

SOUTENANCE DE THÈSE DE THI HONG THEU DINH (ANTENNE NORD UMI SOURCE)

Le 24 mars 2023, Thi Hong Theu DINH (Doctorante UMI SOURCE antenne Nord) a soutenu sa thèse sous la direction du PR Stéphane goutte (UMI SOURCE) intitulée "Financial Role of Precious Metals in Portfolio Diversification ".

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Soutenance de thèse

"Financial Role of Precious Metals in Portfolio Diversification"

Composition du jury

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Summary:

By applying the advanced methods (i.e. GARCH-MIDAS-X and DCC-MIDAS-X in chapter 2, stochastic spanning test in chapter 3, Vine copulas and Hierarchical Archimedean copula in chapter 4, the empirical results provide the main findings as below. Firstly, by investigating the macro-finance drivers of the dynamics of precious metal markets, this thesis shows that the stock market returns of G7 and BRICS countries play the most important role in driving both the long-term volatility and correlations among precious metals.

In particular, stock returns have a negative impact on the long-term volatility whereas having a positive effect on the long-run correlation of these metals. In addition to stock market returns, other variables including M1, M2, inflation rate, and the short-term interest rate of considered countries are also helpful predictors of both volatility and correlations. Notably, the economic drivers cause a stronger effect on the volatility than on the correlation. Furthermore, considerable differences in the impact of drivers between G7 and BRICS can also be seen, especially in terms of consumer confidence. Similarly, this trend can be investigated in the influence of industrial production on both volatility and correlation, bond return on volatility, or short-term interest rate on correlation. Specially, the return volatility of Gold markets and the correlation between Gold and Silver have the closest relationship to the changes in the economic drivers of both the G7

and BRICS countries. Secondly, a stochastic spanning test was conducted to see whether investors may be better off by augmenting their traditional portfolio of stocks, bonds, cash, and currencies of G7 countries with spot or futures of precious metals. This study paid special attention to the behavior of the spot and future returns of all four metals to answer the question: "Do precious metals serve as diversifiers for traditional assets?".

Accordingly, the empirical results conclude that precious metals can offer diversification benefits for an international investment portfolio of equities, bonds, cash and currencies. Interestingly, precious metal futures significantly outperform their spots in the aftermath of the 2008 global crisis. This finding also explains the reason for the increasing prevalence of precious metal futures over the last few decades. Consequently, my thesis strongly advocates for the introduction of new financial innovations of precious metals. Finally, the tail dependence coefficients have been estimated in order to test the role of each precious metal as a safe haven in both cases of bull and bear market scenarios. By applying pair-vine copulas and hierarchical archimedean copulas, this study have found that the presence of asymmetric tail co-movements between precious metal markets and G7 and BRICS stock markets in both bivariate and multivariate tests. The bivariate copulas show that each precious metal could be an effective safe haven for stocks in almost of G7 stock markets during the bearish and bullish market conditions, excluding the European stock markets, especially Germany and Italy.

The multivariate copulas reveal that each precious metal can act as a safe haven for all twelve stock markets during market downturns, but not in case of extreme upward movements in G7 and BRICS stock returns. Notably, my thesis shows that the 2008 global financial crisis played a key role in changing of the impact of determinants on precious metals markets as well as changing the role of precious metals as safe haven and diversifier of traditional assets. Palladium is the most strongly influenced by the global crisis 2008 while silver is the least responsive to this crisis.