







Korea's stock price return's volatility are mutually synchronized influence. In additional, estimated value of the degree of freedom for the Student's t distribution is 5.0382, and is significant under the significance level of 0.01 ( $\alpha = 1\%$ ). This also demonstrates that this research data has the heavy tailed distribution.

From the Table 6, the estimated coefficients of the conditional variance equation will produce the different variation risks under the bad and good news. In Table VI, the empirical results show that the proposed model confirms the condition supposition of the IGARCH model. This result also demonstrates the DCC and the bivariate asymmetric IGARCH (1, 1) model may catch the Taiwan's and the Korea's stock market return volatilities' process. Under the bad and good news, the Taiwan's and the Korea's stock markets do not have the fixed variation risk. And the gold price market affects the variation risk of the Taiwan's and Korea's stock markets. Under the good news, the error square item of Korea's stock market affects the variation risk of the Taiwan's stock market ( $\eta'_1 = 0.1073$ ). The error square item of Taiwan's stock market affects the variation risk of the Korea's stock market ( $\eta'_2 = 0.0699$ ). Under the bad and good news, the Taiwan's and the Korea's stock markets have the different variation risks (for example,  $\beta_{11} = 0.8865$  and  $\beta_{21} = 0.8604$ ). The empirical result also shows that the explanatory ability of the DCC and the bivariate asymmetric IGARCH(1, 1) model is better than the traditional model of the bivariate GARCH (1, 1).

To test the inappropriateness of the DCC and the bivariate asymmetric IGARCH(1, 1) model, the test method of Ljung and Box<sup>10</sup> is used to examine autocorrelation of the standard residual error. This model does not show an autocorrelation of the standard residual error. Therefore, the DCC and the bivariate asymmetric IGARCH(1, 1) model are more appropriate.

## V. Conclusions

The empirical results show that the Taiwan's and the Korea's stock market return's volatility with a factor of the gold price market have an asymmetric effect, and the Taiwan's and the Korea's stock price return volatility may construct in the DCC and the bivariate asymmetric IGARCH (1, 1) model. From the empirical result also obtains that the dynamic conditional correlation coefficient average estimation value ( $\bar{\rho}_t = 0.7207$ ) of the Taiwan's and the Korea's stock price return volatility is positive. The gold market price volatilities

truly affect the variation risk of the Taiwan's stock market. And the gold market price volatilities also truly affect the variation risk of the Korea's stock market. Under the good news, the error square item of the Taiwan's stock market affects the variation risk of the Korea's stock market. The error square item of the Korea's stock market also affects the variation risk of the Taiwan's stock market. Based on the paper of Engle<sup>6</sup>, the explanation ability of the DCC and the bivariate asymmetric IGARCH(1, 1) is better than the traditional bivariate GARCH (1, 1) model. In the future, we will further to study the influence of the gold market on others stock markets.

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