



TITLE

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I. Introduction:

Cross listing is a popular phenomenon where the stock is listed apart from its original and the primary stock exchange and lists itself in an international stock exchange.

Cross-listing has become one of the popular, cheap and most accessible ways to benefit from market segmentation, cost of capital, multiple trading opportunities by creating arbitrage opportunities and to enhance brand image to build an international brand presence. Cross listing in a relatively superior stock exchange has led to positive capital market outcomes. Cross-listing requires the firms to follow the regulations both followed in the local and in the foreign stock exchanges, for example having the required or the minimum number of shareholders and market capitalisation. It is seen as a way to reduce exchange rate exposure, to diversify investor base to receive funding from multiple sources which hugely improves company capital structure.

Objectives:

1. To review stock market theories and hypothesis.
2. To understand the benefits of cross-listing.
3. To analyse the comparative performance of Indian Cross-listed stocks. (Dr Reddy's, Wipro, Vedanta, Infosys, Tata Motors)

II. Research Methodology:

Only secondary research has been carried out for this project.

My research methodology primarily focuses on secondary research which includes published and unpublished research papers, journals, newspaper articles, editorials and government and non-government publications.

The key data for fundamental analysis has been taken from previous financial statements of the company to understand the financial performance of the company. The data for technical analysis was done by taking the adjusted close prices of the

selected stocks in a selected time frame inherent and most suitable for the analysis.

Tools and Techniques employed for this study:

The various tools and techniques used in this study are.

1. The types of research conducted at various points of the study are conceptual, fundamental, analytical and empirical.

2. The use of stock indicators like Moving Averages Convergence Divergence (MACD), Relative Strength Index (RSI) were employed and used to understand the stock performance.

i) For MACD, the adjusted close price for 2019-2020 was taken on a weekly time frame and the 12 and the 26 day Exponential Moving Average were taken and averaged over their respective day frame to arrive at the MACD line by deducting the values of both, a separate 9 day Exponential Moving Average was taken and the 9 day was averaged by taking the MACD line as the new data to act as the signal line. Thus to sum up if the MACD line is above the 9 EMA, the stock is in an up-trend and vice-versa.

ii) For RSI, the adjusted close prices were taken and the excel function of "IF" was used to remove the negative change in stock prices, since RSI is calculated on a 14 day basis, the average gain/loss over the last 14 days were taken for the year 2019-2020 (weekly analysis) to arrive at the strength of the stock, it was then taken at the 100 multiple to arrive at the relative strength of the stock to see whether the stock is crucial, overbought, oversold or at stable levels

3. The adjusted close prices were taken to construct graphs for the selected stocks for a 2-year analysis by using the monthly time frame, to understand the movement better, a linear and a 5-day moving average was constructed.

4. Volatility tables were conducted on the adjusted close price to see the fluctuations in the stock for this, monthly log returns, variance and



standard deviation was used.

This empirical analysis was done to understand the comparative performance of the study. In the New York Stock Exchange (NYSE) and in the National Stock Exchange (NSE).

Limitations:

1. The monetary returns and the historical performance of stocks do not always give a fair market value.
2. The research draws its study from market efficiency theories like efficient market hypothesis and CAPM, which entirely does not hold and has been faced with heavy criticisms.
3. Even though the concept of ADR & GDR is new and eliminates much paperwork with less hassle, it is new & many people do not invest because of heavy regulations and huge transaction costs.
4. Arbitraging is highly risky with huge taxes and fewer opportunities; triangular arbitraging is risky if the investor is not properly versed with technology and proper equipment.
5. Interactive charts provide a much better depth of the trend or the movement of the stock, since its real time software. To stick onto paper is not plausible, so the study is limited to graphs and the indicators have been broken to tables.

III. Findings:

Objective 1: To review stock market theories and hypothesis.

Finding: Theories such as Efficient Market Hypothesis, Capital Asset Pricing Model, Random Walk Theory, Dow Theory and Arbitrage Pricing Theory play an influential role in developing the stock market in today's global era. The modern world stock market around the globe runs on the amalgamation of the improvements of these theories culminated. It is important for anyone planning to invest in the stock market be it long-term or short-term to have a fundamental idea on the functioning of these theories.

Objective 2: To understand the benefits of cross-listing.

Finding: Cross listing is a relatively new area for firms and investors like and this phenomenon became popular in the 1990's after the introduction of Financial Liberalisation, Privatisation and Globalisation. Many Indian firms thought to list themselves in the European and American Stock Exchanges.

Some of the key benefits of listing in American Stock Exchange (ADR) are

- Increased investor recognition
- International Brand Visibility
- Enhanced financial communication.

One of the key disadvantage of listing in American Stock Exchange was found that it had to comply with more disclosure requirements under SEC 144A, more disclosure than the HomeStock Exchange.

Some of the key benefits of listing in Global Stock Exchange (GDR) such as London Stock Exchange, Luxemburg Stock Exchange are

- Raising of quick International Equity
- Very less disclosure requirements
- Easy arbitrage opportunities.

One of the key disadvantages of listing in Global Stock Exchange was found that it would take a back seat on diminished brand image, investor recognition. Although majority of Indian DR Programs are listed there, it was found out that there is no significant value arising out of it post cross listing.

Another significant finding was that emerging Asian countries such as China and India had a tremendous rise in their DR listing programs in the recent years in the West presumably due to the Western countries having a relatively superior stock exchange.

Objective 3: To study the performance of Indian cross listed stocks for the timeframe 2018-2020.

Findings: Five Indian cross listed stocks were taken namely: Dr. Reddy's, Wipro, Vedanta, Infosys and Tata Motors and their comparative performance was reviewed and studied in the NSE (National Stock Exchange) and NYSE (New York Stock Exchange). All of these were American Depository Receipts.

Dr. Reddy's- The overall comparative technical findings are:



Dr Reddy	Graphical Representation (High Low % Change)	Relative StrengthIndex	MACD	Volatility (3years)
NSE	1.04%	2019- 40-60 levels 2020- 55-75 levels	2019-bullish 2020-bullish	8%
NYSE	1.5%	2019-45-65 levels 2020- 55-75 levels	2019-bullish 2020- bullish-bearish trend.	8%

Wipro- The overall comparative technical findings are:

Wipro	Graphical Representation (High Low % Change)	Relative StrengthIndex	MACD	Volatility (3years)
NSE	1.02%	2019- 35-70 levels 2020- 20-80 levels	2019-bullish 2020-bullish	8%
NYSE	0.6%	2019-28-48 levels 2020- 30-82 levels	2019-bearish bullish-bearish	2020-9%

Vedanta- The overall comparative technical findings are:

Vedanta	Graphical Representation (High Low % Change)	Relative StrengthIndex	MACD	Volatility (3 years)
NSE	3.26%	2019- 30-50 levels 2020- 20-70 levels	2019-bearish 2020-bearish- bullish	17%
NYSE	4.33%	2019-30-50 levels 2020- 25-75 levels	2019-bullish bearish -bullish.	2020-17%

Infosys- The overall comparative technical findings are:

Infosys	Graphical Representation (High Low % Change)	Relative StrengthIndex	MACD	Volatility (3 years)
NSE	1%	2019- 40-65 levels 2020- 30-75 levels	2019-bullish 2020-bullish	8%
NYSE	1%	2019-30-65 levels 2020- 25-80 levels	2019-bullish bullish.	2020-9%

Tata Motors- The overall comparative technical findings are:

Tata Motors	Graphical Representation (High Low % Change)	Relative StrengthIndex	MACD	Volatility (3 years)
NSE	4.6%	2019- 30-70 levels 2020- 25-70 levels	2019-bullish-bearish 2020-bearish-bullish	8%



NYSE	6.5%	2019-30-65 levels 2020- 25-60 levels	2019-bullish-bearish bearish-bullish	2020-9%
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It was also found out that Indian stocks achieve stability and reduction of volatility and market risk if the number of cross-listed years exceed or are at 20 as in the case of Dr. Reddy's, Wipro and Infosys whose percentage changes has been below 2%.

But stocks such as Vedanta and Tata Motors have huge percentage changes due to wide gaps in their prices and are prone to intense fluctuations and their percentage changes have been above 3%.

IV. Conclusion:

It is concluded that cultural proximity, relative market reputation, investor recognition and financial communication play a vital role in the successful cross listing of stocks. Fundamental and Technical analysis play an important role in determining the capital market benefit arising out of it. For the long run benefit of cross listing or post-listing benefits to sustain for the company or the share, it is important that financial communication between both investors and the firm is of paramount importance. The recent trends to cross-list has been significant in emerging countries like China and India where they exploit the benefits of market segmentation by strategizing the risks efficiently as it is one of the fastest race to achieve financial literacy, globalisation and reduction of cost of capital. There has been a growing need to continue the cross-listing in the foreign exchanges to benefit from reduction of volatility and market risk, both locally and globally and increase of free-float of shares and liquidity in the stocks of both the markets. External conditions like government policies, business conditions and socio-economic factors play a key role in determining the trend of the stock. Along with that technical analysis can be adopted for quick price action of the stock. The stock's performance was examined and the stocks which were chosen were Dr. Reddy's, Wipro, Infosys, Vedanta and Tata Motors and it was found out that technology stocks such as Wipro and Infosys will continue to go up due to continuous innovations in technology and a global presence for both of them while Dr. Reddy's picked up a higher pace in the recent times due to its significant contribution in the vaccine industry, thus medical and technology stocks are now termed as Growth Stocks. Contrastingly, Vedanta had several problems such as environmental and sustainability concerns with its pleas to set up chemical plants anywhere in the world were fairly rejected by environmental activists.

Added to that, it faced issues with its delisting which further drove the stock price down. While, Tata had falling revenues in their luxury car division and high level of debt financing which were the main causes for its falling stock price. Thus, to conclude, cross-listing should be benefitted in a way that multinational companies gain from increased valuation premiums.

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