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STOCK PORTFOLIO HEDGING BASED ON THE VOLATILITY MANAGEMENT STRATEGIES

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Summary. In article strategy of management of volatility and methods of its assessment are considered. Application of these strategies for hedging of stock portfolios on the example of the S&P500, DAX indexes is investigated. It is shown that for effective management of a portfolio during the long period of investment it is necessary to use dynamic selection of optimum methods of an assessment of volatility and levels of its restriction.

Key worlds: *volatility, stock market, hedging, financial crisis, risk management.*

Recent financial crisis showed the limits of the risk management strategies that use asset diversification principal. The special protective mechanism is needed to avoid the rapid portfolio value drawdown when comes the relatively short, but rather intensive crisis. On the other hand, full participation in the market growth should be provided.

The aim of the present work is research of efficiency of the volatility management strategies application and classical methods of its assessment for the stock portfolio hedging over the market crisis periods.

The theory review explained some of the widely used volatility based portfolio hedging strategies: limiting, targeting and volatility ranging. For the practical application the quantitative volatility estimation is needed.

Today there is a huge amount of various methods of the financial market volatility modeling. Three of them were considered in the study: exponential moving average (RiskMetrics methodology), GARCH (1,1) and implicit volatility indexes VIX and VDAX.

S&P500 and DAX indexes were analyzed as proxies of the good diversified American and German stock portfolios. For the empirical study the volatility limiting strategy was used as it is rather simple for testing and is able to give the first impression about the volatility estimation methods' effectiveness.

The data set consists of S&P500 index historical close prices over the period of 02.01.1999-11.07.2014 and DAX ones over 16.11.2005-11.07.2014.

The analysis has shown that the effectiveness of the hedging strategies based on the portfolio volatility management can not be determined unambiguously. For US stock portfolio there was a possibility for the successful hedging over the 2007-2009 crisis that would bring additional returns. In the case of 2000-2003 crash and crisis, and 2011 correction portfolio management would only worsen the investment's performance. However, German stock portfolio hedging would be effective in both cases: the crisis of 2007-2009 and the market correction of 2011 when the right volatility estimation method had been chosen.

Referring to methodological aspect of the method and the risk level threshold choosing, the analysis showed that the application of one particular volatility estimation approach and constant threshold cannot be efficient strategy during relatively long period of investment activity. Thus, the future research will be provided in the direction of the dynamic adjustment strategy development that might determine and use the optimal volatility estimation method and the respective risk limit for the effective portfolio management in every times.

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