Analyses of Tehran Stock Exchange Index (TEPIX) Drawdowns using wavelet transform

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Abstract

A successful description of the dynamics of the stock prices, particularly large negative moves in the price, can have a profound impact to risk management. On the other hand, since the wavelet decomposition provides simultaneous information on the frequency (scale) and their localization in time, it can be a useful tool for analyzing the dynamics of the time series of the financial markets. In this study, using the distribution of wavelet coefficients, namely scale-time chart, we examined the characteristics of Tehran Stock Exchange Index (TEPIX) when the occurrences of crashes and drawdowns.For this purpose, the daily index of Tehran Stock Exchange Index (TEPIX) from February 11, 2013 to January 29, 2014 and the index based on wavelet coefficients were used.The result of this study show that the index based on wavelet coefficients have good capability of monitoring crashes and drawdowns and can be used as a method to predict abrupt changes in the Tehran Stock Market.

Keywords: drawdown, Abrupt changes in stock market, Wavelets

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Expected rate of turn modeling in Iran Stock Exchange with future Contract

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Abstract

Interest rate & required rate of return are known as building blocks of financial investment analysis and engineering economic.

In lack of fixed income instrument in Iran, every investor and analyser has a uncertainty about interest rate and required rate of return, its behavior and futures paths . in this paper we are about to use futures gold contracts in order to find a rate that can be supposed as required rate of return of the market performing or a kind of short interest rates. In the next step we tend to model the obtained rate.

At last we conclude that the required rate of return gained in this way can be well modeled by Equilibrium models better than Garch models do.

Keywords: Required rate of return, interest rate, short interest rate models, Equilibrium models, futures contracts

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Portfolio Optimization, Using Fuzzy Rule - Based Expert System

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Abstract

The aim of this study is to construct appropriate portfolios by considering investor's risk profile and his/her preferences in a flexible, applicable and realistic manner. For this purpose, a fuzzy rule- based expert system is developed to support investment managers in their middle term decision makings. The proposed expert system is validated by using 106 stocks, traded in Tehran Stock Exchange between 1384 and 1389. Performance of the proposed expert system is analyzed in terms of risk profile and investment length compared to market average. The results revealed that performance of the expert system is better than the market average in most cases. Also, in parallel to our expectation, the proposed expert system performance is better for risk-averse investors and in middle term.

Keywords: Stock evaluation, Expert systems, Portfolio management, fuzzy logic

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Profitability of momentum strategies and the impact of trading volume in Tehran stock exchange

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Abstract

Based on momentum strategies (momentum), stock return has a particular behavior at various time intervals, and in the time horizon considered can to take the excess returns earn, by using an appropriate investment strategy, this view is contrary to the efficient market hypothesis.

This study examines the relationship between volume and its effects on the profitability of the momentum strategy in Tehran's Stock market. The hypothesis is that volume can affect the momentum strategy as well as the decisions of the investors in Tehran's stock market. The statistical society of the research consists of the total company active in Tehran stock exchange in the fiscal years 2008 to 2012.Our findings show that in most cases, momentum investing strategies, test portfolio in periods of three, six, nine and twelve months has had the best performance (win) in the majority of the maintenance periods (period three, six, nine and twelve months)to be continue to its better performance than a portfolio that in periods of three, six, nine and twelve months have been the worst performance (losers). The results also show that the volume of transactions (independent variable) and return (dependent variable) there is no relationship. While the excess market return (the independent variable) and the excess return on the winner portfolio (the dependent variable), there is a significant relationship.

Keywords: momentum strategies, stock return, market efficiency

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Examining the Effect of Uncertainty in Monetary and Fiscal Policy on Capital Markets

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Abstract

Capital market has the major and determining role in the collecting and guiding recourses to the Essential economic activities in the all of countries .It is not possible to collect funds from members of the public, without these markets. It is believed that the prices in the stock market by some macroeconomic variables are determined.With this approach, with regard to the capital asset pricing model, arbitrage model and the government's role in stabilizing the economy, in the present Study the response of the stock market from unanticipated changes in monetary and fiscal policies during 1370-92 has been modeled. To reach this goal, monetary and fiscal policy shocks in model GARCH was modeled .Then using the ARDL model provided Pesaran et al (2001), the effects of monetary and fiscal policy shocks on the stock exchange along with variables such as inflation, liquidity, interest rates, market exchange rate and oil income were examined .According to results 10% unforeseen changes in the monetary policy reduce the stock price indicator amount of 3.6 and 4.7 percent in the short term and long term. The results show that both inflation and liquidity have positive effect on the stock exchange in short-term and long-term .So that increasing the inflation and liquidity in the amount of 10% The total price of the stock market increase 37/3 and 17/8, respectively during the short period and 33.3 and 23.7 percent, respectively during the long period. The results indicate the effect of exchange rate on the stock market is negative and significant during the short and long term. So that, this variable increased by 10 percent the stock market reduce over than 17/7 and 12/4 percent, respectively in the short and long-term.

Keywords: Stock price index, monetary and fiscal policy shocks, inflation, liquidity.

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Calculation of value at risk for portfolio of coin and bourse index; comparing to models: GARCH and M-GARCH

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Abstract

This paper apply GARCH and M-GARCH for estimating value at risk of portfolio including coin and stock exchange index from beginning of 2008 until beginning of 2014. Generally there is three approaches called parametric, nonparametric and semi-parametric for estimating value at risk. Since volatilities contagion between different markets, it's required to use M-GARCH. Among M-GARCH models, BEKK model is more appropriate for two-variable series. In this paper GARCH and M-GARCH are applied. Then we compare results of models with back-testing. Conclusion of this research states as we expect M-GARCH has better and more accurate performance rather than GARCH for calculating value at risk of portfolio.

Key Words: value at risk, back-testing, Multivariate GARCH, GARCH

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Estimating 'Value at Risk' of Essential metals using Multivariate GARCH models

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Abstract

In this survey, we aim to calculate value at risk of a portfolio consists of four necessary metalls of London metal exchange Zinc, lead, copper and Aluminum over a ten-year period from 2nd Jun, 2003 to 19th Jun, 2013 including around 2704 views which have been obtained from London Metal Exchange site. Due to lack of adequate data to investigate metals in Iran mercantile Exchange(IME) and as the prices of these metals in Iran are directly related to those in London, hence the equivalent data of London Metal Exchange (LME) has been utilized. For example:

- Aluminum's price in IME =(Aluminum's price in LME +100)*1.07*(Dollar Currency Room)
- copper's price in IME =(copper's price in LME +360)*1.1*(Dollar Currency Room)

For this purpose we apply practical multi-variant GARCH model to estimate conditional covariance matrix. First of all a system function schema is defined to identify the mutual relationship between variables. These functions also include gaps of other variables. Then conditional covariance matrix is estimated by applying three provisions of conditional variance models that is VECH, BEKK and CCC. For calculating value at risk of portfolio, we apply two different weights: optimal weight and equal weight. It is notable that using optimal weight for all kinds of model is not acceptable and weight should be chosen based on the model. At the end, we examine the accuracy of VaR models by backtest that is base on cost function. As a conclusion according to statistic all the models are accepted.

Keywords: Value at Risk, Multivariant GARCH, Mercantile Exchange, Backtest

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Optimum Exchange Rate Cross Hedging Ratio Using Gold Future Contracts in Iran Financial Market

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Abstract

In this paper, possibility of cross hedging exchange rate (Dollar to Rial) using weighted average index of gold future contracts which is traded in Tehran Mercantile exchange is investigated. Using minimum variance method and econometrics models, optimum hedging ratio is evaluated and they're compared by use of in the sample and the out of sample tests. Results show that there is a significant relation between exchange rate and gold index. In other words, gold future index have ability to reduce exchange risk. The results indicate that OLS and VAR models have equal efficiency so OLS model is suggested for determining optimum hedging ratio because of its simplicity. Other important result is that complication of models doesn't cause more efficiency. In other words, in this problem Vector GARCH models with one lag are not applicable.

Keywords: Exchange rates cross hedging, Futures contracts; min variance optimal hedge ratio; hedging efficiency; Econometric models

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Combination of Hybrid Feature Selection Method and Nearest Neighbor Algorithm for Prediction of Daily Direction of TheMost 50 Active Companies Tehran Stock Exchange Market Index

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Abstract

Prediction of stock market is always considered by traders and investors due to being profitable. A successful transaction to buy or sell happens close to points that trend of price is changing. Therefore, stock market index prediction and it's analysis to determine that the closing price of stock will increase or decrease in the next day, are very important. In this research, nearest neighbor classification method based on combined feature selection method to predict the direction of the most 50 active companies Tehran stock exchange market index is used. This hybrid feature selection method that is combination of principle component analysis and genetic algorithm has advantages of both types of wrapper and filtering feature selection methods, for selection of optimum subset of features from entire space of feature. Performance of this proposed hybrid method is compared with conventional feature selection methods including: information gain, Relif and principle component analysis method that are regarded as filtering method and genetic algorithm that is one of the wrapper methods, by using the paired comparison test and the results show that, the proposed hybrid method has better performance than other methods in prediction of daily direction of the most 50 active companies Tehran stock exchange market index.

Keywords: principle component analysis, genetic algorithm, feature selection, direction prediction, filtering, nearest neighbor

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