

Cross-Listing Premium or Market Timing

Moustafa Abuelfadl

Ithaca College, USA

Cross listing literature presented various reasons for why companies cross list among those are liquidity, investor recognition, and lower cost of capital. This paper builds on the literature of cross-listing and shows that some companies cross list during a bull market and others cross list in a bear market. The results show that companies who time the market and cross list during market expansion, experience significantly negative abnormal returns in the post-listing period. The results also show that companies who don't time the market, experience either significant positive abnormal returns or insignificant negative abnormal returns in the post-listing period. Home country factors affect the magnitude of abnormal returns in both the pre-listing and the post-listing period regardless of the reason for cross-listing.

JEL Codes: G1, G14, G15, F3, L1

Key Words: Cross Listing, Market Timing, Post Listing Anomaly, Abnormal Returns

1. Introduction

The literature of cross-listing has examined the effect of cross-listing, not only on the firm's value but also on the domestic market. How the domestic market from which the company is coming from will affect and be affected by cross-listing. Policy makers are concerned that the globalization of trading and issuance of equities from emerging markets will inhibit the development of the domestic market. Hargis and Ramanlal (1998) propose a theoretical model according to which the overall impact of international cross-listing is to increase local market liquidity and volume trading. An important implication of their model is that the greatest improvement in domestic stock market quality occurs when companies from countries that are characterized by small, less liquid and less open markets undertake international cross-listings on large, more liquid and more transparent markets. In a similar vein, Hargis (2000) demonstrates that international cross-listing of equities can transform a segmented local stock market (with low liquidity and small market capitalization) to an integrated market (with high liquidity and large market capitalization) by changing the incentives of companies and firms to participate in the market. Levine (1997) show that stock market liquidity can positively influence economic growth, equity growth, and productivity growth. Some studies (Rajan and Servas 1997) have noted that improvements in resource allocation can also occur with the evolution of stock markets.

Companies want to cross-list because they believe that by cross-listing then that will increase the business value, reduce volatility and enhance the liquidity of the underlying stocks. Foerster & Karolyi (1998) find empirical support for

these perceptions. However, for U.S. firms listing abroad (Howe and Madura, 1990; Varela and Lee, 1993b, and Howe et al., 1993), their stock return volatilities changed very little, and home market betas actually rose. Fewer studies had examined changes in risks for non-U.S. firms listing in the U.S. (Foerster and Karolyi, 1993, 1999; Jayaraman et al., 1993), but those studies had uncovered a significant decrease in local market betas with either no change in global- or U.S.-market betas or a substantial increase in the latter with no change in the former.

Domestic market developments are shown to be negatively related to the both the degree of correlation between the domestic and international equity market and the relative size of the domestic equity market (Alexander, Eun, & Janakirmanan, 1986; Eun, Claessens, & Jun 1995). That is Because, correlations between individual firms are higher in emerging equity markets than in developed markets, (Divecha, Drach, & Stefek, 1992). This lack of diversifiable risk in the domestic market magnifies the international diversification benefits of integration (Griffin & Karolyi, (1998). Scholars have asked whether there are substantial real benefits or costs not only to the cross-listing firms but also to other businesses from the same country or the same industry or to the overall vitality of the local capital markets or real economies, as a whole. They found that there is evidence that the investment and operating performance of the cross-listing firm's accord with what their actual capital market shows. Nevertheless, both positive and negative spillover effects on competitor firms seem to arise.

The purpose of this article is to answer four simple questions: 1) Do companies experience pre-listing run up in price; 2) Is there a post listing anomaly (Post listing anomaly refers to negative abnormal returns after cross-listing); 3) Do companies time the market to cross-list; 4) Does the home market integration with the host market influence the magnitude of pre-listing and post listing abnormal returns for the cross-listed companies? Therefore, the paper tests the following four hypotheses:

H₁: "Post listing Anomaly: There is positive and significant abnormal returns in the prelisting period and negative and significant abnormal returns in the post listing period"

H₂: "Market timing of cross listing: Companies who cross list in a host market because that market is up will experience significant negative abnormal returns in the post listing period"

H₃: "Market timing of cross listing: Companies who cross list in a host market when that market is down will experience significant positive abnormal returns or insignificant negative abnormal returns in the post listing period"

H₄: "Home country of the cross-listing company, affect the magnitude of the abnormal returns of pre-listing and post listing periods regardless of the sign of the abnormal returns"

We found evidence that there is a run up in price in the pre-listing period and support for the first hypothesis. The results show an increase in cross-listing activity in the host market when that market is up and decrease in cross-listing activity when the market is down. Furthermore, companies who cross

list while the market is up to experience the post listing anomaly which supports the second hypothesis. The results also support that when companies cross list during the periods when the markets are down, which signals support to those company's sound fundamentals, they experience significant positive abnormal returns or insignificant negative abnormal returns in the post-listing period which supports the third hypothesis. Additionally, the home country of the cross-listed companies, affect the magnitude of abnormal returns in pre-listing and post listing periods which supports the fourth hypothesis.

Therefore, the study not only provides an explanation of why some companies experience positive significant abnormal returns in the post listing period, while other companies don't, but also, sheds light on the motives of why companies cross list (market timing). This study findings leads to various future research questions, such as, whether the companies who time the market, and experience negative post listing abnormal returns, also engage in earning management. Moreover, what are the real drivers of the positive post listing abnormal returns for the companies who did not time the market.

The paper continues as follows; Section II will provide theoretical background and hypothesis development; we will cover in that section the alternative hypothesis for cross-listing that was discussed in previous literature. Section III will explain the data used. Section V discusses methodology and provides findings and interpretations. Finally, Section IV is the conclusion and suggestions for future research.

2. Theoretical Background and Hypothesis Development

Merton (1987), international cross-listings have significant and positive valuation effects on the company stock price. Merton (1987) suggests that the significant changes in share price for firms who chose to cross-list on NYSE, the NASDAQ and OTC were coming from either investor recognition or increased liquidity. Looking at average returns, according to Kadlec and McConnell (1994), stocks, on average, earn normal returns of 5 to 6 percent in response to the announcement of listing on the NYSE. Additionally, on average, exchange listings are associated with a 19 percent increase in the number of registered shareholders and a 5 percent reduction in absolute bid-ask spreads and a 7 percent reduction in relative bid-ask spread. Overall, Firms experience the greatest number of shareholders following listing and exhibit the largest increase in stock price.

Liquidity refers to how fast the company can raise money (sell the company stocks) and at what volume, which poses a question about listing location. The listing location has an interaction effect with investor recognition hypothesis developed by Merton (1987). Amihud and Mendelson (1986) develop the liquidity hypothesis in the context of an asset pricing model in which gross returns are an increasing and concave function of liquidity measured by the bid-ask spread. Foerster & Karolyi (1999), Amihud and Mendelson's (1986) tested liquidity hypothesis and show that the sensitivity of the abnormal returns, as well as changing risk exposures, to the evolution in shareholder base is different for on-US stocks listing on the NYSE versus those listed on the and

NASDAQ. In other words, listing location offers a way of quantitatively measuring both investor recognition and liquidity and how that will affect abnormal returns if any, for the firm's stock whom cross-list.

(Foerster and Karolyi, 1999; Domowitz et al., 1997; Miller, 1999) report that that investor recognition and liquidity affects the average return and hence the substantial value. If nation markets who list its stock in another country correlate closely with that country market, then international listing should lead to a decline in the expected return on the firm's common stock if capital markets are either entirely or mildly segmented. Market integration improves domestic market liquidity. With market segmentation, only domestic investors trade domestic stocks. Under integration, all global investors can trade the stock. Increasing participation improves domestic market liquidity by reducing the sensitivity of prices to order flow in the local market, Domowitz, Glen, and Madhavan (1998), Hargis, and Ramanlal (1998) show how moving from market fragmentation or segmentation to integration improves domestic market liquidity for cross-listed equities. Smith and Sofianos (1996) find that cross-listing has resulted in a "win-win" situation with volume and liquidity improving in the domestic market.

Levine and Schmukler (2006), using a large panel of companies from 55 countries, examine the impact of cross-listing on the liquidity of the firms that are solely traded on domestic markets. Their findings indicate that cross-listing reduces the liquidity of the purely domestic firms. There are two primary channels, per Levine and Schmukler (2006), through which reduction in the liquidity of the purely domestic firms is brought about: the 'migration and liquidity spillover' channel and the 'domestic trade diversion' channel. The migration and liquidity spillover channel refer to the case where trading of cross-listed firms migrates from domestic to international markets (migration effect). Moreover, when domestic trading of cross-listed firms is positively and strongly related to the liquidity of purely domestic firms, the drying up of domestic liquidity of cross-listed firms due to migration leads to diminishing liquidity for local companies (liquidity spillover effect).

The domestic trade diversion argument states that cross-listed firms will become relatively more attractive to domestic traders, resulting in a compositional shift in local trading. A variety of reasons, including higher disclosure standards, improvements in reputation and expanded shareholder base, may cause domestic traders to prefer stocks of cross-listed firms over the stocks of purely domestic firms. Because of such diversion in domestic trading, the liquidity of non-cross-listed firms is reduced. Domowitz et al. (1998), posit that a cross-listed stocks trading quality depends on the inter-market informational linkage between the home and US markets and the home market's transparency. Cross listing between linked, transparent markets can result in lower trading costs as traders compete across markets. For opaque, non-linked markets, however, costs can be higher for cross-listed stocks due to the greater adverse selection associated with traders using across-market information advantages. Chowdhry and Nanda (1991), show that traders can profit by trading in multiple markets when those markets are imperfectly

linked. Thus, more transparent home equity markets might have greater cross-listing liquidity gains. Domowitz et al., (1998) suggest that US liquidity provision for non-US stocks from transparent/linked markets should be greatest when trading in the home market is open because the two markets compete to provide liquidity during those hours. Conversely, they posit that US liquidity for non-US stocks from opaque/non-linked markets should be least when both markets are open because of adverse selection concerns.

Previous research also looked at what happens if the company issue stock in the domestic market and simultaneously cross-list. Lucas, and McDonald, (1990), found that the stock price drop will be negatively related to the time between the release and the issue announcements. Other studies have also found that in general, the price drop will be larger the larger the information asymmetry (Korajczyk et al., (1992)). For US., Stulz 1995 maintains that a negative price reaction at the announcement date. Korajczyk et al., (1991), found that the size of the equity issue about the pre-issue announcement market value of the issuing company strongly negatively related to the price reaction. This result is in line with Krasker (1986) who finds a significant positive domestic stock market reaction for businesses that list and issue simultaneously. Howe and Klem (1987) found an adverse effect on shares prices for a sample of 161 US companies that listed on stock exchanges in Basel, Frankfurter, and Paris. Also, they reported positive share reactions to an announcement by US companies of intentions to list on Tokyo, Toronto or London stock exchange.

Another problem in emerging markets is corporate governance and how is that related to cross-listing. René Stulz, in the *Journal of Applied Corporate Finance* (Stulz, 1999). He emphasized that differences might arise between management and investors due to informational problems and due to potential agency conflicts. Informational problems occur if management's and investors' assessments of a firm and the value of its projects because management may have better information about their profitability that they cannot communicate credibly to the outside. Agency problems can arise as investors judge that management is making poor use of the capital provided as its objectives differ from those of the investors. The thrust of his argument is that a firm's cost of capital will depend critically on its corporate governance system including both the internal controls, such as independent boards and efficient management incentive compensation plans and external elements that stem from capital markets and the overall institutional environment. When a firm cross-lists its shares on an overseas exchange, the impact on its cost of capital may be influenced less by the barriers that were finessed than by the new legal environment that protects more efficiently minority investors, the better-functioning takeover market, and the more harsh disclosure environment the firm.

Stulz (1999) delineates several specific mechanisms that alleviate these problems by serving as monitors of management and controlling shareholders of these cross-listing firms. Legal systems do seem to matter for understanding the world of cross-listings. Companies from around the world with weaker

home country legal protections for public investors tend to cross-list less frequently in countries with stronger legal protections. Those that do so are typically faster growing and need new capital and, most importantly, are rewarded with significant valuation premiums once they do. Capital-markets-based accounting scholars have long emphasized the substantial economic consequences of changes in information disclosures by firms. Especially those mandated and monitored by regulatory authorities, like the SEC in the U.S. Researchers on accounting systems in international capital markets have argued that valuation changes around cross-listings may have less to do with barriers to investments and more to do with changes in reporting and disclosure requirements necessary to support a listing in the new market. Complexities do arise in such experiments because these newly listed firms seem to exercise considerable discretion in their disclosure activity and other factors, such as culture, language, and even geography can impact the information environment.

De Long et al. (1990 a, and b) present empirical evidence that stock returns are more synchronous in emerging economies than in developed economies. In particular, less respect for private property by government is associated with more market-wide stock price variation, and therefore also with more synchronous stock price movements. Their theoretical model suggests that cross-listing improves market quality in the case where inter-market information is freely available, and reduces liquidity and increases volatility in the local market when the inter-market information linkages are poor. Stulz (1999) argue that a firm's cost of capital will depend critically on its corporate governance system including both the internal controls, such as independent boards and efficient management incentive compensation plans and external elements that stem from capital markets and the overall institutional environment.

Given the different potential sources of the benefits and costs of cross-listing, it has proven to be difficult to separate all the effects and measure the relative importance of all the possible advantages and costs. Also, we are not trying to test any of the preceding arguments, but our intention here is to test a very different hypothesis that was not tested before in the cross-listing literature. The idea behind the hypotheses is that, if companies cross-list in foreign market regardless of which market and what the condition of the market is, then all the other assumptions (segmentation, bonding, integration, liquidity, investor recognition, inter-market linkages, improving investor protection, improving domestic market economy, etc.) will come into play. On the other hand, if companies time the market before they cross-list then, we cannot argue that they cross-list because of the all hypotheses in the literature. Nevertheless, we can claim that they cross-list to boost their share price by taking advantage of all the explanation presented by previous research. Hence, that will lead us to ask a different question, if the companies chose to cross-list due to market timing, then we will expect that these enterprises share price will drop, especially when the market goes down, and we will expect that their domestic value will go down as well. However, if the company is cross-listing

without regard to market timing, but because they have real opportunities, then we will expect that their shares price will not drop even if the market goes down, or at least if there was drop it will not be significant.

The conclusion is that when a company chooses to cross-list in a foreign market then the question to ask: Does the company cross list solely because the market is up or does it cross list because it wants to take advantage of the opportunities it sees. The analysis should not be toward why the firms cross-list, but when and where they cross-list. We will use abnormal return as a proxy to test the following four hypotheses:

H_1 : "Post listing Anomaly: There is positive and significant abnormal returns in the prelisting period and negative and significant abnormal returns in the post listing period"

H_2 : "Market timing of cross listing: Companies who cross list in a host market because that market is up will experience significant negative abnormal returns in the post listing period"

H_3 : "Market timing of cross listing: Companies who cross list in a host market when that market is down will experience significant positive abnormal returns or insignificant negative abnormal returns in the post listing period"

H_4 : "Home country of the cross-listing company, affect the magnitude of the abnormal returns of pre-listing and post listing periods regardless of the sign of the abnormal returns"

3. Data

To test the idea that companies cross list when the market is up, we chose the US market as the host market for variety of reasons but mainly to overcome the inefficient market hypothesis (Shleifer and Vishny 1997), furthermore we looked at the various recession dates in the U. S. Per the economic bureau, the last three recession dates in the U.S. were (1973-1975), (1980-1982), (2001-2003), (2007 -2009). We will only make the analysis around the last recession date of (2007-2009). We used those dates to reflect the time of a bear market. Specifically, the pre-listing window is 12 month for all the firms in the sample and post-listing period will be for 36 months. In of importance is to explain why we are choosing the recession time interval for our analysis; There are several reasons for that. First, we want to make a summary statistics of the companies who list in the US before the recession, during the recession, and after the recession. That will give us a preliminary view of our first hypothesis that companies cross list when the market is up. Secondly, we chose the latest recession to make the analysis as relevant as possible. Third, we will look at the companies' excess and abnormal return before listing, and after listing. Specifically, we will make a comparison between companies who cross list prior a recession and businesses who cross during a recession and who cross list after the recession to see if there is a significant change in their abnormal stock returns. In our analysis, we will divide the sample to a sub-sample of companies that cross-list before the event date and after the event date. For future research, researchers should examine companies that had chosen to cross-list when the market was up, and have gained a cross-listing premium

(pre-listing run up or post listing run up), were there any earnings management involved. Specifically, future research should answer the following question: do the companies who cross list engage in earnings management?

The sample of firms is from Canada and UK; we considered all foreign corporations that became dually listed on NYSE or NASDAQ. The listing dates for NASDAQ -listed firms obtained from the national association of security dealer a. The listing dates of NYSE obtained from NYSE fact book. The return data for Canadian stocks and Toronto stock exchange market index obtained from the Laval Toronto Stock Exchange (TSE) return file. The equivalent of short -term T-bill rates obtained from the Main Economic Indicators and International Financial Statistics of the Organization for Economic Cooperation and Development and International Monetary Fund, respectively. Returns calculated as price changes without dividends. We also cross-checked the stock prices using the Financial Times, Wall Street Journal. Also, Center for Research in Security Prices (CRSP) value and equal weighted monthly indices of the S&P 500 universe and the return of the 30-day Treasury bill obtained from the Center for Research in Security Prices. Monthly returns for Canadian firm's cross-listing on US exchange obtained from Standard and Poor's and verified for the country of incorporation via Compustat Global Vantage Database. The risk-free rate for Canadian Treasury bill obtained from the Bank of Canada, the market index return for Canada and UK is the Morgan Stanley Capital International (MSCI) and Footsie (FTSE) respectively, and the return of MSCI world for market portfolio is the world return.

International asset pricing models suggest that when investors realize that when barriers to investment to be removed, expected returns should decrease as prices are bid upon the expectation of the removal of these barriers. According to Alexander et al. (1988) to obtain a U.S. listing, a foreign firm must file a formal application with the U.S. exchange. It usually takes about four weeks for the NYSE and only a few days for the NASDAQ to approve or reject the application. The submission of a formal request for the NYSE listing is announced in weekly bulletins published by the exchange on the first day following the application. The first public announcement concerning an application for NASDAQ listing is made electronically through the NASDAQ terminals worldwide when the application is approved. Thus, the submission of the NASDAQ application itself is not formally announced. Unlike NYSE, NASDAQ does not require a confidential preliminary review of the eligibility. Once the application to NYSE or NASDAQ is approved, the firm decides to the date, in consultation with the exchange, when the company's stock will be listed. Thus, we will not examine the announcement effect because sometimes a company spokesperson may indicate steps to cross-list, then a few months later there may be additional announcements of new steps or some negotiations being finalized. Therefore, it was difficult to consider the announcement date as a point of starting the analysis so that we will concentrate on the actual listing and pre-listing periods.

Table 1 provides statistics about the frequency and location of UK and Canadian companies listing in the U.S. Table 1 show that during the recession

period in 2008 and 2009 fewer companies cross-listed, which lends support to the first hypothesis that companies chose cross list when the market is up.

Table 1
Frequency and Location for Canadian, and United Kingdom stocks listings on U.S. exchange from 2008 to 2014

| Year | NYSE | NASDAQ | Total |
|--------------|-----------|-----------|------------|
| 2008 | 10 | 4 | 21 |
| 2009 | 12 | 5 | 23 |
| 2010 | 6 | 1 | 9 |
| 2011 | 5 | | 8 |
| 2012 | 8 | 2 | 15 |
| 2013 | 10 | 2 | 18 |
| 2014 | 12 | 3 | 19 |
| Total | 63 | 17 | 113 |

Note: Information obtained from NASDAQ, AMEX Factbook, and NYSE Factbook

4. Methodology and Findings

The literature has suggested some models that measure abnormal returns. The general methodology regardless of the model is often referred to as "residual analysis," as the risk-adjusted abnormal return is based upon the estimated residual from a regression model. The first model is known as the market model and first applied by Fama et al. (1970). The market model is:

$$R_{it} = \alpha_j + \beta_j + \varepsilon_{jt} \quad (1)$$

R_{it} = return on a stock j at period t

ε_{jt} = residual error term on the security j for period t

α_j = the intercept

β_j = covariance of the returns on the j^{th} security with those of the market portfolio, divided by the variance of the market portfolio returns.

Capital asset pricing theory provide a second model to measure risk adjusted abnormal returns:

$$R_{it} = r_{ft} + \beta_i (r_{mt} - r_{ft}) + u_{jt}; \quad (2)$$

Where r_{ft} is the return of risk free security, u_{jt} is the residual term? A third model is the empirical market line:

$$R^*_{jt} = \lambda_{0t} + \lambda_{1t} b_j + w_{jt}; \quad (3)$$

The parameters λ_{0t} , λ_{1t} are estimated by regressing average returns of securities publicly traded on their estimated beta coefficient (Fama & Macbeth (1973) procedure). For each of the three models, the analysis focuses upon the estimated residual ($\varepsilon_{jt}, u_{jt}, w_{jt}$) which represents the risk adjusted abnormal returns.

In the literature to test that international listing causes a change in the expected return on a stock from R to R^* after the listing, the literature used the following hypothesis:

$H_0: R^* - R \geq 0$; $H_a: R^* - R < 0$. That hypothesis can be tested directly for individual securities immediately before and immediately after their dates of international listing. One caution is the announcement effect and selection bias. We will expect that the price of the stock for a company that is going to cross

list will be going up, so selection of the date be of an importance to test such a hypothesis. Also, choosing an estimation period immediately prior to the international listing date would be expected to result in an upwardly biased estimate of expected return R .

A second method of detecting changes in the expected returns is to conduct a paired difference t-test as well as a paired difference Wilcoxon signed rank test. First, the mean return for each stock in the sample is estimated by calculating each stock average return during the pre-listing estimation period. Second, the average return for each stock in the sample is assessed by calculating each stock's average return during the post listing estimation period. Third, the difference in the estimated means for each stock is determined, and then tests performed. We used the standard event methodology pioneered by Brown and Warner (1985) to compute the risk-adjusted excess returns for the sample of firms. Individual returns (including any dividends) for each stock (i) on day (t) are defined as XR_{it} excess of market returns are calculated as:

$$X_{rit} = R_{it} - R_{mt}, \quad (4)$$

Where R_{mt} is the market return on date t_1 . Excess return for each security are averaged cross sectional on each day (relative to pre-listing date, "day 0") to obtain portfolio returns:

$$X_{rpt} = (\sum X_{rit})/N; \quad (5)$$

Moreover, cumulative excess portfolio returns are calculated as

$$CXRP_{t_1,t_2} = j \sum_{t_1}^{t_2} XRP_j; \quad (6)$$

Where t_1 is the beginning of the period and t_2 is the ending of the period. The null hypothesis of zero excess return on a date (t) is examined by calculating a t-statistic in the following manner:

$$XRP_t / S(XRP_t); \quad (7)$$

Where $S(XRP_t)$ is the standard deviation of excess returns calculated over the period of pre-listing to post listing.

Table 2 offers a general guideline for the share price effect around the listing date. The average return in the pre-listing period for the overall sample is 10.15 % or 7.12 % above market returns. As expected once we approach the listing date, then the CAR (cumulative average return) and CAER (cumulative average excess return) decrease. In the post-listing period, both the CAR and CAER are -5.27% and -7.82%, respectively and they are both significant at the 5% level.

To further examine the effect of cross-listing we calculated a simple market adjusted returns using Jimmy Sentaza (2000) model, let R_{it}^D be the excess return on domestic firm i over the 30-day T-bill rate, and we ran the following regression:

$$R_{it}^D = \alpha_i^{pre} D_{it}^{pre} + \beta_{it}^{pre} Rm_t D_{it}^{pre} + \alpha_i^{post} D_{it}^{post} + \beta_{it}^{post} Rm_t D_{it}^{post} + \varepsilon_{it} \quad (8)$$

β_{it}^{pre} = The coefficients on the domestic market excess returns, $Rm_t D_{it}^{pre}$

Rm_t = The excess monthly return on the CRSP value weighted portfolio in month t

D_{it}^{pre} = A dummy variable that equals one if the observations on returns fall in the pre-listing month and zero other wise

D_{it}^{post} = a dummy variable that equals one if the observations on returns fall in the post- listing month and zero other wise

Table 2
Cumulative average Return and Risk Pre-listing, Around Listing, and Post Listing

| | 80 Days Pre- Listing | 11 Days Around Listing | 80 Days Post- Listing | Pre-Post (Diff) | Pre-Post W-test (Signed Rank) |
|---|----------------------------|------------------------------|-----------------------------|--------------------|--|
| Overall Sample | -85 to -5 | -5 to +5 | -85 to -5 | T-test | |
| Cumulative Average Return (CAR) | 10.15% | 2.35% | -5.27% | 2.15*** | 2.22*** |
| Cumulative Average Excess Return (CAER) | 7.12% | 1.65% | -7.82% | 2.55*** | 2.52*** |

***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

The effect of including the dummy variables (D_{it}^{pre} and D_{it}^{post}) is to allow different regression intercepts, to capture the systematic risk shifts between pre-and post-listing event periods. Table 3 shows that there is a run up in price in the pre-listing period (mean excess returns) is significant and positive, and it ranges from 0.3255 to 0.1152. While, during the listing week, the excess returns decrease but it is still significant and positive, and it ranges from 0.3512 to 0.0863. In the post-listing period, excess returns are negative and significant, and it ranges from -0.4752 to -0.6063 for the entire sample. Examining the Canadian sample, we observe mean excess returns to be negative of -0.4752 and significant, while the UK companies experienced significant negative excess returns of -0.0963. The difference in the magnitude of abnormal returns between the Canadian sample results and UK sample results signifies that home country affects the magnitude of abnormal returns in the pre-listing, listing week and post-listing period. From that, we can conclude that the Canadian market is much integrated with the US market as such it reinforces the magnitude of abnormal returns.

To further check the hypothesis that there is drop in price after listing (post listing anomaly). We calculated abnormal return by modeling the return generating process and obtained abnormal return using a variation of the regression model used in Forester and Karolyi (1999) and Sentaza (2000). An existence of a difference in the sign of cumulative abnormal returns between the pre-listing and post listing event periods may suggest that structural differences exist in the parameter values of the securities return generating process. Cross-sectional estimation procedures are limited by their inherent assumption of parameter stability across time. Hence they may not properly

capture the structural differences. Brown and Warner (1980, 1985), however, demonstrate that there is no additional benefit from using complicated methods to obtain abnormal returns.

Table 3

| Local Currency: US Dollar | Observations | Mean % |
|-------------------------------------|--------------|-----------|
| Panel A: Before U.S. Listing | | |
| All | 76 | 0.2115** |
| Canada | 31 | 0.3255** |
| United Kingdom | 45 | 0.1152* |
| Panel B: Listing Week 0 | | |
| All | 55 | 0.1925* |
| Canada | 31 | 0.3512* |
| United Kingdom | 24 | 0.0863* |
| Panel C: After U.S. Listing | | |
| All | 57 | -0.6063** |
| Canada | 35 | -0.4752** |
| United Kingdom | 22 | -0.0963** |

The abnormal return measure has the minimal influences from other effects, and at the same time captures the potential structural changes in parameters. We used a variation of the model developed by Sentaza (2000) which is based on Karolyi (1999) procedure:

$$R_{it}^h = \alpha_i^{pre} D_{it}^{pre} + \beta_{ith}^{pre} Rm_t^h D_{it}^{pre} + \beta_{itw}^{pre} Rm_t^w D_{it}^{pre} + \alpha_i^{post} D_{it}^{post} + \beta_{ith}^{post} Rm_t^h D_{it}^{post} + \beta_{itw}^{post} Rm_t^w D_{it}^{post} + \varepsilon_{it} \quad (9)$$

Where

β_{ith}^{pre} = Coefficient on the home market excess returns in the pre-listing period

β_{itw}^{pre} = Coefficients on world index returns (MSCI world) in the pre-listing

Rm_t^h = The excess monthly return on the home market index

Rm_t^w = The excess monthly return on the world index return (MSCI world)

D_{it}^{pre} = a dummy variable that equals one if the observations on returns fall in the pre-listing month and zero other wise

D_{it}^{post} = a dummy variable that equals one if the observations on returns fall in the post listing month and zero other wise

The parameters of interest in this paper are the α_i which is the constant representing mean monthly abnormal returns during the respective event periods. With respect to the event period under consideration, pre-listing mean monthly abnormal returns equals α_i^{pre} , and post listing mean monthly abnormal returns equal α_i^{post} . Table 4 shows another way of looking at the effect of cross listing from different periods of time and using abnormal returns. Table 4 shows as we move toward the cross-listing period from 12 months prior CAR is -0.356 and significant, while at the 8 months before listing CAR is 0.296 and significant, however once we get closer to the listing period 4 month before pre-listing CAR is 0.235 and significant. We can observe then that abnormal returns were negative in 12 months before listing then gets positive and significant at

8 months before listing and continue to be positive and significant but a little lower than what it was at the 8-month period before listing. Looking at the 12, 24, 36 month of post listing abnormal return show that abnormal returns turns to be negative and significant

Table 4

| Abnormal Return Period | MKT Adjusted CARs | Dummy Variable Abnormal Return |
|--------------------------------------|-------------------|--------------------------------|
| 4-month pre-listing period n=35 | 0.235** | 0.216** |
| 8-month pre-listing period n=32 | 0.296** | 0.266** |
| 12-month pre-listing period n=26 | -0.356** | -0.312*** |
| 4-month post listing period n=39 | -0.066*** | -0.009*** |
| 8-month post listing period n=31 | -0.094** | -0.083** |
| 12-month post listing period n=25 | -0.129** | -0.083** |
| 24-month post listing period n=22 | -0.073 | -0.062 |
| 36-month post listing period n=14 | -0.053 | -0.005 |

Note: Market-adjusted abnormal returns are obtained by subtracting the home market monthly index from each firm's appropriate monthly return, the averaging out the adjusted returns of all companies each month. Cumulative abnormal returns reported computed by adding up all monthly average abnormal returns over the appropriate abnormal returns period. Dummy variable abnormal returns obtained from running the cross-sectional regression below using monthly return over the specified abnormal return period. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

$$R_{it}^h = \alpha_i^{pre} D_{it}^{pre} + \beta_{ith}^{pre} Rm_t^h D_{it}^{pre} + \beta_{itw}^{pre} Rm_t^w D_{it}^{pre} + \alpha_i^{post} D_{it}^{post} + \beta_{ith}^{post} Rm_t^h D_{it}^{post} + \beta_{itw}^{post} Rm_t^w D_{it}^{post} + \varepsilon_{it} \quad (9)$$

The above findings lend support to the first hypothesis of post listing anomaly. To investigate the second, and the third hypotheses we subdivided the sample based on the timing of their listing. We divided the sample to group A, which include the companies who cross-listed during the recession period, and group B which, include the companies who cross-listed before or after the recession period.

Table 5 shows the overall sample analysis is consistent with the previous finding that there are positive and significant abnormal returns in the pre-listing period, but decreases once we approach listing week, and then turns negative in the post-listing period. The more interesting results, which support our second, and third hypotheses of market timing, is that group A (which include companies that cross-listed during the recession) have abnormal

returns that are positive and significant in pre-listing, the listing week, and in the post-listing period. While Group B (which include the companies, who cross-listed before or after the recession period) have abnormal returns that are positive and significant in pre-listing and listing week, but negative and significant in the post-listing period. We can conclude from this that group B companies time the market and therefore they experience the post listing anomaly, while group A companies do not time the market and therefore the post listing anomaly do not apply to them.

Table 5
Abnormal Returns

| | Pre-listing | Listing week | Post listing |
|------------------------------|-------------|--------------|--------------|
| Overall | | | |
| Mean | 0.0145* | 0.0113 | -0.0126 |
| Percentage Positive | 59.72%** | 45.31% | 34.69% |
| Group A (Market Down) | | | |
| Canada | 0.0691** | 0.0545** | .04172* |
| United Kingdom | 0.042* | 0.0349** | -.04421 |
| Adjusted R^2 | 6.14% | 4.31% | 1.96% |
| Group B (Market Up) | | | |
| Canada | 0.0891* | 0.0753* | -.03512* |
| United Kingdom | 0.0564* | 0.0269 | -0.0737** |
| Adjusted R^2 | 3.63% | 0.96% | 1.25% |

***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

A closer examination of group A and group B companies we can observe that for the Canadian companies' the magnitude of abnormal returns is different from the magnitude of abnormal returns of the UK sample under pre-listing, listing week or post listing period. We interpret the results of the various abnormal returns magnitudes between the Canadian companies, and the UK companies to be because the Canadian market is more integrated with the US market than that of the UK market. Then, market effects in the US will have the same effect on the Canadian market and vice versa. Hence that will reinforce the magnitude of abnormal returns in either direction. The findings support hypothesis four.

5. Conclusion

Previous research examined different hypotheses that attempted to explain cross-listing benefits for companies, but did not answer why then those same companies who cross list experience negative abnormal returns in the post listing period. This study shows that companies who don't time the market, experience positive abnormal returns in the post listing period, while the companies who time the market experience negative abnormal returns in the post listing period. Therefore, the study not only provides an explanation of why some companies experience positive significant abnormal returns in the post listing period, while other companies don't, but also, sheds light on the

motives of why companies cross list (market timing). The study also shows that home country factors affect the magnitude of abnormal returns for both the pre-listing periods and the post-listing periods.

This study findings leads to various future research questions, such as, whether the companies who time the market, and experience negative post listing abnormal returns, also engage in earning management. Moreover, what are the real drivers of the positive post listing abnormal returns for the companies who did not time the market.

References

- Alexander, G., Eun, C., & Janakirmanan, S. (1986). Asset pricing and dual listing on foreign capital markets: a note. *Journal of Finance* 41, 151-158.
- Alexander, G., Eun, C., Janakirmanan, S., 1988. International listings and stock return: some empirical evidence. *Journal of Financial and Quantitative Analysis* 23, 135-151.
- Amihud, Yakov, and Haim Mendelson, 1986, Asset pricing and the bid-ask spread, *Journal of Financial Economics* 17, 223-249.
- Baker, K. and Meeks, S. (1991) Research on exchange listings and delistings: A review and synthesis, *Financial Practice and Education* 1, 57-71.
- Bekaert, G., Harvey, C., and Lumsdaine, R. (2002) Dating the integration of world equity markets, *Journal of Financial Economics* 65, 203-247.
- Bekaert, G., Harvey, G. A., and Lundblad, C. (2001) Emerging equity markets and economic development, *Journal of Development Economics* 66, 465-504
- Brown, S. and J. Warner, 1980, Measuring security price performance, *Journal of Financial Economics* 8, 205-258. Christie, A., 1983, On information
- Brown, S., and J. Warner, "Using Daily Stock Returns The Case of Event Studies," *Journal of Financial Economics* 14, 1985, pp. 3-31.
- Chowdhry, B. and Nanda, V. (1991) Multimarket trading and market liquidity, *Review of Financial Studies* 4, 623-656.
- Coffee, J., 1999. The future as history: the prospects for global convergence in corporate governance and its implications. *Northwestern University Law Review* 93, 641-708.
- Coffee, J., 2002. Racing towards the top? The impact of cross-listings and stock market competition on international corporate governance. *Columbia Law Review* 102, 1757-1831.
- De Long, J.B., Shleifer, A., Summers, L., Waldmann, R., 1990a. Noise trader risk in financial markets *Journal of Political Economy* 98, 703-738.
- De Long, J.B., Shleifer, A., Summers, L., Waldmann, R., 1990b. Positive feedback investment strategies and destabilizing rational speculation. *Journal of Finance* 45, 375-395.
- Dharan, Bala, and David Ikenberry, 1995, The long-run negative drift of post-listing stock returns, *Journal of Finance* 50, 1547-1574.
- Divecha, A., Drach, J., & Stefek, D. (1992). Emerging markets: a quantitative perspective. *Journal of Portfolio Management* 19, 41-56.
- Doidge, C. (2004b) U.S. cross-listings and the private benefits of control: Evidence from dual class firms, *Journal of Financial Economics* 72, 519-554.

- Doidge, C., Karolyi, G. A., and Stulz, R. M. (2004) Why are foreign firms that are listed in the U.S. worth more? *Journal of Financial Economics* 71, 205-238.
- Domowitz, we., Glen, J., and Madhavan, A. (1997) Market segmentation and stock prices: Evidence from an emerging market, *Journal of Finance* 52, 1059-1085.
- Domowitz, we., Glen, J., and Madhavan, A. (1998) International cross-listing and order flow migration: Evidence from an emerging market, *Journal of Finance* 53(6) 2001-2027.
- Eun, C., Claessens S., & Jun, K. (1995). Pricing externalities in the world financial markets: theory and policy implications. *Pacific-Basin Finance Journal* 3, 31-55
- Fama E., MacBeth J., Risk, Return, and Equilibrium: Empirical Tests, 1973, *Journal of Political Economy*, Vol. 81, Issue 3, pp. 607-636.
- Fama Eugene F. (1970) Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, Vol. 25, No. 2, pp. 383-417
- Fama, Eugene F., and Kenneth R. French. 1992. "The Cross-Section of Expected Stock Returns." *Journal of Finance*. 47:2, pp. 427-65.
- Foerster, S. R., and Karolyi, G. A. (1998) Multimarket trading and liquidity: A transaction data analysis of Canada-US inter-listings, *Journal of International Financial Markets, Institutions and Money* 8, 393-412.
- Foerster, S., Karolyi, G.A., 1993. International listings of stocks: the case of Canada and the U.S. *Journal of International Business Studies* 24, 763-412.
- Foerster, Stephen R., and Andrew G. Karolyi, 1999, The effects of market segmentation and investor recognition on asset prices: Evidence from foreign stocks listing in the U.S. *Journal of Finance* 54, 981-1013.
- Fuerst, O., 1998. A theoretical analysis of the investor protection regulations argument for a global listing of stocks. Unpublished working paper. Yale University, New Haven, CN.
- Griffin, John, and G. Andrew Karolyi, 1998, Another look at the role of the industrial structure of markets for global diversification strategies, *Journal of Financial Economics* 50, 351- 373.
- Hargis, K. (2000), 'International Cross-listing and Stock Market Development in Emerging Economies', *International Review of Economics and Finance*, 9(2), 101-122.
- Hargis, K., and Ramanlal, P. (1998) When does internationalization enhance the development of domestic stock markets? *Journal of Financial Intermediation* 7, 263-292.

- Howe, J. and Madura, J. (1990) The impact of international listings on risk: Implications for capital market integration, *Journal of Banking and Finance* 14, 1133-1142.
- Howe, J., Madura, J., and Tucker, A. (1993) International listings and risk, *Journal of International Money and Finance* 112, 99-110.
- Howe, John, and Katherine Kelm, 1987, the stock price impact of overseas listings, *Financial Management* 16, 51-56.
- Jayaraman, Narayanan, Kuldeep Shastri and Kishore Tandon, 1993, The impact of international cross-listings on risk and return: Evidence from American Depositary Receipts, *Journal of Banking and Finance* 17, 91-103.
- Kadlec, Gregory and John McConnell, 1994, the effect of market segmentation and illiquidity on asset prices: Evidence from Exchange listings, *Journal of Finance* 49, 611-636.
- Karolyi, G.A., 1998. Why do companies list shares abroad? A survey of the evidence and its managerial implications. *Financial Markets, Institutions, and Instruments* 7, 1-60.
- Korajczyk, R. A., Lucas, D. J. and McDonald, R. L., (1991), The Effect of Information Releases on the Pricing and Timing of Equity Issues, *The Review of Financial Studies*, 4(4): 685-708
- Korajczyk, R. A., Lucas, D. J., and McDonald, R. L., (1992), Equity Issues with Time-Varying Asymmetric Information, *Journal of Financial and Quantitative Analysis*, 27:297-417
- Krasker. W. S. "Stock Price Movements in Response to Stock Issues under Asymmetric Information." *Journal of Finance*. A (March 1986). 93-105.
- Levine, R. (1997), `Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35 (2), 688-726.
- Levine, R. and Schmukler, S. (2006) Internationalization and stock market liquidity, *Review of Finance* 10(1), 153-187.
- Lucas, D. J., and McDonald, R. L., (1990), Equity Issues and Stock Price Dynamics, *Journal of Finance*, 45:1019-1043
- Merton, Robert, 1987, Presidential address: A simple model of capital market equilibrium with incomplete information, *Journal of Finance* 42, 483-510.
- Miller, D., 1999. The market reaction to international cross-listing: evidence from depositary receipts. *Journal of Financial Economics* 51, 103-123.
- Mittoo, U., 1992. Managerial perceptions of the net benefits of foreign listing: Canadian evidence. *Journal of International Financial Management and Accounting* 4, 40-62.
- Moel, A. (2001) The role of ADRs in the development of emerging markets, *Economia* 2, 209-257.

- Morck, R., B. Yeung, and W. Yu, 2000, The information content of stock markets: why do emerging markets have synchronous stock price movements? *Journal of Financial Economics* 59, 215-260.
- Pagano, M., Roell, A. A., and Zechner, J. (2002) The geography of equity listing: Why do companies list abroad? *Journal of Finance* 57, 2651-2694.
- Rajan, R. and Servaes, H. (1997) Analyst following of initial public offerings, *Journal of Finance* 52,507-529.
- Reese, W., Weisbach, M., 2002. Protection of minority shareholder interests, cross-listings in the United States, and subsequent equity offerings. *Journal of Financial Economics* 66, 65-104
- Sentaza, Jimmy Douglas(2000), 'Changes in institutional ownership and abnormal returns when stocks change trading market' Washington State University, 2000, 144 pages; AAT 9997918
- Shleifer, A. and R. Vishny, 1997, The limits of arbitrage, *Journal of Finance* 52, 35-55.
- Smith, K. and Sofianos, G. (1996) The distribution of global trading in NYSE-listed non-U.S. stocks, working paper, NYSE 96-02, New York, NY.
- Stapleton R. and Subrahmanyam, M. (1977) Market imperfections, capital market equilibrium and corporate finance, *Journal of Finance* 32, 307-319.
- Stapleton, Richard, and Marti Subrahmanyam, 1977, Market imperfections, capital market equilibrium and corporate finance, *Journal of Finance* 32, 307-319.
- Stulz, R.M., 1999. Globalization, corporate finance, and the cost of capital. *Journal of Applied Corporate Finance* 12, 8-25.
- Stulz, René, 1981, On the effects of barriers to international asset pricing, *Journal of Finance* 25, 783-794.