5. CONCLUSIONS AND POLICY RECOMMENDATIONS

In this paper, the signal identification of IR method was used to identify the causes of fluctuations in gold prices. It uses MATLAB as a platform to generate recognition programs. In today's economic phenomenon, the characteristics of price fluctuations are more complex and endogenous. The use of IR method to analyse the causes of gold price fluctuations can solve the endogeneity and random interference problems between economic variables. With the development of quantitative trading, a procedure for automatically identifying the characteristics of price fluctuations is quite necessary.

This paper uses the monthly data from January 1975 to December 2016. Based on the endogeneity between the three demands, the VAR model was applied to perform technical analysis and then both impulse response function and variance decomposition were used for further analysis. From the perspective of demand, the three drivers of gold price fluctuation were discussed: manufacturing demand, inventory demand and specific prevention demand. It's found that after the decoupling of the gold and dollar in 1975, the main reason for the fluctuation of gold price was the specific prevention demand shock, rather than the generally considered gold inventory demand shock. In addition, the specific prevention demand in the fluctuation of gold price is inversely proportional to the price of gold. These findings can effectively explain the phenomenon of "buy expectations, sell facts" and prove the validity of this model to explain realistic economic problems.

Based on the above conclusions, the recommendations have been made as follows: First, when consumers make gold consumption, they should not only pay attention to the price of gold but also the amount of change in the price of gold within a certain period of time. Second, when consumers make basic judgments and predict price changes through supply and demand, they must also focus on the impact of gold specific prevention demand on gold prices, and fully grasp the changes in specific prevention demand shocks in order to better predict gold prices. Third, the sources of shock possibly affecting the price of gold must be understood. In case of regional wars outburst, political turmoil or economic crisis, the specific prevention demand for gold will increase significantly, leading to a sharp increase in the price of gold within a short period of time. "Gold in troubled times" means not only that the gold is the hard currency, but also that during the turbulent period, the specific prevention demand of gold will lead to an increase in the price of gold and increase the return on investment portfolio. Accurate analysis for the source of gold price shocks is the key to obtaining excess returns.

REFERENCES

[1] Sureshbabu N, Farrell JA. (1999). Wavelet based system identification for nonlinear control. IEEE Transactions on Automatic Control 44(2): 412-417. https://doi.org/10.1109/9.746278

[2] Kristinsson K, Dumont GA. (1992). System identification and control using genetic algorithms. IEEE Transactions on Systems, Man and Cybernetics 22(5): 1034-1046. https://doi.org/10.1109/21.179842

[3] Xu XR, Pan ZQ, Li XH, Li JZ. (2019). Continuous hopfield neural network based on wavelet transform and overlapped peak resolution strategy. Journal of Dalian University of Technology (01): 97-105.

[4] Yang JW, He ZY. (2012). Study on recognition of fault transients using hybrid fuzzy petri net. Power System Technology 36(2): 250-256.

[5] Shamma JS, Athans M. (1991). Guaranteed properties of gain scheduled control for linear parameter-varying plants. Automatica 27(3): 559-564. https://doi.org/10.1016/0005-1098(91)90116-J

[6] Xu ZH, Zhao J, Qian JX. (2009). Nonlinear MPC using an identified LPV model. Industrial & Engineering Chemistry Research 48(6): 3044-3051. http://dx.doi.org/10.1021/ie801057q

[7] Yang XQ. (2014). Linear parameters system identification method. Harbin Institute of Technology.

[8] Jin X, Huang B, Shook DS. (2011). Multiple model LPV approach to nonlinear process identification with EM algorithm. Journal of Process Control 21(1): 182-193. https://doi.org/10.1016/j.jprocont.2010.11.008

[9] Barsky RB, Kilian L. (2004). Oil and the macroeconomy since the 1970s. Journal of Economic Perspectives 18(4): 115-134. https://doi.org/10.1257/0895330042632708

[10] Pierdzioch C, Risse M, Rohloff S. (2014). On the efficiency of the gold market: Results of a real-time forecasting approach. International Review of Financial Analysis 32(3): 95-108. https://doi.org/10.1016/j.irfa.2014.01.012

[11] Baur DG, Lucey BM. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. Financial Review 45(2): 217-229. http://dx.doi.org/10.1111/j.1540-6288.2010.00244.x

[12] Baur DG, Mcdermott TK. (2010). Is gold a safe haven? International evidence. Journal of Banking & Finance 34(8): 1886-1898. https://doi.org/10.1016/j.jbankfin.2009.12.008

[13] Kilian L, Rebucci A, Spatafora N. (2007). Oil shocks and external balances. Journal of International Economics 77(2): 181-194. https://doi.org/10.1016/j.jinteco.2009.01.001