CROSS LISTING AND VALUE CREATION: EVIDENCE FROM INDIA

Divya Mehta¹ and C. P. Gupta²

Financial decisions of a firm are supposed to create value for shareholders and cross listing of shares is one of the financial decisions. Therefore, it should create value for the shareholders. Evidences across the globe are not conclusive whether cross listing really creates value for the shareholders. An attempt is made in this Study to find whether Indian companies gone for listing in foreign stock exchanges in the past created value for the shareholders. For this, 153 Indian Companies which issued their ADRs/GDRs on NYSE, LSE, LuxSE from the year 1995 to 2014 were taken for the study. Firstly, the Event Study Methodology is used to compute Abnormal Returns (ARs), Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAARs) based on a single index model using daily closing prices of the said companies and BSE Sensex . It was found that the AARs on the event day and in immediate pre and post event window were found to be insignificant. The study also exhibited negative results of AARs and CAARs during the event window. Secondly, the study examines whether the companiess listed in the foreign stock exchange leads to the change in the risk behavior. Results are indicating that the cross listing is not creating value for shareholders as no significant impact of cross listing on returns and risk was found. In fact, there is a strong hint that it might be destroying the value in reality. It may be due to the fact that domestic shareholders do not believe that cross listing creates value and may treat it as something negative.

Key words: Abnormal Returns, Event Study, Cumulative Average Abnormal Returns

INTRODUCTION

Firms can create value for the shareholder by taking financial decisions and one such financial decision is cross listing of shares on the foreign stock exchange. Attempt has been made to answer the question "Is cross listing creating value for the shareholders?"

¹ Cross Listing is when a company listed on a domestic stock exchange also lists itself on the International Stock Exchange. Cross Listing is possible through issuance of Depository Receipts.

Assistant Professor, Dyal Singh College, University of Delhi, Delhi

² Professor, Department of Financial Studies, University of Delhi, Delhi

Howe and Kelm(1987) used event study methodology on the US stocks dually listed on Basel, Frankfurt and Paris stock exchanges and reports that there is significant negative abnormal returns in the event window and recommended that managers should avoid listing their stocks on international stock exchanges. Alexander, Eun and Janakiramanan (1988) examined foreign stocks dully listed on US stock exchange and reported positive abnormal returns in the pre listing period and negative abnormal returns in the post listing period. Reilly, Wright and Wakasugi (1990) in their working paper examined the impact of dually listed US securities on Tokyo Stock exchange and found their results in contrast with the above mentioned study with the positive abnormal returns around listing. Lee (1991) found no impact of cross listing of US stocks on London and Toronto Stock Exchange. Torabzadeh, Bertin and Zivney (1992) investigates US securities that are dually listed on NYSE and on either Tokyo or London Stock Exchanges and found positive average abnormal returns in the pre listing period. Though, in the post listing period, negative pattern of the stock returns are reported immediately after the listing yet it becomes positive thereafter. Stulz and Karolyi (1996) analysed 106 foreign companies that are listed on US Stock Exchange and found positive abnormal return in the pre listing period and negative abnormal returns in the post listing period. Foerster and Karolyi (1998a) observed positive abnormal returns in the pre listing year and in the week of listing. However, in the post listing period there was fall in the abnormal returns and concluded that the fall in the returns in the post listing period is due to firm specific factors. The studies related to cross listing by Indian companies is not extensive. Tripathy and Jha studied ADR listing by Indian companies and found negative abnormal returns on the listing day and concluded that cross listing is not creating value for the shareholders. Kotha and Gopalswamy examined Indian stocks cross listed on US stock exchange and found no significant effect on the returns. Kumar (2003) in his thesis examined ADRs and GDRs listing impact on Indian Stocks and found positive abnormal returns in the pre listing period and negative abnormal returns in the post listing period. Some researchers conclude that cross listing creates value for the shareholders as against others whose results indicate that cross listing has no impact on the shareholders value. Hence, there is no conclusive evidence in this regard and still cross-listing remains a puzzle.

OBJECTIVE AND RESEARCH DESIGN

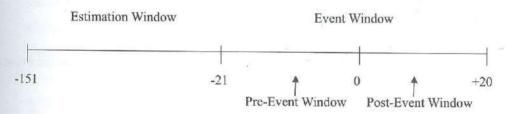
The objective of the current study is to test whether cross listing on the foreign stock exchange is able to create value for the shareholder. Since shareholders' value is

determined by return and risk², the study examines the impact of cross listing on the returns and risk of companies shares gone for cross listing. To achieve this objective, following methodology and data are used.

Sample consists of the daily closing share prices of 153 companies whose ADRs and GDRs are listed on NYSE, LSE, LuxSE and BSE Sensex taken from CMIE Prowess from 1992 to 2014. The daily closing shares price data have been used to calculate daily returns and using BSE Sensex data, market returns are calculated. Listing date of ADRs and GDRs, taken as event day, has been taken from websites of NYSE, LSE and LuxSE.

Event study Methodology has been used to study the impact of cross listing on return and for this, we calculate the Abnormal Returns, Average Abnormal Returns and Cumulative Average Abnormal Returns. The listing date has been considered as event date (t=0). The estimation window from -151 to -21 and the event window of 41 days (t = -20 and t = +20) has been considered for the study which is depicted in Diagram 1.

Diagram 1 - Estimation and Event Window



The daily returns of are computed as $R_{it} = log (P_{it}/P_{it-1})$ where R_{it} is return on i^{th} share at time, t; and Pit=daily closing price of i^{th} share at time t. The market returns are computed as $R_{tut} = log (P_{tut}/P_{tut-1})$ where $P_{tut} = daily$ closing index value at time t.

The following equation of Single Index Model is used to calculate normal return or expected return for a given R_{mi} :

$$\mathbf{R}_{it} = \alpha_i + \beta_i \, \mathbf{R}_{mt} + \boldsymbol{\varepsilon}_{it} \tag{1}$$

Where α_i , β_i = parameters of the equation for i^{th} share and \mathcal{E}_{it} = error term of i^{th} at time t.

Abnormal returns for the event window are calculated using [1] above.

Returns are positively related with value; that is, high returns means higher value while risk has negative impact on value—higher risk means lower value.

Abnormal Return = Actual Return - Expected Return

$$AR_{it} = R_{it} - \widehat{\alpha}_i - \widehat{\beta}_i R_{mt} \tag{2}$$

To capture the effect collectively and not individually, we compute average abnormal returns over the number of the shares. The abnormal returns are averaged for each day in the event window.

$$AAR_{t} = \sum_{i=1}^{N} \frac{AR_{it}}{N} \text{ where } N = \text{Number of companies}$$
 (3)

In testing AARs, we assume that standard deviations across all the companies are same; however, this may not be the case. To overcome this problem, we standardize abnormal returns by dividing them with the standard deviation estimated in the estimation window.

$$SAR_{it} = \frac{AR_{it}}{s_i} \tag{4}$$

Where AR_{it} = Abnormal returns of ith share for time t

s_i = Standard deviation of ith share calculated in the estimation window

We average the SARs and obtain ASARs each shareholders on all the days in the event window

$$ASAR_{t} = \sum_{i=1}^{N} \frac{SAR_{it}}{N}$$
 (5)

To understand the cumulative effect of the AARs, we compute CAARs. CAARs helps to understand the buy and hold effect during event window.

$$CAAR_{t} = \sum_{t=t1}^{t2} AAR_{t} \tag{6}$$

CASARs is computed to know the cumulative effect of the ASARs.

$$CASAR_t = \sum_{t=t1}^{t2} ASAR_t \tag{7}$$

To study the impact of cross listing on risk, variance, taken as a measure of risk, is tested by Levene's test for equality of variances for identifying whether the variance of the pre listing and post listing period is equal.

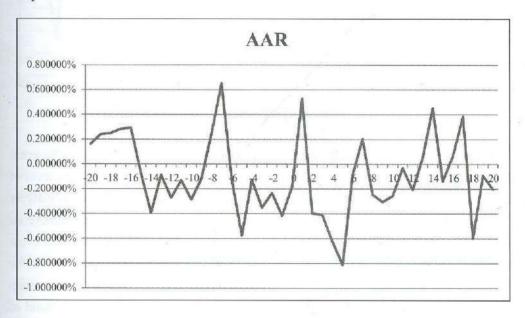
RESULTS AND DISCUSSION

Since value is a function of return and risk, the discussion has been divided into two parts -first part concentrate on return while the second part, on risk.

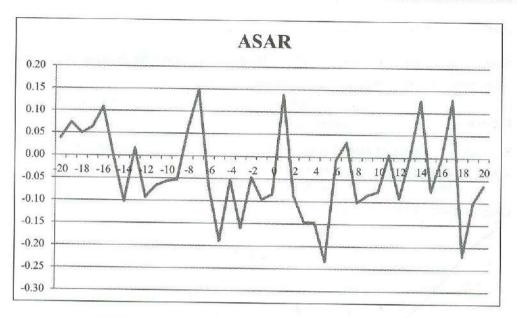
Return

To study the impact of cross listing on return, we discuss here the results in terms of AARs, ASARs, CAARs, and CASARs.

Graph 1 shows AARs for the event window.



From the graph, it can be seen that there is no systematic behaviour of AARs which means nothing conclusively can be inferred. Sharp increase and then, a fall during t_a, and tis may suggest that market soon realize gains from cross listing are not sustainable and seems to be illuionary. It can also be noted that in the overall event window, negative AARs are more than positive AARs showing that cross listing has overall negative effect on AARs. Similar behaviour can also be viewed in the graph 2 presenting ASAR for the event window.



Graph 2

Table 1 presents the AARs and their respective t values. It shows that AAR for the event day is negative (-0.18%) with t value (-0.6756) which is insignificant at 5% level of significance. AAR is positively significant in the pre event window at $t_{.7}$ and negatively significant in the post event window on $t_{.45}$ and $t_{.48}$. AARs are found to be negative on mostly all of the days in the event window. This negative performance in the event window reflects unfavourable market reaction to the companies' decision to list in the foreign stock exchanges. For all other days during the event window, AARs remain insignificant. Table 1 also shows that results in the pre event window are a blend of positive and negative ASARs. On the event day, ASAR becomes negative which increases by 0.22 on $t_{.41}$ and thereafter combination of negative and positive ASARs are observed throughout the event window in the pre listing period, ASARs are found to be significant on $t_{.5}$ and in the post listing period, ASARs are significant on $t_{.5}$ and $t_{.48}$.

Table 1: AAR, ASAR and t values

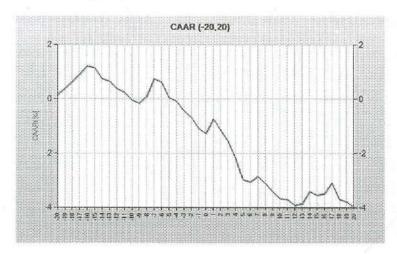
DAY	AAR	t values	ASAR	t values	DAY	AAR	t values	ASAR	t values
-20	0.16%	0.5999	0.04	0.4769	0	-0.18%	-0.6756	-0.08	-1.0346
-19	0.24%	0.8253	0.07	0.9054	1	0.53%	1.6031	0.14	1.6944
-18	0.25%	0.9442	0.05	0.6103	2	-0.40%	-1.5308	-0.09	-1.0717
-17	0.28%	0.9740	0.06	0.7809	3	-0.41%	-1.7248	-0.15	-1.8033
-16	0.29%	1.0091	0.11	1.3420	4	-0.62%	-1.9667	-0.15	-1.8126
-15	-0.07%	-0.3192	0.00	-0.0294	5	-0.81%	-3.3718*	-0.23	-2.8818*
-14	-0.39%	-1.9214	-0.10	-1.2660	6	-0.09%	-0.3733	-0.01	-0.0822
-13	-0.09%	-0.3151	0.02	0.2070	7	0.20%	0.6486	0.03	0.4013
-12	-0.27%	-1.0793	-0.09	-1.1403	8	-0.25%	-0.9457	-0.10	-1.2499
-11	-0.13%	-0.5078	-0.07	-0.8224	9 .	-0.31%	-1.1538	-0.08	-1.0467
-10	-0.29%	-1.2187	-0.06	-0.7018	10	-0.26%	-1.1198	-0.08	-0.9508
-9	-0.12%	-0.6045	-0.05	-0.6514	11	-0.03%	-0.1657	0.01	0.0657
-8	0.25%	0.8234	0.06	0.7504	12	-0.21%	-0.8374	-0.09	-1.1309
-7	0.65%	2.4834*	0.15	1.8359	13	0.05%	0.2244	0.00	0.0024
-6	-0.12%	-0.3545	-0.07	-0.8492	14	0.45%	1.6427	0.13	1.5695
-5	-0.58%	-1.9111	-0.19	-2.3242*	15	-0.14%	-0.5904	-0.08	-0.9323
4	-0.13%	-0.4517	-0.05	-0.6487	16	0.06%	0.2480	0.00	-0.0208
3	-0.35%	-1.2228	-0.16	-1.9823	17	0.38%	1.8001	0.13	1.6007
2	-0.23%	-0.6865	-0.05	-0.5795	18	-0.60%	-2.8242*	-0.22	-2.7176*
1	-0.42%	-1.4904	-0.10	-1.1821	19	-0.09%	-0.3429	-0.10	-1.2418
					20	-0.20%	-0.7708	-0.06	-0.7698

^{*}Significant at 5% level

Impact on Cumulative Average Abnormal Returns (CAARs)

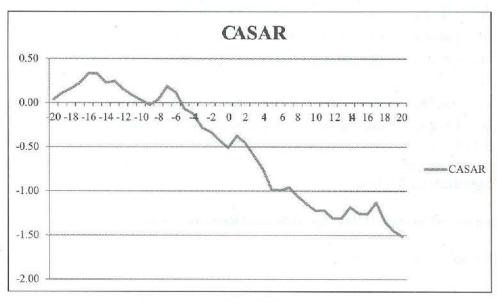
To understand buy-hold effect during the event window, CAARs are calculated

presented in the following graph.



Graph 3

Graph 3 depicts that in pre event window, CAARs are positive till t-5 except three days (t-8 to t-10). After t-5, CAARs shows a falling trend till the end of the event window. Similar results can be seen in the graph of CASAR.



Graph 4

Table 2 shows that in the pre event window CAARs are positive till t_s except for two days t_9 and t_{10} . There is a recurrent fall in the CAARs till the end of the event window. None of the values are significant in the pre event window. CAARs are positive till t-11

but after that till the event day, CAARs show mixed results. CAAR for the event day is negative at -1.25% and increases on t_{+1} by 0.53% to -0.72% but remains insignificant on that day. After the event day, CAARs are negative throughout. In the post listing period, CAARs are found to be negatively significant on t_{+12} . Table also shows CASARs are positive till t-5 except t-9 day. Subsequently, CASARs fall and is negative till the end of the event window. None of the values of CASARs are found to be significant in the event window.

Table 2: CAARs, CASARs and t values

DAY	CAAR	t values	CASAR	t values	DAY	CAAR	t values	CASAR	t values
-20	0.16%	0.5999	0.04	0.0031	0	-1.25%	-0.8739	-0.51	-0.0090
-19	0.40%	0.8337	0.11	0.0065	1	-0.72%	-0.4682	-0.37	-0.0065
-18	0.65%	1.1324	0.16	0.0076	2	-1.12%	-0.7079	-0.46	-0.0078
-17	0.93%	1.3339	0.23	0.0091	3	-1.53%	-0.9550	-0.61	-0.0100
-16	1.22%	1.7230	0.33	0.0121	4	-2.15%	-1.3033	-0.75	-0.0122
-15	1.15%	1.4707	0.33	0.0110	5	-2.96%	-1.7722	-0.99	-0.0156
-14	0.76%	0.9502	0.23	0.0070	6	-3.05%	-1.8270	-0.99	-0.0155
-13	0.67%	0.7365	0.25	0.0071	7	-2.85%	-1.6611	-0.96	-0.0147
-12	0.40%	0.4356	0.15	0.0042	8	-3.09%	-1.7101	-1.06	-0.0160
-11	0.26%	0.2707	0.09	0.0022	9	-3.40%	-1.8024	-1.15	-0.0170
-10	-0.02%	-0.0229	0.03	0.0007	10	-3.66%	-1.9136	-1.22	-0.0178
-9	-0.14%	-0.1382	-0.02	-0.0005	11	-3.69%	-1.9279	-1.22	-0.0175
-8	0.11%	0.0997	0.04	0.0009	12	-3.89%	-2.0220*	-1.31	-0.0185
-7	0.76%	0.6985	0.19	0.0041	13	-3.84%	-1.9736	-1.31	-0.0182
-6	0.64%	0.5361	0.12	0.0025	14	-3.39%	-1.6912	-1.18	-0.0162
-5	0.06%	0.0497	-0.07	-0.0014	15	-3.53%	-1.6939	-1.26	-0.0169
-4	-0.07%	-0.0516	-0.12	-0.0024	16	-3.47%	-1.5962	-1.26	-0.0167
-3	-0.42%	-0.3139	-0.28	-0.0054	17	-3.08%	-1.3961	-1.13	-0.0148
-2	-0.65%	-0.4676	-0.33	-0.0061	18	-3.68%	-1.6501	-1.35	-0.0175
-1	-1.07%	-0.7486	-0.43	-0.0077	19	-3.77%	-1.6716	-1.45	-0.0186
				12-65-5-31055	20	-3.97%	-1.7351	-1.51	-0.0192

^{*}Significant at 5% level

Below is the period wise CAAR, which means the cumulative effect of cross listing in different event windows. Following is the hypothesis tested:

Period Wise Hypothesis:

$$H_0 = CAAR_u = 0$$

 $u = t_1$ to t_2 where $t_1, t_2 \in -20, +20$

Table3: Period wise CAAR

Day	CAAR -	pos:neg	T-Test Time-Series	Prob.	Patell z	Prob.	Boehmer et al.	Prob.	Corrado Rank	Prob.	Sign Test	Prob.
(-2020)	-0.0397	65:88	-1.7351	0.0626	-2.9216	0.0041	-2.2874	0.0222	-1.6094	0.1075	-0.9394	0.3475
(-1515)	-0.0475	59:94	-3.3434	0.0008	-3.4064	0.0007	-2.9804	0.0029	-2.0564	0.0397	-1.9123	0.0558
(-1010)	-0.0392	61:92	-3.3498	0.0008	-3,4036	0.0007	-2.824	0.0047	-2.5487	0.0108	-1.5880	0.1123
(-55)	-0.0350	47:106	-4.2481	0.0000	-3.981	0.0001	-3.3616	0.0008	-3.2939	0.0010	-3.8580	0.0001
(020)	-0.0289	58:95	-2,4457	0.0145	-2.6772	0.0074	-2.3006	0.0214	-1.6720	0.0945	-2.1255	0.0335
(-200)	-0.0125	68:85	-1.0677	0.2856	-1.3131	0.1891	-1.153	0.2489	-0.9757	0.3292	-0.4530	0.6505
(-150)	-0.0247	61:92	-2,4219	0.0154	-2.5228	0.0116	-2.3684	0.0179	-1.7680	0.0771	-1.5880	0.1123
(-100)	-0.0151	63:90	-1.7871	0.0739	-2.1470	0.0318	-1.9336	0.0532	-1.5221	0.1280	-1.2637	0.2053
(-50)	-0.0188	60:93	3.0136	0.0026	-3.0699	0.0021	-2,6823	0.0073	-2.4652	0.0137	-1.7501	0.0801

To test the significance of CAAR on different windows, we make use of different parametric and non parametric tests. Patell z (1976) and Boehmer et al (1991) are the parametric tests performed. However, the other two tests Corrodo Rank (1989) and Cowan Sign Test (1992) are non parametric tests. Table 5 reports the CAARs and associated t-statistics for the sample and for selected windows. It can be inferred that the shortest event window (-5,+5) is significant for all the tests performed. That is possible probably because of the assumptions made in the various parametric tests. The table shows the number of companies having negative and positive returns in the different windows. In the event window (-5,+5) which shows significant CAAR for all the tests performed, the number of companies having negative returns is more than the number of companies having positive returns. Hence, it can be concluded that the effect of cross listing on the Indian Companies is negative.

Variance

To test for the equality of variances of the two periods i.e. the variance of the pre listing period and the variance of the post listing, we use Levene's Test. This is being done at two levels – one on aggregate level and another on individual level.

Table 4: Results of t test (Aggregate Level)

	Levene's Test for Equality of Variances					
	F	Sig.				
Equal variances assumed	.095	.760				

The results of Table No. 4 indicate that p value is not significant at 5% level of significance. Thus, consistent with the study of McConnell and Sanger (1987) null hypothesis is not rejected which indicates that variances are not statistically significantly different for the pre listing period and the post listing period. It means that cross listing has no significant impact on the risk.

Table 5: No. of companies

	No of companies
Unequal Variances	27
Equal Variances	126
Total	153

Table 5 shows that 27 companies show unequal variance in the pre and post event window. However, rest all the companies have equal variances. Thereby, indicating that most of the companies in the sample suggest that the variances in the pre and post event remain the same.

Table 6: Number of companies showing Increase/Decrease in Variance

Decrease in Variance from pre to post event window	15
Increase in Variance from pre to post event window	12
Total	27

The table above shows results for the twenty seven companies which are having unequal variances. The statistics of Table 6 indicate that only a few cases show significant increase in the variance in the post listing period. So, it can be concluded that the changes in the risk profile of the company is due to unsystematic risk of the company and the changes are not uniform across all the companies.

SUMMARY AND CONCLUSION

This study is a humble effort in establishing whether cross listing of Indian securities on foreign stock exchange is creating value for the shareholders. An event study methodology is adopted to examine the same. The study found that cross listing has no significant impact on returns .In this regard, our results are consistent with Eun et al. (1993) and Domowitz et al. (1995) who found insignificant abnormal returns around the

Depository Receipts listing. Our findings are consistent with Foerster and Karolyi (1993), Baker et al. (1994), Foerster and Karolyi (1999) where they find a negative pattern of stock returns after the listing date. Further, the trend of CAAR shows continual negative pattern in the post listing period. However, in the pre listing period positive CAAR were still observed for some of the days. Specifically, three observations can be made with respect to the Cumulative Average Abnormal Returns (CAAR). Firstly, CAAR for the sample starts with the upward movement prior to the listing; secondly, in the immediate pre listing period till the event day there is descending movement; thirdly, in the immediate post event window there is an upward move in CAAR and afterward falls till the end of the event period. The study also assesses the impact of cross listing on and found no significant impact on the risk. On the basis of the observations, it can be inferred that there exists **Cross Listing Illusion**. This may be because of the following reasons:

- Cost outweighing the benefits of Cross Listing
- · Uncertainty cost of Cross listing
- · Impact may be visible during announcement
- Cross Listing may not purely be a Financial Decision
- · Curtailed Information Availability/ More Information required by Investors
- · Demonstrating Effect/Peers Effect

The evidence presented here suggests several directions for further research. First, the announcement day effects can be examined. Secondly, firm specific characteristics can also be studied. Thirdly, longer periods can be studied to understand strategic decision impact.

REFERENCES

Alexander, G.J., Eun C.S. and Janakiramanan S. 1988. "International listings and stock returns: Some empirical evidence", *The Journal of Financial and Quantitative Analysis*, Vol. 23, No. 2, 135-151

Baker H.K, Khan W.A and Edelman R.B. 1994. "The post-dual listing anomaly", *Journal of Economics and Business*, vol. 46, issue 4, 287-297

Boehmer, E., Musumeci J., and Poulsen, A. B. 1991. "Event-study methodology under conditions of event-induced variance", *Journal of Financial Economics*, Vol 30 Issue 2, 253-272.

Corrado, C. J. 1989. "A nonparametric test for abnormal security price performance in event studies", Journal of Financial Economics, Vol 23 Issue 2, 385-395.

Cowan, A. R. 1992, "Nonparametric event study tests", Review of Quantitative Finance and Accounting Vol 2 Issue 4, 343-358.

Domowitz I, Glenn J, and Madhavan A 1995. "Market Segmentation and Stock Prices: Evidence from an Emerging Market", Working Paper, University of Southern California

Eun C, Claessens S. and Jun K. 1993. "International tade of assets, pricing externalities and cost of capital", Portfolio Investment in Developing Countries, University of Western Ontario, London.

Foerster S.R and Karolyi G.A. 1993. "International Listings of Stocks: The Case of Canada and the U.S.", Journal of International Business Studies, Vol. 24, No. 4, 763-784

Foerster, S.R. and Karolyi. G.A. 1998a. "The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the U.S," Working paper, University of Western Ontario.

Foerster S.R and Karolyi G.A. 1999. "The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States", *The Journal of Finance* Vol LIV, No. 3, 981-1013

Howe, J.S. and Kelm. K. 1987. "The Stock Price Impacts of Overseas Listings." Financial Management, Volume 16, No. 3, Autumn, 51-56.

Kadlec, G., and McConnell. J. J. 1994. "The Effect of Market Segmentation and Illiquidity on Asset Prices: Evidence from Exchange Listings," *Journal of Finance*, Vol.49, No. 2611-636.

Karolyi. G.A. Stulz R.M. 1996. "Why do markets move together? An investigation of US-Japan Stock Return Comovements", *The Journal of Finance* Vol. 51, No. 3, 951-986

Kotha and Gopalswamy(n.d., "The Impact On Risk And Return Of Listing Indian Stocks On U.S. Stock Exchanges"

Kumar Manoj 2003. "A study of the determinants and impacts of Indian ADRS and GDRS", Ph. D Thesis, IIT Bombay.

Lee, I., 1991. "The impact of overseas listings on shareholder wealth: The case of the London and Toronto stock exchanges." *Journal of Business Finance and Accounting*, 18(4), 583-592.

McConnell and Sanger 1987. "The Puzzle in Post-Listing Common Stock Returns", The Journal of Finance Vol 42, No. 1, 119-140.

Patell, J. A. 1976. "Corporate forecasts of earnings per share and stock price behavior: Empirical test", *Journal of Accounting Research*, Vol 14 No 2, 246-276.

Reilly, F.K., D.J. Wright, and T. Wakasugi. 1990. "The Impact of a Dual Overseas Listing: The Case of the Tokyo Stock Exchange." Working Paper, University of Notre Dame.

Torabzadeh K.M., Bertin W.J. and Zivney T.L. 1992. "Valuation Effects of International Listings", Global Finance Journal, 3(2), 159-170

Tripathy and Jha(n.d). "Indian Stock Market Reaction to International Cross-listing: Evidence from Depository Receipts"