## Fine wine in risk minimizing portfolios

Key words: MGARCH, risk minimizing, hedge, portfolio, safe haven, DCC GARCH

## Abstract

In the face of extreme market conditions, Chinese investors are turning to alternative investments in assets such as gold and fine wine.

We study the dynamics of relationship between the global, European, Chinese stock markets and fine wine market by using VAR DCC-GARCH (Engle, 2002) framework and daily closing prices of LIVX50 index (representing fine wine market), S&P500, Shanghai Stock Exchange Composite (SHC) and FTSE100 indices (reflecting changes in the global, Chinese and European markets respectively) from 2010 to 2019. Three versions of univariate GARCH models namely standard, exponential and GJR have been used in order to build best fitted multivariate dynamic conditional correlation model. Parameters of dynamic correlation were statistically significant in all cases indicating the importance of time varying co-movements. Results of our study reveal the long-term time-varying linkages in volatility between global market and SHC index and Yuan. We found evidence of property of fine wine to be hedge to global market, Chinese market and currency. Moreover, fine wine can act as safe haven asset against S&P500 index and SHC index declines. Furthermore, there is some impact and a positive correlation between European market and fine wines market in few periods. Most important results provide empirical evidence that fine wine can be hedge to S&P500 index and GBP/USD exchange rate. Fine wine can act as safe haven asset against turmoil on global and Chinese market and declines in British currency, what can help investors minimize risks to build optimal portfolios. The slowdown of economic growth in Chinese economy cannot be risk to the fine wine market, which is opposite to what Cardebat and Jiao (2018) suggested.

The second part of the study compared the effectiveness of risk minimizing portfolios containing traditional financial instruments and two different alternative assets, namely fine wine and gold. Does fine wine have better hedging properties than gold? Which of these assets is the investor's best friend? Wine should have a larger share in two-component optimal risk minimizing portfolios than traditional financial instruments such as, for example, stocks.

Our analysis extends existing knowledge on the role of wine investments in Asian markets, especially China. In particular, employing the VAR-DCC is new to the wine literature and, importantly, allow us to capture the linear interdependencies among several time series, rather than focusing on one evolving variable (like in AR processes). Moreover, we considered daily data, while most of the prior studies limited their analyses to monthly data. As investors tend to diversify their investment across different assets, results of our analyse would be crucial input for investors in portfolio diversification and hedging their stock positions in traditional financial assets by investing in fine wines.

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