Chapter 6 Conclusions

6.1 Objective 1

The findings of study reveal that the Henry Hub and JCC prices volatility shocks are quite perpetual. It is found that the Henry Hub price volatility confirms the persistence of both long run and short-run shocks whereas JCC volatility shocks are persistent only in short run. It is also clear that asymmetric effect was found, and the leverage effect of the Henry Hub is positive. Hence, this lies counter to the normal expectation in LNG market when upward movements are followed by lower volatility than downward movements, which have the existence of positive effects during the study period. But asymmetric effect was not found in JCC. The findings of asymmetric test confirm that Henry Hub price is expected to the positive shocks with the same magnitude rather than the negative shocks with more volatility. The Government of India could consider these volatility shocks in natural-gas prices for considering the country of import and indexing of prices in long-term contracts. From the historical prices, it is evident that India had to pay high gas price for indexing with crude oil but from the analysis Henry Hub is showing more positive shocks than negative shocks as compared to Japanese crude cocktail prices which is indexed with crude

6.2 Objective 2

With LNG cargoes being traded on Long term contracts and with recent rise of spot cargoes, the Long-Term charter rates and Short term charter rates have been influencing the freight costs for LNG cargoes. The Long-Term Charter rates have positive impact on Short term charter rates and Short term charter rates have positive impact on Long term charter rates. This reveals that these two prices are interrelated bi-directionally.

It is evident that there have been positive volatility effects in Long Term Charter rates post Fukushima disaster with steep rise in demand for LNG cargoes. The rates have been holding till end of year 2014, however the beginning of 2015 has seen negative shocks in prices which is of concern for Ship owners. Similarly, for Short term charter rates volatility analysis there has been positive

and negative volatility shocks for last ten years. However, after steep rise in charter rates post Fukushima disaster, there is evidence of frequent deep negative shocks in freight rates. It is clearly understood that asymmetry term has negative effects. Hence the negative shocks have impacted the volatility at a greater magnitude. The vessel owners are more likely to respond to the negative news of the shocks in both prices. An unexpected drop in the Long-term charter rates and Short term charter rates increases the volatility of the same. The LNG ship owners at such low charter rates are struggling to meet even bunker costs and new orders for LNG vessels is a concern. Even though with Australia and USA entering the LNG exporting market from 2017 onwards there seems to be promising increase in shipping miles where the ship owners could invest in new ships. But understanding from empirical analysis both the charter rates have been experiencing more negative shocks i.e. drop in freight rates for which the ship owners need to be more cautious as the charter rates are having negative shocks.

6.3 Objective 3

Like other markets, in shipping, players need to develop a decision-making ability to take and manage risk to realize long term profitability. This can be achieved by considering; the delivery time of new LNG ship orders, the demand for LNG trade and price fluctuation. The demand for LNG vessels is predicted to be high since USA and Australia are planning to boost their exports by 2018 which in turn will increase the shipping miles for LNG. Ship owners can capitalize on this high demand scenario and use it as an opportunity to invest in their fleet portfolio.

But the results from EGARCH analysis on new shipbuilding prices of LNG vessels indicate that carrier owners need to be cautious in their fleet expansion as ship owner's return on new build LNG vessel may vary asymmetrically. From the results the significance of persistent negative shocks or the volatility asymmetry indicates that the ship owners are more likely to be affected by the negative news as compared to the positive news. This implies that the volatility spill over the mechanism is asymmetric. Results of the study also indicate that

the future of high volatility is associated with low returns and high future expected returns. Therefore, rather than ordering the new vessels hastily, ship owners need to wait and be cautious to avoid the risk of high and low returns due to the negative shocks in the LNG shipbuilding prices.

6.4 Scope for further study

1. GARCH family models could be used for forecasting in LNG market prices and LNG ship charter rates.
2. Interrelationships between Ship building prices and charter rates could be studied.