

RESPONSES TO REVIEWER #2

Q1: The mean return is modeled as a constant. This is way too simple. The authors should provide different specifications to ensure that a more reliable mean equation does not change the overall results regarding the volatility equation. This is particularly important as the current results are very similar to what is found in studies referring to the level of the oil price.

A1: The mean value μ is the value around which the oil returns fluctuate up and down over time. We agree that the mean return may change according to different conditions and that is why we analyze oil volatility and oil shocks in different periods. In each period, the mean return μ is modeled as a constant. In this sense, the mean returns, μ_s , are specified differently.

Q2: How is the finding that speculative activities may stabilize the oil price complementing the existing evidence, which offers support for the 'Masters Hypothesis'? (page 10)

A2:

- Firstly, the parameter θ in Table 3 is negative in post-2004 period. The result indicates that oil speculative demand shocks would stabilize oil volatilities directly.
- Secondly, speculative activities change the pattern of impacts of other oil shocks and effect oil volatilities indirectly. The result in Table2-4 indicates that the index investment in commodity market may changes the patterns of impacts of oil supply

shocks, oil speculative demand shocks and oil speculative shocks on oil volatilities. As seen in Table 2-4, the effects of all the oil shocks (with the expectation of global demand shock) turn into negative in the post-2004 period, which means that oil shocks turn to stabilize oil volatilities.

Q3: Why is oil speculative-demand only closely associated with oil supply? Kilian and Murphy (2014) refer to the expected gap between future demand and supply of oil! (page 10,11)

A3: We agree that both demand and supply of oil would affect speculative activities in oil market according to Kilian and Murphy (2014). We find in our results that oil-speculative demand shock on oil volatility is much similar with that of supply shock. We cite the work of Kilian and Murphy (2014) to provide supportive evidence that supply of oil would drive oil speculation demand, but we do not mean that oil supply is the only factor to affect oil speculation demand.

Q4: There is no estimated parameter u in the Tables.

A4: Thanks for the advice. We would report the estimated results of us in the revision of our paper.