Title: Cross-listing and value creation

Author: Imen Ghadhab Slaheddine Hellara

PII: S1042-444X(16)30037-8
DOI: http://dx.doi.org/doi:10.1016/j.mulfin.2016.08.001
Reference: MULFIN 505

To appear in: *J. of Multi. Fin. Manag.*

Received date: 23-3-2016
Revised date: 15-8-2016
Accepted date: 17-8-2016

Please cite this article as: Ghadhab, Imen, Hellara, Slaheddine, Cross-listing and value creation.Journal of Multinational Financial Management http://dx.doi.org/10.1016/j.mulfin.2016.08.001

Cross-listing and value creation

IMEN GHADHAB (corresponding author)

Faculty of Science Economics and Management of Tunis (FSEG Tunis) University of Tunis El Manar, Tunisia,

E-mail: ghadhabimen@yahoo.fr, Tel +216 21114447

SLAHEDDINE HELLARA

Higher Institute of Management of Tunis (ISG Tunis), Bardo 2000 Tunis, Tunisia,

E-mail: **slaheddine**.hellara@**isg**.**rnu**.tn

Highlights

- First cross-listing is associated with positive cumulative abnormal returns
- Additional cross-listing has a diminishing effect on firm value
- Value creation is due to the cross-listing in the US and the UK
- Market reaction to cross-listing is mainly explained by stock price informativeness

Abstract

This paper examines the effect of cross-listing and additional cross-listing on firm value for a unique and comprehensive sample of firms listed abroad. Using an event study methodology, we show that, while additional cross-listing has a diminishing effect on firm value, generally the three first listings abroad result in positive price reaction. Our results also show that US exchanges are more conductive to value creation for the post-listing period, while UK exchanges play a greater role for the pre-listing period. We also find, in a multivariate regression analysis that traditional explanations for value creation after cross-listing, related essentially to legal environment and proximity preference, are not significant. Our results provide new empirical evidence showing that the improvement in stock price informativeness around cross-listing is the most responsible for valuation gain.

Key words: Cross-listing, Firm value, Event study, Price informativeness.

JEL Codes: G14, G15, G30

1: Introduction

Over the last few decades, many firms choose to list their shares abroad. This trend has attracted several researchers and international cross-listing has been intensively covered in the literature[1]. More particularly, several studies try to understand the benefits of cross-listing by evaluating the value creation after listing abroad[2]. However, and in light of the important

[1] See for example Abdallah and Ioannidis (2010, 2011), Bris et al. (2007), Dodd and Louca (2012), Doidge (2004), Doidge et al. (2004), Ghadhab (2016), Ghadhab and Hellara (2016), Halling et al. (2008), Lang et al. (2003), Otsubo (2014), Pulatkonak and Sofianos (1999), Wang and Zhou (2015), Werner and Kleidon (1996), You et al. (2013).

[2] See for example Doidge et al. (2004), Doidge et al. (2009), Doukas and Switzer (2000), Errunza and Miller (2000), Foerster and Karolyi (1999), Lang et al. (2003), Miller (1999), Mittoo (2003), Sarkissian and Schill (2009).

development in cross-listing trend that has taken place in capital markets, the role of cross-listing on value creation remains an open question. This is essentially because a substantial number of firms choose to cross-list their shares in multiple overseas markets.[3]

Our contribution to the existing literature is twofold. First, unlike most previous studies which concentrate on dual-listed stocks, we further consider multiple-listed ones to investigate the effect of additional cross-listing on firm's value. In our knowledge, only You et al. (2013) have analyzed this question. The authors use a sample which was mainly dominated by the presence in Germany as a foreign market destination and conclude that firms cross-list their shares in additional foreign market to benefit from higher valuation and better legal environment for investors. As pointed out by Wang and Zhou (2015), more than 5,000 firm's shares are traded in the Germany open market. Here, it is important to distinguish between cross-listing and cross-trading. The two types of foreign presence make a firm's stock accessible to foreign investors. However, cross-listing is different from cross-trading in the way that it is initiated by the company's decision to cross-list its shares on a foreign market and involves a company meeting listing and disclosure requirements of the host foreign stock exchange. A firm is cross-traded when it is admitted to trade on a foreign stock market without meeting the stock exchange's disclosure and listing requirements and often company are not aware that their shares are traded abroad. Given these differences between cross-listing and cross-trading, and when cross-traded stocks are included in the sample, results cannot be interpreted as evidence that explain the motivation for cross-listing and some explanations for possible value creation after cross-listing, such as the investor protection hypothesis, cannot be considered. In this study, Germany is excluded from foreign listing destinations in our sample because it is important to distinguish between cross-listed stocks and cross-traded ones, and consequently our analysis will produce better understanding on the

[3] In this study, multiple-listed stocks are stocks with multiple foreign listings and dual-listed stocks are those with only one foreign listing. Cross-listing is used as a general term.

role of additional cross-listing on value creation. In addition, our paper tries to examine if this role can vary across foreign listing destinations. In fact, the existing literature indicated that the benefits from cross-listing are affected by the economic, financial, legal and regulatory environment of the host market. Despite the fact that little attention was given to world markets other than the US where the institutional characteristics are significantly different, some empirical evidence show that the US does not offer the unique valuation benefit (Bianconi and Tan, 2010; Roosenboom and Van Dijk, 2009; Sarkissian and Schill, 2009; Serra, 1999). Our second contribution is to analyze another source of value creation after cross-listing. Several empirical evidences show that valuation gain after cross-listing is due to the overcome of market segmentation (Abdallah and Ioannidis, 2010; Foerster and Karolyi, 1999; Hail and Leuz, 2009; Miller, 1999; Roosenboom and Van Dijk, 2009), to better legal environment (Doidge et al., 2004; Doidge et al., 2009; Hail and Leuz, 2009) to higher stock liquidity (Foerster and Karolyi, 1999) and also to proximity preference (Sarkissian and Schill, 2009). One branch in the literature shows that cross-listing improves the informativeness of stock prices (Fernandes and Ferreira, 2008; Ghadhab and Hellara, 2016). Therefore, whether value gain after cross-listing is related to the improvement in stock price informativeness is an interesting question that needs to be investigated since it is well known in the literature that stock prices affect capital allocation (Chen et al., 2007; Durnev et al., 2004). Foucault and Gherig (2008) show that cross-listing enhances stock price informativeness and hence managers make better investment decision. Thereby, firms with high growth opportunities choose to cross-list their shares abroad and exhibit higher valuation than firms that do not cross-list. Our paper provides the first direct empirical evidence for this prediction and tries to test if positive price reaction after cross-listing and after each additional cross-listing is positively related to the level of stock price informativeness measured by firm-specific return variation. Moreover, Ghadhab and Hellara (2016) empirically show that cross-listing in the

US is more beneficial than cross-listing in major European exchanges in that US exchanges contribute more to price discovery of firms listed abroad and consequently provide more efficient stock prices. Based on this result, we try to investigate if the explanatory power of stock price informativeness in value creation varies across foreign listing exchanges.

Using a sample of 303 firms with 499 cross-listings over the period 1980-2013, we show that value creation occurs after cross-listing. However, additional cross-listing lead to lower positive price reaction. Empirical results also show the dominant role of US and UK exchanges in value creation compared to other world exchanges. On multivariate regressions, we find new empirical evidence that stock price informativeness is the mainly responsible factor that strongly explains positive price reaction after cross-listing. We also find similar results when we control for endogeneity concern.

This paper is organized as follow. In section 2 we review the literature and develop our testable hypothesis. Section 3 describes the data, the methodology and the variables. In section 4, we discuss the empirical results. Finally, section 5 concludes.

2: Literature review and hypotheses development:

2.1: Effect of additional foreign listing on firm value:

Earlier empirical evidences on the effect of cross-listing on firm value was mainly concentrated on non US firms dual-listed on the US and show a substantial value gain after listing abroad. However, empirical results regarding value creation after cross-listing outside the US are mixed. For instance Miller (1999) finds a positive abnormal return of 1.15% for a (-1, +1) event window around the U.S cross-listing announcement. The abnormal return is significantly higher for exchange listings compared to OTC listings and private placements.

Miller (1999) interprets his finding as evidence that value creation is due to higher liquidity and expanded shareholder base after cross-listing. Similarly, Lee (2003) reports significant abnormal returns around the US cross-listing event. Foerster and Karolyi (1999) find that firms earn a positive cumulative abnormal return (CAR) around the day of listing abroad while they incur a loss during the year following US cross-listing. Bris et al (2007) find a positive annualized average daily abnormal return for a sample of 20 firms dual-listed in the US. Doukas and Switzer (2000) show that positive abnormal return is mainly observed during the 60 days prior to US cross-listing announcement. The authors interpret their finding as a consequence of increased shareholder base. Mittoo (2003) also shows a positive price effect for the (-3, +3) days event around US cross-listing. Serra (1999) examines the effect of cross-listing in the US and in the UK on firm value. The author shows that there are significant positive abnormal returns before the cross-listing event and a significant decline in returns over the first five weeks following the listing abroad. Roosenboom and Van Dijk (2009) analyze 526 cross-listings on eight major stock exchanges and document significant average cumulative abnormal returns of 1.3% for cross-listings on US exchanges, 1.1% on London Stock Exchange, 0.6% on exchanges in continental Europe, and 0.5% on Tokyo Stock Exchange. Sarkissian and Schill (2009) analyze monthly abnormal returns for the event window (-120, +120) for 1676 listings in 25 foreign markets. The authors show that value creation is not unique for cross-listing in the US. Their results show a positive price reaction prior to cross-listing event but a substantial decrease in returns for the post-cross listing long run period. The authors also show that value gain is only incurred for the first foreign listing, however subsequent cross-listings lead to negative effect.

Based on the literature cited above which shows that, on average, cross-listing leads to a positive price reaction, and based on the arguments that cross-listing makes shares more accessible to foreign investors (Errunza and Miller, 2000; Merton, 1987), overcomes market

segmentation and reduces the cost of capital (Errunza et Losq, 1985; Miller, 1999) and improves liquidity (Foerster et Karolyi, 1998; Halling et al., 2008), we expect that cross-listing leads to positive abnormal returns. We have so the following hypotheses:

H1a*:* The first cross-listing is associated with positive valuation gain.

H1b*:* Additional cross-listing is associated with positive valuation gain.

Theoretically, the effect of cross-listing on firm value may vary significantly depending on the quality of the foreign market. This quality is mainly determined by capital market development, liquidity, information and legal environment. According to Doidge et al. (2004) Coffee (2002) and Roosenboom and Van Dijk (2009), US exchanges are considered to have the most liquid markets, the strongest investor protection and the most stringent disclosure requirements of financial markets worldwide. In addition, Coffee (1999) reports that foreign companies that cross-list their shares within the European Union markets are not subject to additional legal and disclosure requirements. In addition, Abdallah et al. (2011) show that compared to the cross-listing on the UK, cross-listing in the US improves stock liquidity. Moreover, several earlier studies show that non US firms cross-listed in the US experience significant positive abnormal returns (Bris et al, 2007; Foerster and Karolyi, 1999; Miller, 1999). However, comparison of the effect of cross-listing across world markets is still limited. For instance, Roosenboom and Van Dijk (2009) and Dodd and Louca (2012) show a positive price reaction after cross-listing in major world markets. This value creation is more important for cross-listing in the US and the UK. In addition, Roosenboom and Van Dijk (2009) find weaker abnormal returns on several European stock exchanges. Similarly, Lee (1991) and Lau et al. (1994) report an insignificant stock price reaction for US firms dual-listed in London, Tokyo, Toronto and continental Europe.

Based on the arguments cited above, we predict that stock price reaction is more significant for US cross-listing followed by cross-listing in the UK and other world markets. We have so the following hypotheses:

H1c: Cross-listing in the US is associated with the highest positive valuation gain followed by cross-listing in the UK and other world markets.

2.2: The determinants of the effect of additional foreign listing on firm value:

In this section, we review the literature regarding possible explanations of value creation around each order of cross-listing. These explanations are related to culture and geographic proximity and legal investor protection. We also develop a theoretical hypothesis to test if value creation is explained by the improvement in stock price informativeness around listing abroad.

2.2.1: Investor protection hypothesis:

The legal bonding hypothesis is initiated by Coffee (1999) and Stulz (1999), and empirically supported by Doidge (2004) and Doidge et al. (2007). Reese and Weisbach (2002) argue that firms can bond themselves by listing their shares in a foreign market with stricter legal standards in order to better protect their minority shareholders and raise equity with lower costs. Therefore, cross-listed company may benefit from better foreign legal environment which results in higher valuation. Doidge et al. (2004) argue that cross-listing in the US reduces the extent to which controlling shareholders can extract private benefits of control, therefore, firm can finance their growth opportunities in better condition. The legal bonding hypothesis was mainly empirically tested for non US firms dual-listed in the US. For instance, Doidge et al. (2004) show that foreign companies dual-listed in the US, the market with the higher investor protection standards in world financial markets, have a higher valuation

compared to non cross-listed firms. Roosenboom and Van Dijk (2009) find that better investor protection in the foreign market significantly determines price reaction after cross-listing in the US and the UK. Reese and Weisbach (2002) show that cross-listing is followed by greater subsequent equity issues for firms from countries with weaker investor protection. Based on the arguments cited above we have the following testable hypothesis:

H2a*:* The gain in value after cross-listing and each additional cross-listing is positively related to the difference in the level of investor protection between host and home markets.

2.2.2: Proximity preference Hypothesis:

The intuition behind the proximity preference hypothesis is that firms that choose to cross-list in proximate foreign market in terms of culture and geography benefit from higher valuation since investors are more willing to invest given the informational advantage they have (Dodd, 2013). Theoretically, managers are aware about this benefit and tend to cross-list their company's shares in proximate country to reduce agency problems and therefore attract investors. Empirically, Sarkissian and Schill (2004) show that geographic and cultural proximities are the important determinants of the corporate decision to cross-list. The authors also argue that investment decision exhibit a home bias. In addition, and in line with the above cited arguments, several empirical evidences show that culture distance impedes information flow and significantly explains and determines the home bias and capital allocation (Aggarwal et al., 2012; Anderson et al., 2011; Beugelsdijk and Frijns, 2010; Grinblatt and Keloharju, 2001). Given these arguments, we provide the following testable hypothesis:

H2b: The gain in value after cross-listing and each additional cross-listing is positively related to the culture linkage between home and host markets.

Similarly, it was well shown and argued in the literature that information flow is embedded and trading is limited when markets are located in dissimilar geographic zones (Admati and Pfleiderer, 1988; Bacidore et al., 2005; Coval and Moskowitz, 1999; Menkveld, 2008; Moulton and Wei, 2009; Portes and Rey, 2005; Pulatkonak and Sofianos, 1999; Sarkissian and Schill, 2004; Wang and Zhou, 2015; Werner and Kleidon, 1996). Furthermore, Sarkissian and Schill (2009) empirically show that firms that choose to cross-list their shares in markets that are geographically close to their own exhibit greater valuation. Moreover, Ghadhab (2016) shows that the increase in liquidity after each additional foreign listing or trading can be explained by geographic proximity concerns. Given these arguments, we provide the following additional hypothesis:

H2c: The gain in value after cross-listing and each additional cross-listing is positively related to the geographic proximity between home and host markets.

2.2.3: Price informativeness Hypothesis:

The question whether cross-listing affect information efficiency has attracts some researchers who show that listing abroad improves stock price informativeness. For instance Ely and Salehizadeh (2001) find, for a sample of dual-listed firms, that foreign market is the most important source of information pertinent to portfolio valuation. Fernandes and Ferreira (2008) find empirical evidence that cross-listing in the US improves stock price informativeness measured by firm specific stock return variation; i.e. the extent to which

stock prices incorporate firm-specific information in an accurately and timely manner. The result was interpreted by the fact that the commitment to higher level of disclosure standards attracts informed investors to trade on private information and therefore improves stock price formation process. Similarly, Liu (2007) shows that cross-listing in the US results in more information being revealed, fed back and then impounded into local stock prices creating a more efficient pricing process. In a same line, several empirical evidences show that cross-listing creates a more efficient price discovery process in that foreign market contributes significantly to price determination (Chen et al., 2013; Eun and Sabherwal, 2003; Frijns et al., 2010; Ghadhab and Hellara, 2016; Grammig et al., 2005; Korczak and Phylaktis, 2010; Lok and Kalev, 2006; Otsubo, 2014). Our intuition behind the price informativeness hypothesis is that the improvement in stock price informativeness after cross-listing can be a source of value creation after listing abroad. We draw our motivations from the literature that link capital allocation decisions to stock prices informativeness. Gul et al. (2010) report that efficient capital allocation could be better achieved when stock prices reflect accurately and timely all available firm-specific information. Empirically, several researchers find a positive and significant relation between stock price informativeness, measured by firm specific return variation, and the efficiency of capital allocation (Chen et al., 2007; Durnev et al., 2003; Durnev et al., 2004). Theoretical predictions developed by Dow and Gorton (1997) and Subrahamanyam and Titman (1999) show that managers can learn information from stock prices that affect significantly investment decision (Morck et al., 1990). And more informative prices lead to more efficient investment decisions (Durnev et al., 2004). Foucault and Gherig (2008) develop a theoretical model and show that managers take advantage of the improvement in stock price informativeness to make better investment decisions. In other words, better stock price informativeness improves the ability of firms to generate and exploit

growth opportunities through better use of resources, and therefore, cross-listing premium is more important.

Therefore, we expect that value creation is more important for firms that exhibit higher improvement in price informativeness around cross-listing. We have so the following testable hypothesis:

H2d: The gain in value after cross-listing and each additional cross-listing is positively related to the level of stock price informativeness.

3: Data and methodology:

3.1: Sample description:

To construct our sample, we begin by a large number of firms with one or multiple cross-listings in US markets (including NYSE, NASDAQ, AMEX and OTC), major European markets (including London stock exchange, Euronext Paris, Euronext Amsterdam, and Euronext Brussels), Tokyo stock exchange and Australian stock exchange, over the period from 1980 to 2013. Information about dual-listed and multiple-listed firms comes from Datastream, stock exchange web sites, bank of New York and J.P Morgan ADRs databases. All related listings for each stock are identified by ISIN available in Datastream and stock exchange web sites. Underlying ISINs for depository receipts are from the pre-mentioned ADRs databases. Both active and dead stocks are included in the sample in order to avoid survivorship bias and provide a complete chronology of cross-listing. To be included in the sample, a company must have an identifiable cross-listing date from Datastream. We also exclude preference stocks listing, Rule 144 as well as investment funds. Therefore, the sample only includes the cross-listing of common shares and ADRs. Stock and index prices are

collected from Datastream. We require each stock to have daily prices for 60 month before and after cross-listing date. Our final sample consists of 303 firms from 33 countries with 499 foreign listings. Table 1 provides information about the number of foreign listings by home countries.

3.2: Methodology:

In this section, we first discuss the methodology used to assess the effect of cross-listing on firm value. We then discuss the measurement of the determinants of such an effect to be used in the regression analysis.

3.2.1: Event study:

To assess the effect of cross-listing on firm value, we calculate the cumulative abnormal return over the 120-months (-60, +60) period around the date of cross-listing. Abnormal returns are defined as market-adjusted returns estimated using a modified market model as follow:

$$AR_{it} = r_{it} - r_{mt} \qquad (1)$$

Where AR_{it} are the abnormal returns of company i on month t, r_{it} is the return of company i on month t, r_{mt} is the local market return on month t. Company (markets) returns are computed using monthly stock prices (market index prices).[4] The cumulative abnormal returns (CARs) are the sum of the abnormal stock returns over the event window (-60, +60) as follow:

$$CAR_i = \sum_t AR_{it} \qquad (2)$$

[4] The methodology used to determine the abnormal return is similar to that employed by Dodd and Luca (2012). Market-adjusted returns are used in order to avoid loss of data since traditional event study methodology requires estimation of parameters for a long period that must be independent of the event (Brown and Warner, 1985). Furthermore, Draper and Paudyal (2006) show that the abnormal return estimates for the event window are not sensitive to the choice of return benchmark.

Where CAR_i is the cumulative abnormal return for firm i over the event window. Cumulative abnormal returns are computed for each firm and for each order of foreign listing in order to evaluate the effect of an additional cross-listing on firm value. We also compute cumulative abnormal returns for the (-60,-1) and (+1,+60) monthly event windows to evaluate stock price reaction for the periods preceding and following cross-listing event.

3.2.2: Regression analysis:

In this section, we describe the different measures of the explanatory variables used to explain differences in valuation gains after each order of cross-listing measured by the CAR. These variables are related to the legal environment, culture and geographic proximity and stock price informativeness.

For legal consideration, we use the anti-director rights index of LaPorta et al. (1998) as a measure of investor protection level. We also use the rule of law index from Djankov et al. (2008) and LaPorta et al. (1998) to take into account the degree of enforcement of investor protection laws. As in You et al. (2013), level of investor protection is measured by rule of law* the anti-director rights index. Our explanatory variable is a dummy variable, "***ADRL",*** that takes the value of 1 if the foreign listing country has a higher level of investor protection than the home country, and 0 otherwise. To test the culture proximity preference we use a dummy variable, "***Culture",*** that takes the value of 1 if the local and the foreign country share a common language and 0 otherwise. The effect of geographic proximity on the CAR is analyzed using a dummy variable, "***Geography"***, that equals 1 if the local and the foreign country are in the same time zone and 0 otherwise. As in Ghadhab (2016), we consider 3 different time zones by regions: European and African region, American region, Australasia and Asian region. We use firm-specific stock return variation as a proxy for stock price informativeness. This proxy was used by Durnev et al. (2004) and Fernandes and Ferreira (2008, 2009). French and Roll (1986) and Roll (1988) suggest that firm-specific return

variation measures the rate of information incorporation into prices via trading. Therefore, prices reflect more their fundamentals and markets are more efficient when firm-specific stock return variations are higher. Empirically, considerable evidences show a closely relation between price informativeness and firm-specific stock return variation (Chen et al., 2007; French and Roll, 1986; Durnev et al., 2003, 2004; Morck et al., 2000; Roll, 1988). For instance, Morck et al. (2000) find high firm-specific return variations in developing markets which imply that prices reflect timely and accurately available information about the firm. Furthermore, Durnev et al. (2003) find empirical evidence that supports the use of firm-specific return variation as a measure of stock price informativeness by showing that high firm-specific return variations results in more information about future earnings incorporated into prices. As reported by Fernandes and Ferreira (2008), stock return innovations are related to common factors or market returns (systematic risk). Idiosyncratic risk results from innovations that are specific to the stock. Similar to Fernandes and Ferreira (2008, 2009), we measure the systematic and the idiosyncratic risks by regressing stock returns on the returns of market indexes and estimate firm-specific return variation using a two-factor international model as in Morck et al. (2000), which includes both the local and foreign listing market index returns. For each company and for each order of foreign listing, we run the following regression:

$$r_{it} = \alpha + \beta_1 r_{mt} + \beta_2 r_{ft} + \varepsilon_{it} \qquad (3)$$

Where, r_{it} is the return of company i on month t, r_{mt} is the local market return on month t, and r_{ft} is the foreign listing market return on month t. Firm-specific return variation is the ratio of idiosyncratic volatility to total volatility, $\sigma_{i\varepsilon}^2 / \sigma_i^2$, which correspond to $1 - R_i^2$ of equation (3). Given the bounded nature of R^2, we use a logistic transformation form as follow:

$$PI_i = log\left(\frac{1-R_i^2}{R_i^2}\right) = log\left(\frac{\sigma_{i\varepsilon}^2}{\sigma_i^2 - \sigma_{i\varepsilon}^2}\right) \qquad (4)$$

Our explanatory variable, measuring stock price informativeness, is $\boldsymbol{PI_i}$ given by equation (4). $\boldsymbol{PI_i}$ measures firm-specific stock return variation relative to local and foreign market variations, or lack of synchronicity with the markets (Fernandes and Ferreira, 2008).

4: Empirical results:

4.1: Price reaction around cross-listing:

In this section, we examine the effect of cross-listing on stock prices. Table 2 reports the mean ***CAR*** computed for each order of cross-listing and for different event periods, (-60, +60), (-60,-1) and (+1, +60) months around the date of listing abroad.

When we look at the event study results reported for the window (-60, +60) months around cross-listing date, we reach the following conclusions.

When all foreign markets are considered, table 2 reports significant results in several cases and shows, in general, that additional cross-listing has a diminishing effect on firm value as reflected by the decreasing value of the CAR. This CAR takes positive values for the first and the second cross-listing and become negative for higher order of listing abroad. We can also reach the same conclusion when we observe the CAR for the (-60,-1) and the (+1, +60) event periods. These results allow us to accept hypothesis ***H1a*** but not strongly hypothesis ***H1b***.

Turning to the event study results reported for different foreign destinations. Empirical tests for the (-60,+60) month period around cross-listing show that for US cross-listing, negative

CAR is only reported for high orders of cross-listing (4 and 5 orders). For additional cross-listing, we find higher CAR for cross-listing in the UK compared to the cross-listing in US exchanges. US exchanges seem to be the most important in value creation for the first cross-listing. These results are not strongly in line with our prediction set out in the hypothesis ***H1c***.

When we look at the event study results for the (-60,-1) and (+1, +60) periods, we can conclude that valuation gains associated with cross-listing in the UK and US are mainly occurred in the pre-listing period. For example, for the second order of cross-listing in the UK, the CARs for respectively the pre-listing and post-listing periods are 63.4% and 10.2%. For the post-listing period, and for the first orders of listing abroad (1, 2 and 3 orders), US cross-listing is associated with the highest positive valuation gain followed by UK cross-listing. For the other world markets, CAR are, in general, not significant. These results provide us an empirical support for the hypothesis ***H1c***. [5]

4.2: Determinants of valuation gains around cross-listing:

Table 3 reports regression results on the effect of the explanatory variables on the ***CAR*** for each of the cross-listing order. Explanatory variables are related to legal investor protection environment, culture and geographic proximity and stock price informativeness. Table 2 shows that US and UK exchanges cross-listing are the most important for value creation. Therefore, we consider further the following explanatory variable: "$\boldsymbol{Dummy_{usuk}}$" is a dummy variable equals 1 for cross-listing in the US or the UK exchanges, and equals 0 otherwise. As in Roosenboom and Van Dijk (2009), we control for firm size through an explanatory variable, "***size"***, measuring the logarithm of the market capitalization of the

[5] For robustness, we repeat the analysis for different event periods (-30, +30) and (-10,+10) and we do not find significant different results compared to our preliminary ones. We also try for shorter windows, (-5,+5) and (-1,+1). The results were in general the same. The only difference was that UK cross-listing seems to play more important role in value creation for the post-listing period compared to the results for long event windows. In other words, cross-listing in the UK create a CAR that is very close to that generated by cross-listing in the US which still the most important in value creation.

company around cross-listing date.[6] We group higher orders of cross-listing together (3, 4 and 5 orders) to have a sufficient number of observations. We run the regressions by treating each order of cross-listing separately. In other words, when we analyze cross-listing of any order the remaining ones are excluded. For example, when we analyze the second order of cross-listing, the 1st, 3rd, 4th and 5th orders are excluded.

Regression results for (-60, +60), (-60,-1) and (+1, +60) event windows are as follow. Regarding the variable ***"ADRL"*** related to the level of investor protection, we do not find any significant effect in all the regressions related to the different orders of cross-listing. This result leads us to reject hypothesis ***H2a***.[7] For proximity considerations, significant results were only reported for ***"Culture"*** variable for high orders of cross-listing. The corresponding coefficients take a positive value but at a lower significance, i.e. 10%. The results regarding proximity hypothesis lead us to reject hypothesis ***H2c.*** We cannot strongly support hypothesis ***H2b*** either. However, table 3 shows that the gain in value after cross-listing and subsequent ones is strongly related to stock price informativeness and to foreign destination. More particularly, the coefficient on the "$\boldsymbol{Dummy_{usuk}}$**"** variable is positive and highly significant for the first and additional cross-listing especially for the (-60, +60) and (-60,-1) event windows. This result is in line with that found in section 4.1, in that cross-listing in the UK and US exchanges are more beneficial for firms in terms of value creation. When we look to the coefficients related to ***PI*** variable as a measure of stock price informativeness, table 3 shows positive and highly significant coefficients for essentially the first and the second cross-listing for the considered event windows (-60,+60), (-60,-1) and (+1,+60). This result allows us to

[6] Table 1 in appendix reports definitions and data sources for the dependant and explanatory variables.

[7] For robustness, we repeat the regression analysis with the revised investor protection index from Djankov et al. (2008). Our results regarding the investor protection hypothesis remain unchanged.

accept hypothesis ***H2d***.[8] As Ghadhab and Hellara (2016) show that US exchanges contribute more to price discovery of dual-listed and multiple-listed firms, we try to test if the effect of stock price informativeness on value creation is related to the cross-listing on US exchanges. We therefore include further the explanatory variable ***"PI*Dummy$_{us}$"*** in the regressions where we find significant effect for the ***PI*** variable. "$\boldsymbol{Dummy_{us}}$" is a dummy variable equals 1 for cross-listing in the US exchanges, and equals 0 otherwise. Results reported in table 4 show an empirical support for the preceding prediction. ***"PI*Dummy$_{us}$"*** coefficients are positive and significant for the first cross-listing in the pre-listing period and for the first and second cross-listing in the post-listing period.

Value creation after the first cross-listing and an additional one seems to be mainly related to the improvement in stock price informativeness due to the trading of the securities in US exchanges. Furthermore, the inclusion of ***"PI*Dummy$_{us}$"*** explanatory variable do not affect the robustness of earlier results reported in table 3. Regression analyses do not provide any significant effect for the firm size.[9]

5: Conclusion:

In this paper, we contribute to the existing literature on cross-listing by providing the first comprehensive study on the effect of cross-listing and additional cross-listing on firm value.

[8] Endogeneity problem may exist in the relationship between the price reaction to multiple listings (i.e. CAR) and the stock price informativeness. That is, firms having more multiple-listing premium tend to have an improved informativeness. Therefore, results obtained using standard statistical approach may be subject to a selection bias. For robustness, we address this endogeneity concern by applying a two-stage least-squares procedure. The results are similar. The regressions provide evidence of an independent and significant effect of stock price informativeness on price reaction. We thank an anonymous referee for pointing out this issue.

[9] Earlier literature, see for example Roosenboom and Van Dijk (2009), argue that positive price reaction after cross-listing may be related to the information environment, market liquidity and market segmentation considerations. Empirically, we tried to test if these considerations can explain gain of value after listing abroad but we don't find any significant results. In addition, our regression results reported in table 3 are robust when we control for other firm characteristics: market-to-book ratio or sales growth, return on equity and foreign sales as a percentage of the total sales.

We also provide a new explanation for positive price reaction after listing abroad related to stock price informativeness.

Using a comprehensive sample of 303 firms with 499 foreign listings, we find the following results. First, the event study analysis show that cross-listing and first subsequent cross-listings are associated with positive price reactions. However, additional foreign listing has a diminishing effect on firm value. We also find that cross-listing in the UK is associated with the highest value gain for the pre-listing period, while US cross-listing is the most important for the post-listing one. Additional robustness test for shorter event window show that UK cross-listing creates abnormal returns that are closely related to that generated by cross-listing in the US in the post-listing period. Regression analysis shows that traditional considerations related to legal environment and geographic and culture proximity do not seem to explain valuation gain. Our paper provide new empirical evidence that value creation after cross-listing and additional cross-listing comes essentially from better stock price informativeness. This positive effect is mainly related to the cross-listing in the US. That means that value creation is due to the improvement in stock price informativeness after cross-listing in the US exchanges.

References:

Abdallah, A. A., & Ioannidis, C. (2010). Why Do Firms Cross-List? International Evidence from the US Market, The Quarterly Review of Economics and Finance, 50, 202-213.

Abdallah, A. A., Abdallah, W., & Saad, M. (2011). The Effect of Cross-listing on Trading Volume: Reducing Segmentation versus Signaling Investor Protection, Journal of Financial Research, 34, 589-616.

Admati, A. R., & Pfleiderer, P. (1988). A Theory of Intraday Patterns: Volume and Price Variability, Review of Financial Studies, 1, 3-40.

Aggarwal, R., Kearney, C., & Lucey, B. (2012). Gravity and culture in foreign portfolio investment. Journal of Banking and Finance, 36, 525–538.

Anderson, C., Fedenia, M., Hirschey, M., & Skiba, H. (2011). Cultural influences on home bias and international diversification by institutional investors, Journal of Banking and Finance, 35, 916-934.

Bacidore, J. M., Battalio, R., Galpin, N., & Jennings, R. (2005). Sources of Liquidity for NYSE Listed Non-US Stocks, Journal of Banking and Finance, 29, 3075-3098.

Beugelsdijk, S., & Frijns, B. (2010). A cultural explanation of the foreign bias in international asset allocation, Journal of Banking and Finance, 34, 2121-2131.

Abdallah, A. A., & Ioannidis, C. (2010). Cross-Listing Premium in the US and the UK Destination, International Review of Economics and Finance, 19, 244-259.

Bris, A., Cantale, S. & Nishiotis, G. P. (2007). A Breakdown of the Valuation Effects of International Cross-Listing, European Financial Management, 13, 498-530.

Brown, S. J. & Warner, J. B. (1985). Using daily stock returns: The case of event studies, Journal of Financial Economics 14, 3-31.

Chen, Qi., Goldstein, I., & Wei, J. (2007). Price Informativeness and Investment Sensitivity to Stock Price, Review of Financial Studies, 20, 115-147.

Chen, H., Choi, P. M. S., & Hong, Y. (2013). How smooth is price discovery? Evidence from cross-listed stock trading, Journal of International Money and Finance, 32, 668-699.

Coffee, J. C. Jr. (1999). Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications, Northwestern University Law Review, 93, 641-708.

Coffee, J. C. (2002). Racing Towards the Top: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance, Columbia Law Review, 102, 1757-1831.

Coval, J., & Moskowitz, T. (1999). Home Bias at Home: Local Equity Preferences in Domestic Portfolios, Journal of Finance, 54, 2045-2073.

Djankov, S., LaPorta, R., Lopez-de-Silianes, F. & Shleifer, A. (2008). The Law and Economics of Self-Dealing, Journal of Financial Economics, 88, 430-465.

Dodd, O. (2013). Why do firms cross list their shares on foreign exchanges? A review of cross listing theories and empirical evidence, Review of Behavioral Finance, 5, 77 – 99.

Dodd, O., & Louca, C. (2012). International Cross-Listing and Shareholders' Wealth, Multinational Finance Journal, 16, 49-86.

Doidge, C. (2004). U.S. Cross-Listings and the Private Benefits of Control: Evidence from Dual-Class Firms, Journal of Financial Economics, 72, 519-553.

Doidge, C., Karolyi, G. A. & Stulz, R. M. (2004). Why Are Foreign Firms Listed in the U.S. Worth More?, Journal of Financial Economics, 71, 205-238.

Doidge, C., Karolyi, G.A., & Stulz, R.M. (2007). Why do countries matter so much for corporate governance?, Journal of Financial Economics, 86, 1-39.

Doidge, C., Karolyi, G.A. & Stulz, R.M. (2009). Has New York Become Less Competitive in Global Markets? Evaluating Foreign Listing Choice over Time, Journal of Financial Economics, 91, 253-277.

Doukas, J. & Switzer, L. N. (2000). Common Stock Returns and International Listing Announcements: Conditional Tests of the Mild Segmentation Hypothesis, Journal of Banking and Finance, 24, 471-501.

Dow, J., & Gorton, G. (1997). Stock Market Efficiency and Economic Efficiency: Is There a Connection?, Journal of Finance, 52, 1087-1129.

Draper, P. & Paudyal K. (2006). Acquisitions: Private versus Public. European Financial Management, 12, 57-80.

Durnev, A., Morck, R., Yeung, B. & Zarowin, P. (2003). Does Greater Firm-Specific Return Variation Mean More or Less Informed Stock Pricing? Journal of Accounting Research, 47, 797–836.

Durnev, A., Morck, R. & Yeung, B. (2004). Value enhancing capital budgeting and firm-specific stock return variation, Journal of Finance, 59, 65-105.

Ely, D., & Salehizadeh, M. (2001). American depositary receipts An analysis of international stock price movements, International Review of Financial Analysis, 10, 343–363

Errunza, V., & Losq, E. (1985). International Asset Pricing under Mild Segmentation: Theory and Test, The Journal of Finance, 40, 105-124.

Errunza, V. R., & Miller, D. P. (2000). Market Segmentation and the Cost of Capital in International Equity Markets, The Journal of Financial and Quantitative Analysis, 35, 577-600.

Eun, C. S, & Sabherwal, S. (2003). Cross-border listings and price discovery: Evidence from US-listed Canadian stocks, Journal of Finance, 58, 549–575.

Fernandes, N., & Ferreira, M.A. (2008). Does international cross-listing really improve the information environnement?, Journal of Financial Economics, 88, 216-244.

Fernandes, N., & Ferreira, M.A., (2009). Insider Trading Laws and Stock Price Informativeness, Review of Financial Studies, 22, 1845-1887.

Foerster, S. R. & 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. R., & Karolyi, G. A. (1999). The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States, Journal of Finance, 54, 981-1013.

Foucault, T., & Gehrig, T. (2008). Stock Price Informativeness, Cross-Listings, and Investment Decisions, Journal of Financial Economics, 88, 146-168.

French, K., & Roll, R. (1986). Stock return variances: the arrival of information and the reaction of traders, Journal of Financial Economics, 17, 5–26.

Frijns, B., Gilbert, A. & Tourani-Rad, A. (2010). The dynamics of price discovery for cross-listed shares: Evidence from Australia and New Zealand, Journal of Banking and Finance, 34, 498–508.

Ghadhab, I. (2016). The effect of additional foreign market presence on trading volume of cross-listed/traded stocks, Journal of Multinational Financial Management, 34, 18-27.

Ghadhab, I., & Hellara, S. (2016). Price discovery of cross-listed firms, International Review of Financial Analysis, In press.

Grammig, J., Melvin, M., & Schlag, C. (2005). Internationally cross-listed stock prices during overlapping trading hours: price discovery and exchange rate effects, Journal of Empirical Finance, 12, 139–164.

Grinblatt, M., & Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades, Journal of Finance, 56, 1053-1073.

Gul, F.A., BonKim, J., & Qiu, A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China, Journal of Financial Economics, 95, 425–442

Hail, L. & Leuz, C. (2009). Cost of Capital Effects and Changes in Growth Expectations around U.S. Cross-Listings, Journal of Financial Economics, 93, 428-454.

Halling, M., Pagano, M., Randl, O., & Zechner, J. (2008). Where is the Market? Evidence from Cross-Listings in the US, The Review of Financial Studies, 21, 725-761.

Korczak, P., & Phylaktis, K. (2010). Related securities and price discovery: Evidence from NYSE listed Non-U.S. stocks, Journal of Empirical Finance, 17, 566–584.

Lang, M. H., Lins, K. V., & Miller, D. P. (2003). ADRs, Analysts, and Accuracy: Does Cross-Listing in the United States Improve a Firm's Information Environment and Increase Market Value?", Journal of Accounting Research, 41, 317-345.

LaPorta R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R.W. (1998). Law and Finance, Journal of Political Economy, 106, 1113-1155.

Lau, S. T., Diltz, J. D., & Apilado, V. P. (1994). Valuation Effects of International Stock Exchange Listings, Journal of Banking and Finance, 18, 743-755.

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, 583-592.

Lee, D., (2003). Why Does Shareholder Wealth Increase When Foreign Firms Announce Their Listing in the U.S.?, The Ohio State University working paper.

Liu, S. (2007). International cross-listing and stock pricing efficiency: An empirical study, Emerging Markets Review, 8, 251–263.

Lok, E., & Kalev, P.S. (2006). The Intraday Price Behavior of Australian and New Zealand Cross-Listed Stocks, International Review of Financial Analysis, 15, 377-397.

Menkveld, A. J. (2008). Splitting Orders in Overlapping Markets: A Study of Cross-Listed Stocks, Journal of Financial Intermediation, 17, 145-174.

Merton, R. C. (1987). A Simple Model of Capital Market Equilibrium with Incomplete Information. The Journal of Finance, 42, 483-510.

Miller, D. P. (1999). The Market Reaction to International Cross-Listings: Evidence from Depositary Receipts", Journal of Financial Economics, 51, 103-123.

Mittoo, U. R. (2003). Globalization and the Value of US Listing: Revisiting Canadian Evidence, Journal of Banking and Finance, 27, 1629-1661.

Morck, R., Shleifer, A., & Vishny, RW. (1990). The Stock Market and Investment: Is the Market a Sideshow?, Brookings Papers on Economic Activity, 157-215.

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: why do emerging markets have synchronous stock price movements? Journal of Financial Economics, 58, 215–260.

Moulton, P. C., & Wei, L. (2009). A Tale of Two Time Zones: The Impact of Substitutes on Cross-Listed Stock Liquidity, Journal of Financial Markets, 12, 570-591.

Otsubo, Y. (2014). International cross-listing and price discovery under trading concentration in the domestic market: Evidence from Japanese shares, Journal of Empirical Finance, 25, 36-51.

Portes, R., & Rey, H. (2005). The Determinants of Cross-border Equity Flows, Journal of International Economics, 65, 269-296.

Pulatkonak, M., & Sofianos, G. (1999). The Distribution of Global Trading in NYSEListed Non-US Stocks, NYSE Working paper 99-03.

Reese, W. A., & Weisbach, M. S. (2002). Protection of Minority Shareholder Interests, Cross-Listings in the United States, and Subsequent Equity Offerings, Journal of Financial Economics, 66, 65-104.

Roll, R. (1988). R2. Journal of Finance, 43, 541–566.

Roosenboom, P., & Van Dijk, M. A. (2009). The Market Reaction to Cross-Listings: Does the Destination Market Matter?, Journal of Banking and Finance, 33, 1898-1908.

Sarkissian, S., & Schill, M. J. (2004). The Overseas Listing Decision: New Evidence of Proximity Preference, Review of Financial Studies, 17, 69-809.

Sarkissian, S., & Schill, M. J. (2009). Are There Permanent Valuation Gains to Overseas Listing?, Review of Financial Studies, 22, 371-412.

Serra, A. P. (1999). Dual-Listings on International Exchanges: The Case of Emerging Markets Stocks, European Financial Management, 5, 165-202.

Stulz, R. M. (1999). Globalization, Corporate Finance, and the Cost of Capital, Journal of Applied Corporate Finance, 12, 8-25.

Subrahmanyam, A., & Titman, S. (1999). The Going-Public Decision and the Development and Financial Markets, Journal of Finance, 54, 1045-1082.

Wang, J., & Zhou, H. (2015). Competition of trading volume among markets: Evidence from stocks with multiple cross-listing destinations, Journal of Multinational Financial Management, 31, 126-145.

Werner, L., & Kleidon, A. (1996). US and UK Trading of British Cross-Listed Stocks: and Intraday Analysis of Market Integration, Review of Financial Studies, 9, 619-664.

You, L., Lucey, B.M., & Shu, Y. (2013). An Empirical Study of Multiple Direct International Listings, Global Finance Journal, 24, 69-84.

Table 1: Sample description

		Number of foreign listings						
	Home country	1	2	3	4	5	Total number of firms	Total number of foreign listings
1	Argentina	7	1	0	0	0	8	9
2	Australia	16	4	0	0	0	20	24
3	Austria	3	2	0	0	0	5	7
4	Belgium	2	1	2	0	0	5	10
5	Brazil	7	0	0	0	0	7	7
6	Canada	19	1	1	0	0	21	24
7	Chile	3	0	0	0	0	3	3
8	China	4	2	2	0	0	8	14
9	Denmark	0	2	0	0	0	2	4
10	Finland	1	0	0	1	0	2	5
11	France	10	7	5	4	0	26	55
12	Germany	2	3	2	4	2	13	40
13	Greece	2	1	0	0	0	3	4
14	India	1	2	0	0	0	3	5
15	Indonesia	0	1	0	0	0	1	2
16	Ireland	14	11	0	0	0	25	36
17	Italia	4	4	2	0	0	10	18
18	Japan	10	4	4	1	0	19	34
19	Korea	5	2	1	0	0	8	12
20	Luxembourg	1	1	1	1	0	4	10
21	Mexico	1	0	0	0	0	1	1
22	Netherlands	4	0	4	0	0	8	16
23	New Zealand	3	9	0	0	0	12	21
24	Norway	3	0	0	0	0	3	3
25	Singapore	2	0	0	0	0	2	2
26	South Africa	9	1	1	0	0	11	14
27	Spain	5	3	2	0	1	11	22
28	Sweden	3	4	0	0	0	7	11
29	Switzerland	6	9	1	0	0	16	27
30	Taiwan	1	2	0	0	0	3	5
31	Turkey	0	1	0	0	0	1	2
32	UK	14	6	2	0	0	22	32
33	US	8	3	2	0	0	13	20
	Total	170	87	32	11	3	303	499

This table provides the number of stocks listed in 1, 2, 3, 4 and 5 foreign markets. For example, there are 4 Australian firms that are multiple-listed in 2 foreign markets.

Table 2: **Price reaction around cross-listing**

	Mean CAR (%)											
	(-60,+60)				(-60,-1)				(+1,+60)			
Listing Order	All	US	UK	Others	All	US	UK	Others	All	US	UK	Others
1	44.6	73.5	61.6	-7.5	38.3	51.6	58	-7.8	7.8	16.1	3.4	6
	(3.77)***	(2.28)**	(3.2)***	(0.66)	(3.5)***	(1.93)*	(2.9)***	(0.9)	(1.45)	(1.97)*	(0.45)	(0.56)
2	20.9	56	63.8	15.1	21.1	46.4	63.4	12.5	-2.25	18.12	10.2	0.4
	(1.88)*	(1.96)*	(2.1)**	(0.6)	(2.7)***	(2.69)**	(2.6)**	(0.48)	(-0.29)	(2.31)**	(1.97)*	(0.57)
3	-1.9	48.5	56.1	11.1	12.6	1.1	61.5	18	-14.4	12.7	-13.2	-5.1
	(-0.51)	(0.48)	(2.6)**	(1.3)	(2.03)**	(0.3)	(2.58)**	(0.41)	(-1.14)	(1.96)*	(-0.8)	(-1.14)
4 and 5	-26.3	-39	-22.7	-0.34	4.4	-63.7	58.7	28	-39.1	-20.4	-9	-25.7
	(-1.97)*	(-2.1)**	(-0.28)	(-0.67)	(0.2)	(-3.3)***	(0.88)	(0.32)	(-3.5)***	(-0.96)	(-3.1)***	(-2.92)**

This table shows the event study results for different event periods around the cross-listing event, (-60,+60), (-60,-1) and (+1,+60). For each order of cross-listing, we reports the mean CAR for all foreign listing markets, only US exchanges (excluding the OTC), only UK market, and the others markets excluding US and UK markets. Statistical tests are reported in parentheses below the mean CAR.

Table 3: Regression results

	Cross-listing order								
	(-60,+60) window			(-60,-1) window			(+1,+60) window		
	1	2	3,4 and 5	1	2	3,4 and 5	1	2	3,4 and 5
ADRL	-0.26	0.06	-0.68	-0.19	-0.05	-0.68	0.01	0.07	-0.56
	(-0.87)	(0.31)	(-1.05)	(-0.72)	(-0.4)	(-1.05)	(0.1)	(0.56)	(-1.16)
Culture	0.45	0.24	0.77	0.3	0.08	0.77	-0.01	0.1	0.15
	(1.57)	(0.52)	(1.9)*	(1.05)	(0.35)	(1.9)*	(-0.04)	(0.39)	(0.5)
Geography	-0.2	0.36	-0.31	-0.01	0.5	-0.31	-0.11	0.07	-0.1
	(-0.87)	(0.95)	(0.23)	(-0.007)	(1.5)	(-1.21)	(-0.78)	(0.28)	(-0.37)
PI	0.0001	0.15	-0.006	0.001	0.04	(-0.006)	0.001	0.06	0.08
	(7.69)***	(2.62)**	(-0.06)	(6.15)***	(1.97)*	(-0.06)	(2.87)***	(2.01)**	(1)
Dummy$_{usuk}$	0.87	0.51	1.56	0.66	0.48	1.56	0.17	0.06	0.47
	(3.63)***	(2.34)**	(2.44)**	(3.27)***	(4)***	(2.44)**	(1.47)	(0.48)	(0.92)
size	1.3	1.1	0.6	0.78	0.6	0.55	0.8	0.6	0.6
	(0.9)	(0.34)	(1.1)	(1.2)	(0.8)	(0.8)	(0.5)	(0.95)	(0.3)
Constant	0.15	0.05	-0.1	0.12	-0.001	-0.1	0.02	-0.01	-0.16
	(0.98)	(0.32)	(-0.52)	(0.82)	(-0.02)	(-0.52)	(0.23)	(-0.08)	(-0.94)
R square	0.12	0.16	0.24	0.1	0.24	0.24	0.1	0.1	0.17
N	303	133	63	303	133	63	303	133	63

This table provides regression results for each order of cross-listing. The dependant variable is the ***CAR***. The explanatory variables are as follow. ***ADRL*** is a dummy variable that takes the value of 1 if the foreign listing country has a higher level of investor protection than the home country, and 0 otherwise. ***Culture*** is a dummy variable equals 1 if the home and foreign countries share a common language and 0 otherwise. ***Geography*** is a dummy variable equals 1 if the home and foreign markets are in the same time zone and 0 otherwise. 3 different time zones by regions are considered: European and African region; American region; Australasia and Asian region. ***PI$_i$*** is the stock price informativeness measured by firm-specific stock return variation relative to local and foreign market variations. ***Dummy$_{usuk}$*** is a dummy variable equals 1 for cross-listing in the US or UK exchanges and 0 otherwise. "***", "**" and "*" denote significance at respectively 1%, 5% and 10%. t-statistics are in parentheses below the corresponding robust parameter estimates. **N** is the number of observations.

Table 4: Additional regression results

	Cross-listing order					
	(-60,+60) window		(-60,-1) window		(+1,+60) window	
	1	2	1	2	1	2
ADRL	0.11	0.06	0.11	0.06	0.12	0.1
	(0.45)	(0.3)	(0.45)	(0.3)	(0.8)	(0.72)
Culture	0.37	0.24	0.36	0.24	-0.02	0.08
	(1.33)	(0.56)	(1.33)	(0.56)	(-0.18)	(0.3)
Geography	-0.11	0.36	-0.11	0.36	-0.09	0.08
	(-0.49)	(0.84)	(-0.49)	(0.84)	(-0.67)	(0.35)
PI	0.001	0.15	0.001	0.15	0.001	0.07
	(8.15)***	(2.63)***	(8.15)***	(2.63)***	(3.17)***	(1.77)*
$Dummy_{usuk}$	0.48	0.52	0.48	0.51	0.05	0.01
	(2.17)**	(2.44)**	(2.17)**	(2.44)**	(0.42)	(0.06)
$PI*Dummy_{us}$	0.52	0.01	0.52	0.01	0.13	0.13
	(2.04)**	(0.09)	(2.04)**	(0.09)	(2.01)**	(1.8)*
size	1.1	1.9	0.3	1.2	0.7	0.6
	(0.17)	(0.6)	(0.25)	(0.96)	(1.1)	(0.9)
Constant	0.03	0.05	0.03	0.05	-0.01	-0.003
	(0.21)	(0.3)	(0.21)	(0.3)	(-0.09)	(-0.02)
R square	0.17	0.16	0.17	0.16	0.16	0.16
N	303	133	303	133	303	133

This table provides regression results for each order of cross-listing. The dependant variable is the ***CAR***. The explanatory variables are as follow. ***ADRL*** is a dummy variable that takes the value of 1 if the foreign listing country has a higher level of investor protection than the home country, and 0 otherwise. ***Culture*** is a dummy variable equals 1 if the home and foreign countries share a common language and 0 otherwise. ***Geography*** is a dummy variable equals 1 if the home and foreign markets are in the same time zone and 0 otherwise. 3 different time zones by regions are considered: European and African region; American region; Australasia and Asian region. PI_i is the stock price informativeness measured by firm-specific stock return variation relative to local and foreign market variations. $Dummy_{usuk}$ is a dummy variable equals 1 for cross-listing in the US or UK exchanges and 0 otherwise. $Dummy_{us}$ is a dummy variable equals 1 for cross-listing in the US exchanges and 0 otherwise. "***", "**" and "*" denote significance at respectively 1%, 5% and 10%. t-statistics are in parentheses below the corresponding robust parameter estimates. **N** is the number of observations.

Appendix:

Table 1: Dependant and Explanatory variables

Variable	Definition	Data source
CAR	The cumulative abnormal returns (***CAR***) is the sum of the abnormal stock returns over the event window	Monthly stock and index prices are from Datastream.
ADRL	***ADRL*** is a dummy variable that takes the value of 1 if the foreign listing country has a higher level of investor protection than the home country, and 0 otherwise. The level of investor protection is measured by rule of law* the anti-director rights index. The anti-director rights index is a measure of investor protection level and the rule of law index take into account the degree of enforcement of investor protection laws.	The anti-director rights index is from LaPorta et al. (1998) and the rule of law index is from LaPorta et al. (1998) and Djankov et al. (2008).
Culture	Dummy variable equals 1 if the home and foreign countries share a common language and 0 otherwise.	
Geography	Dummy variable equals 1 if the home and foreign markets are in the same time zone and 0 otherwise. 3 different time zones by regions are considered: European and African region; American region; Australasia and Asian region	
PI_i	PI_i is the stock price informativeness measured by firm-specific stock return variation relative to local and foreign market variations.	Stock and index prices are from Datastream.
$Dummy_{usuk}$	Dummy variable equals 1 for cross-listing in the US or UK exchanges and 0 otherwise.	Sample dataset
Size	The logarithm of the market capitalization of the company around cross listing event.	Datastream.