CHAPTER 6
DISCUSSION
6.0 DISCUSSION

6.1 SIGNIFICANCE OF THE STUDY

The previous studies contributed to the literature to a great extent to the different aspects of the Futures market shares listed in the Indian capital market. The studies are available in developed and developing markets. While comparing the studies in developed markets, Indian markets have lot of differences in the movement of the market, link between the Futures market and its underlying Spot market and basic structure of the variables used in the study. There are many studies in the area of price discovery in Indian market, but they are limited to big caps and Index. Very few studies are available beyond the contribution of Nifty and its constituents for studying the price discovery process.

There were limited studies available to find the price discovery between the Mid-cap Futures and the Spot market in Indian context. Very few studies available to find the price discovery during the various phase of the market and also studies the impact of Volatility, Volume and the Open Interest in the Spot and the Futures price in Indian context.

On the basis of the above information, this study makes an attempt to reveal the price discovery process between the Futures and the Spot prices in the long term phase of the market and also in the Bullish and Bearish phase of the market.

This study also covers the impact of the Futures market determinants such as Futures volatility, Open interest on the Spot market and on the Futures market prices. The whole study has been done from the date of inception of the Mid-cap
shares in the Futures market to the year ending of 2015. The date of inception differs from share to share basis. It also studies the price discovery process between the Futures and the Spot market during the Bullish and Bearish phase of the market. The Bullish phase was from the 24th June 2004 to 09th January 2008 and the Bearish phase was from the 10th January 2008 to 12th March 2009.

The phases of the market are identified using the trend analysis. The Bullish phase of the market derived from the highest price to the lowest price during the upward movement of prices. The Bearish phase is from the highest price level to its low price during the downward movement of prices. This study contributes to the area of price discovery between the Futures market and the Spot market in Indian context for the Mid-cap shares. The current study also focused the price discovery process during the Bullish and Bearish phase of the market. This study contributed to unfold the impact of volume and open interest in the Spot and the Futures market in the Mid-cap shares. The overall study result shows the movements of the Mid-cap shares, its behavior during the different phases of the market and it helps traders, portfolio managers, government and regulators to make them effectively in their trading decisions.

6.2 IMPACT OF VOLUME AND OPEN INTEREST ON THE SPOT AND THE FUTURES PRICE

The objective was to find out the impact of changes in the volume and open interest on the Spot and the Futures market prices. Volatility is an intrinsic feature of the Futures market. This study analyse the impact on the volatility, volume and the open interest by using the GARCH (1,1) model. The selected
Mid-cap stocks should be without the ARCH effect for the GARCH model and all the selected Mid-cap shares indicated no Auto Regressive Conditional Heteroscedasticity effect in the Spot and the Futures price.

The Analysis of the Selected Mid-cap shares using GARCH 1,1 model reveals the following points:

1. There is no Auto Regressive Conditional Heteroscedasticity (ARCH) in the prices.
2. The Previous Information is having impact on the present Spot and the Futures price.
3. The new and current information is having more impact than the previous information on the Spot and the Futures price.
4. The Positive Information is having more impact on the Spot and the Futures market prices than the Negative information.
5. The Previous information had minimal impact on the Spot and the Futures price.
6. In the selected Mid-cap shares, the Futures market volume is having an average impact of 68% on the Spot Market prices and 69% on the Futures market prices.
7. The Futures market volume was having a maximum impact of 82% to 92% on the Spot market prices in the 18 shares and 87% to 93% on the Futures market prices in the 19 shares out of 27 selected Mid-cap shares.
8. The Futures market volume was having a moderate impact of 50% to 56% on the Spot market prices and Futures market prices in the 3 shares.
9. The Futures market volume was having less than 50% impact on the 6 shares in the Spot market prices and 7 shares in the Futures market prices.
10. In the selected Mid-cap shares, the Futures market Open Interest was having an average impact of 72% on the Spot market prices and 78% on the Futures market prices.
11. The Futures market Open interest was having a maximum impact of 71% to 96% on the Spot market prices in the 18 shares and 65% to 96% on the Futures market prices in the 22 shares.
12. The Futures market Open interest was having a moderate impact of 40% to 60% on the Spot market prices in the 6 shares and 43% to 48% on the Futures market prices in 2 shares.
13. The Futures market Open interest was having less than 40% impact on the 3 shares of Spot market and 3 shares in the Futures market.
14. Trading Volume is creating significant impact on the Spot and Futures price in 17 shares such as Nifty Index, Aditya Birla Nuvo Ltd. Ashok Leyland, Aurobindo Pharma, Cesc Ltd., Hindustan zinc, IDBI, IFCI, JSW steel, Oriental bank of commerce, Petronet LNG, Reliance capital, Siemens, Syndicate bank, Tata Chemicals, Union bank of India and Voltas.
15. Open Interest is creating significant impact on the Spot and Futures price in 16 shares such as Nifty Index, Aditya Birla Nuvo, Biocon, Cesc Ltd., Crompton Greaves, Divis Labs, HDIL, Hindustan Zinc, IDBI, Petronet LNG, Reliance Capital, Siemens, Sun TV, Syndicate Bank, Tata Chemicals and Voltas.

The Study results indicate the Trading volume and Open interest were creating significant impact on the Spot and the Futures prices. This was empirically supported by findings of Campbell et al. (1993), Thenmozhi (2002), Snehal and Ghosh (2003), Premalalatha Shenbagaraman (2004), Sah and Omkarnath (2005),

6.3 PRICE DISCOVERY BETWEEN THE SPOT AND THE FUTURES PRICE

This study makes an attempt to find a solution for the objectives such as Price discovery process and the Lead lag relationship. Its relationship during the Bull and Bear phase of the market between the selected Mid-cap Spot and the Futures market in India traded in National Stock Exchange from inception to 31st December 2015. If the is co-integration exist between the Spot market and the Futures market, one market leads the other market. To empirically prove the price discovery process and Lead lag relationship between the selected Mid-cap shares in the Spot and the Futures market, the study uses the econometric models. The study also proves the price discovery process during the Bull phase and the Bear phase patterns of the market. The End of the day data were analyzed using the summary statistics of the data for the entire Mid-cap shares for the study. In the summary statistics, the data series of the entire Mid-cap shares were asymmetric and it was confirmed by the Jarque bera statistics and asymmetric distribution was evident in the Bull and the Bear phase of the market.

In all the selected Mid-cap shares, the Unit root test confirms that the prices were non stationary at levels and stationary at first difference. The Unit root test was tested using the Augmented Dickey Fuller test and the Phillip- Perron test. The selected Mid-cap shares were further tested for the long term relationship using
the co-integration test. The weakness of the Co-integration depends on the appropriate Lag length of the period of the study. The Lag Length was chosen based on the VAR methodology. The Co-integration results, indicates the existence of the Long term relationship between the Spot market and the Futures market for the selected Mid-cap shares. The Co-integration results, confirms the existence of the long term relationship, but the existence causality was confirmed through the Granger Causality test. It confirms the price discovery relationship between the Spot market and the Futures market. The unidirectional causality from the Futures market to the Spot market indicated in the shares such as Aditya Birla Nuvo Ltd., Biocon, CESC, Crompton Greaves, Divis Labs, Petronet Lng, Siemens, Sun TV, Tata Chemicals. The causality from the Spot market to the Futures market was confirmed in the shares such as Oriental bank of commerce and Union bank of India. There was a bidirectional relationship between the Spot and the Futures market in the shares such as Nifty index, Ashok Leyland, Aurobindo pharma, Bharat forge, GMR infra, HDIL, Hindustan zinc, IFCI, Reliance communication, Reliance capital, Syndicate bank, Unitech and Voltas. The analysis indicates that, Futures market acts as the price causality tool in the selected Mid-cap shares for 9 shares and 2 shares in the Spot market as the price causality tool. The Bi-directional relationship was indicated in 12 shares and Nifty Index where, both the Spot and the Futures market play a dominant role in the price discovery process. There was no causality in the 2 shares such as JSW steel and IDBI bank.

The Long term relationship between the markets was analysed using the Vector error correction model, indicates that the Futures market was leading the Spot market in the shares, such as Nifty Index, Aditya Birla Nuvo Ltd., Aurobindo Pharma, Bharat forge, Biocon, Crompton Greaves, IDBI, Oriental Bank, Petronet,
Reliance capital, Siemens, Sun TV, Syndicate bank, Tata chemicals, Union bank of India, Unitech and Voltas. The Spot market was leading in shares such as Ashok Leyland, Cesc, Divis Labs, GMR Infra, HDIL, Hindustan zinc, IFCI, JSW steel, Reliance Communication and Sail.

The short term adjustments in the price between the Spot and the Futures markets was analysed by using Wald Coefficient test. In the shares such as Nifty Index, Ashok Leyland, Aurobindo pharma, Bharat forge, Divis lab, GMR Infra, Hindustan zinc, IFCI, Petronet, Reliance communication, Reliance capital, Siemens, Unitech and Voltas were having short term relationship between the Spot and the Futures price. The shares such as Aditya Birla Nuvo Ltd., Biocon, Cesc ltd., Crompton greaves, HDIL, IDBI bank, JSW steel, Oriental bank, Sail , Sun TV, Syndicate bank, Tata Chemicals, and Union bank of India were the shares that are not having short term relationship between the Spot and the Futures price.

During the Bull and Bear phase of the market, there is Co-integration relationship exists between the selected Mid-cap shares in the market. In the Granger causality test, the Futures market was dominant in the price causality process than the Spot market in the Bull phase of the market. The Futures and the Spot market were active and dominating in the price discovery process during the Bear Phase of the market. As far as the long term relationship between the markets, Futuresmarket plays a leading role in the Bull phase and the Spot market plays a dominant role in the Bear phase.

In the short term relationship, Nifty index, Oriental Bank of Commerce and Syndicate Bank were not having short term relationship during the Bull phase,
but the relationship persists in the Bear phase. In the Union bank of India share, the short term relationship does not exist during the Bull and the Bear phase.

To conclude the study, the price discovery process, Futures market play a major role in the price discovery process in the majority of the Mid-cap stocks and also Futures market leading the Spot market in majority of the selected Mid-cap shares. In the short term relationship, most of the shares are exhibiting, short term relationship between the Spot and the Futures market in the selected Mid-cap shares.

This study explores the lead lag relationship, Causality of the Spot and Futures market, Long term and Short term relationship of the selected Mid-cap stocks in the Spot and the Futures market and the relationship during the Bull and Bear phase of the market.

The Study results were in line with the previous findings, that the future market leads the price discovery relationship between the spot and the futures price in the International and National context. This was supported by the empirical evidence of Kawaller et al. (1987), Mackinlay et al. (1988), Stoll and Whaley, (1990), Chan (1992), Wahab and Lashgari (1993), Ostdick and Whatey (1996), Chu et al. (1999), Raymond et al. (2004), Kedarnath et al. (2004), Vipul (2005), Suchismista Bose, 2006 and 2007, Floros and Vougas (2008), Erbaykal et al. (2009), Bhol et al. (2010), Yavas and Yildrim (2011), Yang et al. (2012), Pandey and Deo (2014) and Wang (2015).