models And In-Sample Of 739 Daily Observations, Using The TEPIX Index Data Between Years 1389 – 1392, Are Implemented. The Results Clearly Indicate The Impactful Role Of Haar Wavelet Transform For Denoising TEPIX Dataset. This Method, Strongly, Lead To Increase In The Predictive Power Of The Models And Accuracy Of Estimated Coefficients.

Keywords: ARCH, State Space, Monte Carlo, Noise, Wavelet Transforms

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Stocks selection using fuzzy DEMATEL and Application of Markov chain in predicting future states of stocks

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Abstract

One of the main issues that many stocks investors face it in capital market is the decision making about buying shares and also predicting the future states of stocks during different time periods. The purpose of this study is to identify the criteria with high impact in evaluating and selecting of stocks and also predicting probable future states of stocks. For this, this research using fuzzy DEMATEL technique and gathering experts' opinions through interviews and questionnaire. This study also predicts probable future states of stocks for three big companies from stock exchange basic metal group by using Markov chain process and collecting historical data. The results shows that "earning per share", "return of equity" and "stock price" are three criteria that have the highest effect on buying and selecting stocks and also predictive power for future stocks states and decision making about them are items that are obtained by Markov chain process.

Key words: Selecting Stock, Capital Market, Fuzzy DEMATEL, Markov Chain Process

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Forecasting and Evaluation of one day ahead Value at Risk for Tehran Stock Exchange using Markov Chain Monte Carlo Simulation

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Abstract

The recent global financial crisis causes that financial markets participants provide an acceptable framework for their risk coverage. One of the most important risk measures for this purpose is value at risk (VaR) which is intended in finance literature in the past two decades. In general there are three approaches including parametric, nonparametric and semi-parametric techniques is used for estimating of VaR. This paper presents a new method that is named Markov Chain Monte Carlo (MCMC) simulation which is based on reproduction and generation of data such as Monte Carlo simulation methods. But, in this new method, data production is done in basis of Metropolis-Hastings algorithm. Considering quantile of generated returns distribution, VaR is calculated. Next, one day ahead value at risk of Tehran Stock Exchange indices for 200 future days are forecasted via this new method and also the accuracy of estimated VaR is evaluated by conditional and unconditional coverage backtesting statistics. Empirical results of this paper indicate that MCMC method for estimation and forecasting VaR of TSE indices has a reliable performance.

Key words: value at Risk, Markov Chain Monte Carlo, Backtesting, Metropolis-Hastings algorithm

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Strategies and comparison of price resistance exponential moving direction of stock returns in the short-term and long-term investments

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Abstract

The purpose of this study is comparison of price resistance and strategies to calculate exponential moving stock returns in the short-term and long-term investments. In line with this objective, information of 78 companies, for a 5-year period, from 2009 to 2013 from a porpousive population were selected and analyzed using 17 SPSS, the results of examination show the average return on investment of short-term in the method of price resistance from average yields in the method of exponential moving average method is not significantly different. The average return on investment of price resistance in the long-term average return of exponential moving average method and Average return on investment in a short way out of the price strength in the way of price resistance in long-term investment returns are more. As well as the average return on investment in the short term exponential moving average method yields exponential moving average method is more of a long term investment. So it seems exponential moving method is more reasonable in investment decisions to buy stocks.

Keywords: Method of price resistance, exponential moving method, return.

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A Model Designed to Predict the Price of Gold Using particle swarm optimisatin and Genetic Algorithms and Providing Combined Algorithm

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Abstract

Nowadays, investing in gold markets is a major part of the economy of any country; that is why forecasting gold price is particularly important for the investors who ask for a less risk in their investments. In recent years, the classic method was used to predict the price of gold. While the gold market is a non-linear system, the aim of this study is to predict the gold price in the international market with considering influencing factors (including silver price, US dollar index, crude oil price, inflation rate, interest rate, stock index, world-wide gold production, world-wide gold price ,etc.) on it using the new innovative algorithms. In this study three scenarios proposed: gold price forecasting using birds fly algorithm, predicting the price of gold using a genetic algorithm and prediction of the gold price combining particle swarm optimisatin (PSO) and genetic algorithm (GA). To this end, first, we use K-means clustering algorithm to cluster data into two clusters. Each cluster includes part of data collection and test sets. In the second phase, we develop a forecasting system for each cluster by developing particle swarm optimisatin algorithms (particle swarm optimisatin algorithm improvement using genetic algorithm) and, thereupon, we have developed a forecasting system for every cluster and ultimately by using developed predicting system for that cluster, predicting gold prices for the test set data in each cluster will be done. The first phase of data mining is accomplished by data mining software named Clementine and the executable codes of the second stage of algorithm are written in MATLAB programming language. The results showed that using of a combined model of flying birds and genetic model due to cover the weaknesses of each pattern and using their strengths in the predicted direction will make the prediction more accurate.

Key words: Particle Swarm Optimization (PSO), Genetic Algorithm (GA), Proposed Combined Algorithm, Gold Price Predicting.

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Investigate the effect stock price shocks on the volatility of current account

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Abstract

When the economy is faced with external shocks, sudden current account is an important political priority That the economic growth of a country is very important and one of the shocks of economic markets show rapid capital market.. ECO Member States achieve a current account fluctuations. Var approach using variable damping results for the current account showed the greatest influence on this variable then changing your current account fluctuations, fluctuations in the current account to GDP ratio variables and stock prices, and interest rates are nominal. Moreover lowest explanatory variables in the current account fluctuations in GDP and consumer prices.

Keywords: current account fluctuations, stock prices, panel VAR, Monetary Policy, Rate of exchange ,Shock

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Comparability of Expected Return Prediction on Corporate Life Cycles Using Carhart Four-Factor Model

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Abstract

The aim of this study is to compare the ability to predict the expected return in the life cycle of the company by using Carhart four-factor model. This research is of library study and analytical- scientific kind and is based on the analysis of panel data. In this study, the financial information of 102 companies listed on the Stock Exchange in Tehran, during the period of 2002 to 2013 is studied (1224 companies - year). To analyze the results obtained from the study softwares like Spss 20, Eviews7 and Minitab 16 have been used. The results in connection with the confirmation of the first hypothesis of the study showed that the expected returns forecasted using Carhart four-factor model during the growth of the company is closer to the actual one. Also according to the analysis made in connection with the confirmation of the second hypothesis of this study we came to a conclusion that the expected return predicted via using Carhart four-factor model during puberty time of the company is closer to the actual one. Finally, according to the analysis carried out in association with the rejection of the third hypothesis of the study we got concluded that expected returns predicted using Carhart four-factor model during the decline of the company is not closer to the actual return.

Keywords: Forecasted Expected Return, Carhart Four-factor Model, Period of Growth, Period of Puberty, Period of Decline.

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Optimized multi-criteria approach to select stocks using fundamental analysis variables in petrochemical companies of stock

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Abstract

How to select shares in the Stock Exchange is one of the main concerns of investors in this market is the selected share or basket of shares that the profit, earnings per share increased prices and the best is important For this reason many ways to determine if your portfolio is created and introduced. Most of these methods to select and decide a proper information and financial analysis are used. This study sought to determine appropriate models for investment decisions. In this regard, effective criteria to select the portfolio of Bynyady used in the analysis are considered. The importance of each criterion is examined through Shannon's entropy. Then the ranking of the sample, including petrochemical companies are members of the exchange, the techniques SAW, TOPSIS, ELECTR will be used. For this purpose, the average thirteen-year-old real data, in the period of 80 to 92 used

The result show that the use of Mulite- criteria approach leads to different finally Using the Average rating can pay decisions.

Keywords: Mulite-criteria – Decisions-Making Models - Fundamental analysis- Shannon entropy - the Stock Exchange.

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