Shareholders' Wealth Effects of International Cross-Listings

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Abstract

This study evaluates shareholders' wealth effects of international cross-listings and the joint significance of different theories in explaining American, British, and European cross-listing benefits. Moreover, it evaluates the time variation in shareholders' wealth effects of cross-listings with a particular focus on the impact of significant developments in capital markets, such as adoption of the Sarbanes-Oxley Act in the US and single currency euro in Europe. The findings confirm that the impact of a cross-listing on shareholders' wealth depends on the destination market and the time when it takes place. Changes in listing environment not only alter the wealth effects of cross-listings but also affect the sources of value creation around cross-listings. Overall, the findings provide insights into the nature of the motivations and the benefits of cross-listings across different host markets and over time.

Key words: Cross-listing, shareholders' wealth, Euro, AIM, the Sarbanes-Oxley Act

JEL Classifications: G15, G14, G32

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Introduction

The globalization and integration of the world financial markets, and in particular significant capital market developments such as the introduction of Euro in the European Union in 1999, the Sarbanes-Oxley Act of 2002 (SOX) and the introduction of Alternative Investments Market (AIM) of the London Stock Exchange in 1996 have generated a considerable debate among academics and practitioners concerning the motivations and the benefits of cross-listings of European companies on American, British and European stock exchanges[1]. With the introduction of common currency, euro, the European markets have become more integrated, creating doubts on whether cross-listings within Europe add any wealth to shareholders. Similarly, SOX is likely to increase the costs of meeting the legal and disclosure requirements of the US Securities and Exchange Commission, making listing in the US markets less desirable[2]. Finally, the introduction of AIM characterised with light disclosure requirements and easy access to capital is likely to affect the trend of the geography of cross-listings. The immediate consequence of these developments is that the motivations and the net benefits of cross-listings are likely to change across different listing destination markets and over time. This study contributes to this debate by investigating the wealth effect of cross-listing of European companies in American, British and European stock exchanges.

Shareholders' wealth effects of US cross-listings have been the subject of intensive theoretical and empirical research (Foerster and Karolyi, 1999; Miller, 1999). Mostly, prior studies on average uncover positive shareholders' wealth gains of cross-listings on American stock exchanges. The conventional wisdom attributed shareholders' wealth gains from cross-listing to market segmentation, liquidity and signalling theories. According to the market segmentation theory, a cross-listing in a foreign market makes company's stocks accessible to investors who would otherwise find it less advantageous to hold the stocks because of investment barriers. In turn, this, potentially increases shareholder base, risk sharing, and leads in lower cost of capital and higher market valuation (Foerster and Karolyi, 1999; Errunza and Miller, 2000). According to the liquidity theory, cross-listing in a more liquid market reduces trading costs for investors and increase the company's valuation (Amihud and Mendelson, 1986; Foerster and Karolyi, 1998). Finally, a cross-listing may signal to the market the company's high quality and future prospects (Fuerst, 1998). Later research by Stulz (1999) and Coffee (1999) challenged the adequacy of the aforementioned theories in explaining the variation of cross-listing valuation effects

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[1] Some anecdotal evidence includes: "Delisting European companies should think twice before delisting from the US stock markets", Financial Times, (April, 25, 2005); "Why cross-listing shares doesn't create value", McKinsey Quarterly, (November, 2008).

[2] In this respect, Litvak (2007) find a negative market reaction for companies that are subject to the SOX compliance during key announcements that SOX would fully apply to cross-listed foreign issuers.

and the time series pattern of cross-listings. As a result, other promising theories such as bonding, market timing and proximity preference were developed. The bonding theory proposes that cross-listing on an exchange with higher legal and disclosure standards 'bonds' the company to better corporate governance practices that limits the ability of managers and controlling shareholders to expropriate minority shareholders rights (Stulz, 1999; Coffee, 1999; Doidge et al., 2004). The market timing theory attribute cross-listing shareholders' wealth gains to managers' ability to time cross-listing in relatively 'hot' host markets (Sarkissian and Shill, 2009b). Finally, the wealth effects of cross-listing could be positively related to the level of investors' familiarity measured by geographic, economic, cultural, and industrial proximity between the home and the host markets (Sarkissian and Schill, 2004, 2009a). Overall, the abovementioned theories explain the cross-listing shareholders' wealth effects at a market level; however, shareholders' wealth effects may also vary at a company level. Thus, other researchers have put forth the business strategy theory. Assuming that cross-listing decision is associated with company's global strategy, the business strategy theory predicts that the cross-listing shareholders' wealth gains are a function of company-specific characteristics (Bancel and Mittoo, 2006).

Empirically the *joint* significance of the aforementioned cross-listing theories is unclear. Yet, there is limited evidence on the impact of the developments in capital markets on the motivations and net benefits of cross-listings. Given that the capital market developments affect cross-listing shareholders' wealth effects as does the conventional wisdom, failure to consider them might introduce spurious relations between the cross-listing shareholders' wealth gains and their determinants suggested by the cross-listing shareholders' wealth benefits theories. Furthermore, prior studies largely ignore cross-listings on British and European stock exchanges. Since American, British and European stock exchanges have different characteristics with respect to the level of economic development, capital market size and liquidity, investor protection, and accounting standards, the motivations and the benefits of cross-listings across these markets are likely to diverge. Consequently, the joint significance of each of the aforementioned cross-listing shareholders' wealth effects theories across the US, British and European cross-listings and, particularly, over time, is still a contentious issue in the literature, even after considering prior evidence on the US cross-listings.

This study contributes to the cross-listing literature by investigating shareholders' wealth effects of US, British and European cross-listings for European companies, the determinants of these effects and their evolution over time. It investigates the role of the following theories in explaining the variation of the wealth effects from cross-listing on American, British and European markets: market segmentation, liquidity, information disclosure, legal bonding, market timing, proximity preference, investor

recognition, and business strategy. Moreover, it considers the role of capital market developments on the cross-listing motivations and benefits.

Using a hand-collected dataset of 254 cross-listing announcement events from 21 European markets during the period from 1982 to 2007 the results show an average statistically significant cumulative abnormal return of 1.8% around the announcement of an international cross-listing. Mostly, these abnormal returns concentrate in the US and British cross-listings (3.3% and 2.7%, respectively), as opposed to European listings that realize only insignificant cumulative abnormal returns. Moreover, this study also provides conclusive evidence that shareholders' wealth impact of cross-listings and its determinants are affected by the capital market developments such as the introduction of Euro in Europe, the introduction of AIM by the London stock exchange and the adoption of SOX in the US. A cross-listing within Euro zone is more likely to result in the negative market reaction than a European cross-listing before the introduction of Euro. Furthermore, the sources of shareholders' wealth creation before and after the introduction of Euro are different. Prior to the introduction of Euro, the market timing is the only empirically valid theory of shareholders' wealth effect of cross-listing. In contrast, for foreign listings within Euro zone the market segmentation, the legal bonding, the proximity preference and the business strategy theories have significant explanatory power of the cross-sectional variation of the wealth effects. Concerning British cross-listings, the significant excess returns in 2000s are mainly contributed by the AIM listings, despite the fact that the AIM offers weaker investor protection than the Main Market of the London stock exchange. In turn, higher cumulative abnormal returns around the AIM listings can be attributed to the significantly smaller average size of companies listing on AIM. Overall, shareholders' wealth effects of British listings can be explained by the legal bonding, the proximity preference and the business strategy theories. Finally, regarding the US cross-listings, the results are consistent with the argument that the costs from the adoption of SOX outweigh the benefits. More specifically, it is found that US cross-listings that take place before the adoption of SOX result in positive and statistically significant abnormal returns, while US cross-listings that take place after the adoption of SOX produce insignificant abnormal returns. Also, it is found that, positive shareholders' wealth effects from US cross-listings before the adoption of SOX are particularly profound for small and growth companies, while after the adoption of SOX they are positive and significantly only for large companies from developed countries. Hence, the business strategy is the main empirically valid explanation of shareholders' wealth effect of international cross-listings in the US market; while the investor recognition theory is also valid in the post-SOX period. Findings on the impact of AIM and

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SOX on the market reaction to an international cross-listing suggest that investors evaluate the benefits of a foreign listing in conjunction with the costs involved.

This study contributes to the literature on shareholders' wealth effects of international cross-listings in following ways. First, it evaluates benefits from cross-listing on various host markets and compares their determinants. Second, it provides empirical evidence on the time variation in shareholders' wealth effects of international cross-listings. Specifically, it evaluates how important capital markets developments in the last decade have altered the impact of cross-listings on shareholders' wealth. Finally, it empirically evaluates joint significance of a number of theories on the wealth effects of international cross-listings and how their significance changes over time.

Testable hypotheses

Shareholders' wealth effects of international cross-listings

Based on the theoretical argument that a cross-listing improves stock accessibility to foreign investors (Merton, 1987; Errunza and Miller, 2000) and stock liquidity (Foerster and Karolyi, 1999) and in line with empirical evidence of Miller (1999), Serra (1999), and Roosenboom and Van Dijk (2009), international cross-listings are expected to result in excess positive stock returns.

   H1: An international cross-listing is associated with positive abnormal stock returns.

Variation in shareholders' wealth effects by host markets

Theoretically, companies from low quality markets should experience shareholders' wealth gains upon a cross-listing on a higher quality market. The quality of the market is characterised, among others, in terms of the level of capital market development, investor base size, liquidity, investor protection, and information environment. The markets of the US, UK and continental Europe differ from each other by the market qualities named above and these differences potentially cause diverse stock shareholders' wealth effects to cross-listings on these markets. The US and the UK are English-law countries that focus on resolution of information asymmetry and have market-oriented financial systems. In contrast, the countries of continental Europe are civil-law countries with bank-oriented financial system and tax accounting rules. Empirically, several studies provide evidence on shareholders' wealth effects of cross-listings on various host markets. Mostly, foreign companies that list in the US on average experience significant positive abnormal returns (Foerster and Karolyi, 1999; Miller, 1999; Bris et al, 2007). However, evidence on shareholders' wealth effect of foreign listings on British and European stock

markets is still limited and less conclusive. Serra (1999) and Salva (2003) document significant abnormal returns around the announcement of foreign listings on the London stock exchange, whereas Roosenboom and van Dijk (2009) find weaker abnormal returns on several European stock exchanges.

H2.1: American listings results in the highest positive abnormal returns, followed by British listings and then by other European listing[3].

Change in shareholders' wealth effects of international cross-listings over time

Although empirical evidence on shareholders' wealth impact of international cross-listings suggests that cross-listing benefits outweigh costs, there is a recent considerable debate among academics and practitioners on shareholders' wealth effects of cross-listings of European companies. This debate is triggered by developments in financial markets such as the introduction of Euro in Europe, adoption of the Sarbanes-Oxley Act of 2002 in the US and the introduction of AIM in 1996 in the UK that are likely to affect both the motivations and the net benefits of cross-listings. Many argue that the introduction of Euro makes cross-listings on European stock exchanges unnecessary, while SOX imposes onerous costs on meeting the legal and disclosure requirements of the US Securities and Exchange commission, making American listings less desirable. Finally, the introduction of AIM of the London stock exchange facilitates easier access to capital for small companies and offer new investment products to the group of investors that do not put much value on regulation and disclosure, something that is likely to affect the geography of cross-listings (Jenkinson and Ramadorai, 2007). Consequently, these capital market developments possibly affect shareholders' wealth gains of foreign listings and cross-listing motivations. This study investigates the price impact of international cross-listings during a broad period of time from 1982 to 2007. To control for the changes in listing environment over time, the sample is arbitrarily split into listings that take place before year 2000 and listings that take place in the 2000s, assuming that each of these sub-periods reflects different levels of market integration and different listing, regulatory and trading environment.

H3: Shareholders' wealth effect of foreign listings on various host markets is significantly different for cross-listing events that take place before 2000s and in the 2000s.

The impact of Euro, AIM, and SOX is further discussed in the following section on the determinants of shareholders' wealth effect of international cross-listings. Arguably, not only these developments have

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[3] This hypothesis, however, could be challenged by the proximity preference theory. According to the proximity preference theory, more significant positive shareholders' wealth impact is expected from cross-listings in host markets that are closer geographically, i.e. within European markets in the context of this study. Which theory can explain the patterns in the wealth effects of cross-listings is an empirical question. Forthcoming Hypothesis H4.5 addresses the Proximity preference argument.

altered cross-listing benefits but also have affected cross-listing motivations and, accordingly, the explanatory power of potential determinants of shareholders' wealth effect of cross-listings.

Determinants of shareholders' wealth effects of cross-listings

Market segmentation. Foerster and Karolyi, (1999) and Errunza and Miller (2000) argue that improved stock investability after the cross-listing increases shareholder base and risk sharing and, thus, leads to lower cost of capital. Empirically, Baele (2005) document an increasing level of global and particularly regional integration of European financial markets over time.

> *H4.1a:* Other things being equal, the higher the market segmentation between home and host markets the higher the abnormal returns around the cross-listing announcements.

The level of global financial market integration, measured by the importance of the US common factors in explaining local European stock market returns, has increased significantly over time, however, to a lesser degree than the importance of European common factors (Fratzscher, 2002; Baele, 2005). The introduction of a single European currency in 1999 has eliminated currency risk and encouraged cross-border equity trading within the Eurozone that resulted in more integrated European markets (Fratzscher, 2002; Galati and Tsatsaronis, 2003; Hardouvelis et al, 2006).

> *H4.1b:* The introduction of Euro had reduced the benefits of foreign listing within Eurozone.

Legal bonding. Cross-listings on an exchange with stricter legal and disclosure standards bond the companies to respect minority shareholders' rights[4] (Coffee, 1999; Stulz, 1999), resulting in lower cost of capital for cross-listing companies. Doidge (2004) provides empirical support for the bonding theory that the voting premiums of cross-listed companies with dual shares are 43% lower than non-cross-listed companies. The level of legal protection and the quality of disclosure standards vary in the international capital markets. US cross-listings are subject to increased enforcement by the US Securities and Exchange Commission, to more demanding litigation environment and to reconciliation of financial statements in accordance with US GAAP (Coffee, 2002). British cross-listings must comply with London Stock Exchange rules that are arguably less strict compared to those of NYSE (Baker et al., 2002). Finally, European cross-listings are subject to European legal and disclosure requirements that are considered the least strict (Coffee, 1999).

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[4] Legal bonding theory has been a subject to criticism by Siegal (2005) and Burns et al (2007). In particular, Siegel (2005) argue that the Securities and Exchange Commission does not effectively enforce the law against cross-listed foreign companies.

H4.2a: Other things being equal, the larger the difference in the level of investor protection between home and host markets the higher the abnormal returns around the cross-listing announcements.

The introduction of AIM of the London Stock Exchange, a successful new market for smaller companies, provides a setting for further testing the legal bonding theory. In contrast to the Main Market of the London stock exchange, AIM imposes significantly reduced disclosure requirements[5].

H4.2b: Other things being equal, the market reaction to the announcement of Main Market listings is significantly higher compared to the market reaction to the announcement of AIM listings.

In the US the level of investor protection has changed after the adoption of the SOX Act of 2002 that imposed even stricter disclosure and listing requirements for US public companies as well as to non-US companies that have chosen to list on a US exchange.

H4.2c: Other things being equal, abnormal returns around a cross-listing on the US stock exchanges increase after year 2002 when SOX was adopted.

Liquidity. A listing on a more liquid stock exchange enhances stock liquidity and, accordingly, improves stock's market valuation (Amihud and Mendelson, 1986; Foerster and Karolyi, 1998). In contrast, Roosenboom and van Dijk (2009) find no relation between market-level liquidity and market reaction to foreign listings in any of the host markets examined. Empirical evidence suggests that liquidity in international capital markets varies widely (Huang and Stoll, 2001; Venkataraman, 2001).

H4.3: Other things being equal, the larger the improvement in market liquidity between the host and the home markets the higher the abnormal returns around the cross-listing announcement.

Investor recognition. According to Merton (1987), stock's market valuation is positively related to the number of investors that are aware of the company. Listing shares on a foreign exchange facilitates easier access to company's information and enhance company's recognition abroad, which results in increased stock price for the cross-listing company (Chemmanur and Fulghieri, 2006). The level of investor recognition and stock visibility is directly related to the intensity of analyst coverage since, according to Baker et al (2002), analyst reports are the main source of firm-specific information for investors. Empirical evidence suggests that a cross-listing results in the increased attention of financial analysts for the US host market (Lang et al., 2003) as well as for the UK host market, however, to a lesser degree (Baker et al., 2002).

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[5] while some larger companies choose to list on AIM to avoid the regulatory burden of the Main Market (Jenkinson and Ramadorai, 2007), AIM is still predominantly the market for smaller and younger companies that are not qualified to list on the Main Market.

H4.4: Other things being equal, the larger the improvement in the intensity of analyst coverage between the host and the home markets the higher the abnormal returns around the cross-listing announcements.

Proximity preference. Sarkissian and Schill (2004) show that geographical, economical, cultural, and industrial proximities are the important determinants of the corporate decision to cross-list. Further, Sarkissian and Schill (2009a) report that permanent decrease in cost of capital after the cross-listing is largely explained by higher investor familiarity with home market's products and by geographic proximity. Geographic distance between the host and home markets is a distinctive characteristic of US, British and European listings by European companies. Thus, geographic distance as a potential determinant of the wealth effects around the cross-listing is particularly relevant for European companies.

H4.5: Other things being equal, the smaller the geographic distance between the host and the home markets the higher the abnormal returns around the cross-listing announcements.

Market timing. The market timing theory suggests that corporate finance managers time the company's listing on a foreign exchange to take advantage of higher equity valuations in the host market. Relatively higher equity valuations in the host market may represent the differences in the level of economic development between the host and home countries. Indeed, Rajan and Zingales (2003) provide evidence that all countries exhibit uneven economic development over time, while Sarkissian and Shill (2009b) establish empirically the link between the frequency of international cross-listings and the level of economic and financial outperformance of the host country relative to the home country.

H4.6a: Other things being equal, the larger the improvement in the level of economic performance between the home and the host markets the higher the abnormal returns around the cross-listing announcements.

Further, it is likely that both host and home markets exhibit high equity valuations over certain periods of time. Thus, international stock markets were particularly 'hot' in the late 1990s, a period known as the Dotcom bubble (Ljungqvist and Wilhelm, 2003; Derrien, 2005). We examine the incremental shareholders' wealth impact of foreign listings during the DotCom bubble as an additional test of the market timing theory.

H4.6b: Cross-listing events during the bullish period of the Dotcom bubble of the late 1990s are associated with particularly high abnormal returns.

Business strategy. If cross-listing decision is related to the global corporate strategy then shareholders' wealth impact of cross-listings should be a function of company-specific characteristics. One of the primary company characteristics, industrial affiliation, is named to be among the main motivations to cross-list (Bancel and Mittoo, 2001). Failure to follow cross-listed industry peers may put a company at a competitive disadvantage (Pagano et al., 2002; Mittoo, 2003). In this vein, Mittoo (2003) find significant industry variation in the wealth effects of American listings for Canadian companies.

H4.7a: Other things being equal, there is a variation in industry abnormal returns around the cross-listing announcements.

Other company characteristics that likely affect the cross-listing shareholders' wealth effects refer to growth opportunities and the need for external financing. Doidge et al. (2004) find a significant positive association between companies' valuation, growth opportunities and the cross-listing status. Growth opportunities should be particularly pronounced if cross-listing companies raise new equity capital. In this respect, Charitou and Louca (2009) provide ex post evidence that capital-raising cross-listed companies outperform both the control sample of non-cross-listed companies and the sample of cross-listed companies in pre-cross-listed period.

H4.7b: Other things being equal, abnormal returns around the cross-listing announcements are positively related to the cross-listing company' growth.

H4.7c: Other things being equal, abnormal returns around the cross-listing announcements are higher for cross-listings that raise new equity capital.

Other determinants of shareholders' wealth effect of cross-listings

Company size positively related to stock liquidity and visibility to investors. As such, a smaller company that makes a commitment to cross-list experiences larger incremental improvement in the level of liquidity and the quality of information environment compared to a larger cross-listing company. Similarly, first foreign listing yields more significant incremental change in stock's accessibility to foreign investors compared to a consequent foreign listing, which is empirically confirmed by Sarkissian and Shill (2009a). Consequently, company size and listing order are expected to be inversely related to shareholders' wealth impact of cross-listings. Lastly, often US OTC-traded[6] foreign stocks that are already accessible to US investors choose to up-grade to the US stock exchange listing in order to improve stock liquidity, visibility to investors, prestige, and the level of investor

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[6] Level 1 ADRs or over-the-counter (OTC) listing is the easiest and fastest way to entry the US capital market. The main difference between OTC and exchange listings is the level of disclosure: an OTC listing requires nether full SEC registration and disclosure nor US GAAP reporting.

protection and, ultimately, stock's market valuation. However, a US exchange listing involves additional substantial costs compared to an OTC listing. Accordingly, an up-grade from US OTC to the US stock exchange listing should result in a positive change in stock's market valuation, however, to a lesser degree than a American listing without prior OTC.

Table I summarized potential determinants of shareholders' wealth effects of cross-listings and the direction of the expected impact on the stock price.

Research design

Shareholders' wealth effects of international cross-listings

Shareholders' wealth effects from international cross-listings are measured by cumulative abnormal returns over the period 21-days (-10, 10) days around the announcement[7] of the cross-listing. Abnormal returns are defined as market-adjusted returns: $AR_{i,t} = R_{i,t} - R_{m,t}$, where $AR_{i,t}$ - abnormal returns of company i on day t; $R_{i,t}$ - the return of company i on day t; $R_{m,t}$ - market return on day t. Market returns are the corresponding Datastream Total Market index local currency returns for developed countries and Poland, and S&P/IFC market index local currency returns for the rest of emerging countries in the sample. The cumulative abnormal returns (CARs) are the sum of abnormal stock returns over the event window.

Variables definition

Explanatory variables include three main groups: country, company and listing characteristics. Additionally, important capital market developments are used to capture the time varying cross-listing shareholders' wealth effects. Both host market and home market characteristics affect the outcome of a cross-listing. In order to capture the difference or, more specifically, the improvement in the listing and trading environment after a cross-listing, country-level variables are constructed for each of the host-home market pair combination in the sample as the difference/improvement in a particular characteristic. Table II contains definitions and data sources of all the variables.

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[7] Under the assumption of market efficiency, stock prices incorporate all information available on the market and stock price adjustment to cross-listing accrues when the news about company's intention to cross-list is released to the market. Thus, wealth effects of cross-listings are expected to be concentrated around the cross-listing announcement.

The level of market segmentation between the home and host markets is measured by the correlation of the host and home market returns, similar to Sarkissian and Schill (2004) and Roosenboom and van Dijk (2009). The increased level of market integration in Europe after the introduction of Euro is captured by a dummy variable that represents listings within Euro zone. The validity of the legal bonding theory is investigated using several proxies. First, we use the improvement from the cross-listing in country-level accounting standards index from La Porta et al (1998). Second, we use the improvement in legal index, calculated as the product of the anti-director rights index from Djiankov et al (2007) multiplied by the rule-of-law index from Kaufmann et al (2005). Legal index reflects both de jure, which by itself is not sufficient, and de facto aspects of investor protection. Liquidity benefit of a cross-listing is quantified by the improvement in the market-level liquidity measured by the market turnover ratio, i.e. the ratio of the DataStream Total Market index capitalization to the value of the index's trading volume. Improved investor recognition is measured by the improvement in country-level analyst coverage intensity, estimated as the average number of analysts per company for each country-year in the sample. Geographic proximity is quantified by the distance in kilometres between the capital cities of the host and home markets as in Sarkissian and Shill (2004). Similar to Sarkissian and Shill (2009b), the marking timing theory is tested whether shareholders' wealth impact of a cross-listing is related to the difference in the level of economic performance between the host and home countries. Economic performance is measured by the 3-year moving average of the GDP per capita using data obtained from the United Nations statistics division web-site. Additionally, it is evaluated whether a foreign listing during the DotCom bubble had any valuation premium due to the high level of investor sentiment, as predicted by the market timing theory. In line with Ljungqvist and Wilhelm (2003), a 'bubble' dummy variable is used for foreign listings that took place in 1999 and in the beginning of 2000. To test the Business strategy theory, several firm-level variables are obtained. First, a company's industry is defined based on FTSE/DJ industry firm-level classification obtained from DataStream[8]. Second, company growth is measured by the three-year sales growth preceding the listing. Lastly, data on capital raising activity on the foreign market following the cross-listing are obtained from several sources including BNY and Citibank ADRs databases and Thomson One Banker Equity Deals database. Finally, company size is measured by company market capitalization, listing order - by first foreign listing dummy variable and presence of OTC listing prior to US stock exchange - by prior-OTC dummy variable.

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[8] In order to reduce the number of industry-based sub-groups with small number of observations companies from Basic materials, Consumer goods, or Industrials industry groups are combined into one group 'Manufacturers', and Oil & Gas and Utilities – into one group 'Natural resources'.

Multivariate regression analysis

The aim of this study is to evaluate the validity of alternative theories of shareholders' wealth effects of cross-listing for different host markets and over time. A problem with implementing regression analysis, however, is potentially high correlations among the explanatory variables, specifically, the levels of investor protection, accounting disclosure, and economic development of a particular host country. Even though the explanatory country-level variables represent the differences in country characteristics of the host and home countries, they are primary driven by the characteristics of the common host market. Therefore, host-market-adjusted explanatory variables are constructed in order to mitigate potential multicollinearity problem. They are estimated as the residuals from the following regression: $Var_j = \Sigma_{n=EU,UK,US}\, \beta_n\, Host_n + \varepsilon_j$, where Var_j- an explanatory variable (market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size), $Host_n$ - host market dummy variable. The error term ε_j is the host-market-adjusted explanatory variable.

In order to evaluate the join significant of alternative hypotheses the following regression is estimated: $CAR_i = \Sigma_{n=EU,UK,US}\, \beta_n\, Host_n + \Sigma_j\, \Sigma_{n=EU,UK,US}\, \beta_{j,n}\, (Host_n\, X_{i,j}) + \varepsilon_i$, where $X_{i,j}$ - an explanatory variable or, in case of market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size variables, - a host-market-adjusted variable.

In order to evaluate the impact of the important changes in listing environment on shareholders' wealth effects of international cross-listings and on the explanatory power of the determinants of shareholders' wealth effects of cross-listings, the following regressions are estimated.

Impact of Euro introduction:

$CAR_i = \Sigma_{n=EU,UK,US}\beta_n Host_n + \Sigma_{Deuro}\beta_{EU,Deuro}(Host_{EU} X_{i,j} D_{euro}) + \Sigma_j \Sigma_{n=UK,US}\beta_{j,n}\, (Host_n\, X_{i,j}) + \varepsilon_i$

Impact of SOX adoption:

$CAR_i = \Sigma_{n=EU,UK,US}\beta_n Host_n + \Sigma_{Dsox}\beta_{US,Dsox}(Host_{US} X_{i,j} D_{SOX}) + \Sigma_j \Sigma_{n=EU,UK}\beta_{j,n}\, (Host_n\, X_{i,j}) + \varepsilon_i$

where $X_{i,j}$ - an explanatory variable or, in case of market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size variables, - a host-market-adjusted variable; D_{euro} - one of two dummy variables related to Euro introduction – $D_{beforeEuro}$ and $D_{Eurozone}$; D_{SOX} - one of two dummy variables related to SOX adoption - $D_{beforeSOX}$ and $D_{afterSOX}$.

The dataset

The sample consists of the US, British and European cross-listings of European companies during the period from 1982 to 2007. The initial dataset includes companies from all European markets available in Datastream that have their stock listed on one or more stock exchange outside of their home market. This dataset is cross-checked and supplemented by cross-listing data from major stock exchanges web-sites that attract listings of European companies: NYSE, NASDAQ, AMEX, LSE, Euronext, Frankfurt stock exchange, Irish stock exchange, Swiss stock exchange, Borsa Italiana, Luxembourg stock exchange. Data on ADRs comes from the Bank of New York and Citibank ADR databases. The sample is also supplemented with information on foreign listings from Sarkissian and Shill (2004, 2009b) and Factiva news database. Based on this sample, we search for the cross-listing announcements in Factiva news database. Preference stock listings are excluded from the analysis. Also, to make the results comparable between US and European listings, OTC and Portal listings are excluded, i.e. the sample consists of stock exchange listings only. Finally, we exclude direct IPOs in a foreign country and companies without return data 10 days before and 10 days after the announcement date available in Datastream.

The final sample consists of 254 cross-listing announcements by 210 companies that take place on three US exchanges (AMEX, NASDAQ, and NYSE), two markets of the UK's LSE (Main Market and AIM) and seventeen other European exchanges. Table III presents frequency distribution of the cross-listing announcement events in the sample by host and home country and by the period of time. The US host market listings constitute 40.9% of the sample, while the UK host market – 18.9%. Three largest home markets presented are the UK (20.1% of the sample observations), Germany (14.6%) and France (9.8%); the primary listing destination market for these home markets is the US. The UK host market is the main listing venue for companies from Ireland and Russia.

Empirical Results

Shareholders' wealth effects of an international cross-listing

Consistent with the hypothesis *H1* that a cross-listing increases shareholders' wealth, it is found that, on average, European companies experience positive and statistically significant at 1% excess returns of 1.8% during the 21 working days around the announcement of a cross-listing with 52.0% of the cross-listing announcement events resulting in positive cumulative abnormal returns (Table V). Generally, the

magnitude of the average stock price reaction around the announcement of foreign listing detected in this study is lower than reported in earlier studies that used samples of US cross-listing events that take place before year 2000[9]. This is possibly due to variation in the wealth effects among different host markets and also due to important changes in the listing environment that took place in the 2000s and have affected motivations and outcomes of cross-listings.

Variation in shareholders' wealth effects by host markets

Shareholders' wealth effects of cross-listings for various host markets are expected to vary due to the differences in *host market characteristics*. Accordingly, before examining the variation in shareholders' wealth effects around cross-listings by host markets it is necessary to compare empirically market characteristics of the host markets in the sample. Table IV reports capital market size, liquidity, the level of information environment, disclosure, legal protection and economic development for the three host markets: Europe (excluding the UK), the UK and the US. As expected, the US market stands out by the superior level of economic development, stock market size and liquidity, and analyst coverage intensity. The UK follows the US in ranking by the level of economic development and by stock market size and liquidity. Contrary to the argument that the US has the highest level of disclosure and investor protection, it is found that, based on the accounting index from La Porta et al, anti-director rights index from Djiankov et al (2007), and the rule-of-law index from Kaufmann et al (2005), the UK has higher level of disclosure and investor protection compared to the US. European markets (excluding the UK), on average, are significantly smaller, less liquid, with lower level of economic development and lower quality of accounting disclosure compared to both the UK and the US markets. The quality of information environment, proxy by analyst coverage intensity, however, is the lowest in the UK, while high level of analyst coverage intensity in France, Germany and Netherlands contributes to the higher average information environment quality in Europe relative to the UK.

Table 2.6 reports excess returns around the cross-listing announcement and around the cross-listing event for the subsamples by host and home markets. Foreign listings within Europe do not have an impact on stock price nether around the announcement nor around the cross-listing event. British listings have a positive impact on the stock price - CARs during the 21 days around the cross-listing announcement are 2.7% significant at 5%. American listings result in positive and statistically significant excess returns around the cross-listing announcement (mean 3.3%) and during 3-months (-

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[9] For example, Foerster and Karolyi (1999) report the average daily abnormal returns of 0.35% around the cross-listing day. Also, Miller (1999) reports a positive abnormal return of 2.63% on the announcement of a US stock exchange listing.

2,0) months event window around the cross-listing event (mean 1.8%). These findings are consistent with hypothesis H2.1 that US cross-listings have most profound positive impact on stock price, followed by British cross-listings and then by other European listings.

Change in shareholders' wealth effects over time

Table VI reports excess returns around the cross-listing announcement and around the cross-listing event for the subsamples by different periods of time. For the total sample, cross-listing announcement abnormal returns are positive for events that take place before year 2000 (mean 1.3% significant at 5%) and in the 2000s (mean 2.5% significant at 10%). Lower statistical significance of abnormal returns for the 2000s subsample is driven by larger variation in individual CARs and outliers; further, only 48.5% of the cross-listing events from the 2000s result in positive abnormal returns around the announcement.

European cross-listings. Cross-listings within Europe have no positive shareholders' wealth effects for different subsample by period of time (Table VI). Moreover, European cross-listings in the 2000s are associated with significant negative returns (median) with only 37.5% of cross-listing stocks experiencing positive returns during 21 days around the cross-listing announcement. Supportive of the hypothesis H4.1b that the Euro introduction reduces the benefits of European listing, it is found that cross-listings within Eurozone are more likely to generate negative cumulative abnormal returns than European cross-listing before the euro introduction. However, statistical significant of this result is weak.

British cross-listings. It is found that a cross-listing in the UK has positive and statistically significant shareholders' wealth effects only in the 2000s: mean 5.1% significant at 5% around the cross-listing announcement. Shareholders' wealth effects of cross-listing events that take place before year 2000 are statistically insignificant. Further analysis of CARs by Main Market and AIM of the London stock exchange reveals that positive shareholders' wealth effects from cross-listings in the UK are driven by AIM listings. Contrary to the theoretical predictions (Hypothesis H4.2b), CARs around announcement of listing on AIM are 8.4% significant at 10% while CARs around announcement of listing on the Main Market are insignificant. Striking is the difference in types of companies that list on AIM and the Main Market: the average company value of AIM company in the sample is £17 million, while the average market value of the Main Market company - £844 million. Thus, potentially, the difference in excess returns between AIM and the Main Market listings is driven by company size.

US cross-listings. Announcement of a cross-listing in the US yields positive and statistically significant abnormal returns of around 3% both before and after year 2000; however, this number is statistically

significant only for American listings that take place before year 2000. Further analysis of CARs before and after SOX introduction reveals that US cross-listings before SOX adoption yield positive abnormal returns of 3.4% significant at 1%. For the post-SOX subsample cross-listing announcement CARs are positive but insignificant, with negative median of -0.8% significant at 5% level. This finding contradicts theoretical predictions (Hypothesis H4.2c) that SOX increases the benefits from US cross-listings due to enhanced investor protection. While Sarbanes-Oxley Act improves minority investor protection, it also tremendously increases the costs for listing companies, which can explain the negative contribution of SOX to shareholders' wealth impact of American listings[10]. This finding is in line with the argument of Zingales (2007) that for many foreign companies disclosure and compliance costs after SOX adoption outweigh the benefits from a cross-listing in the US. Due to significant fixed costs associated with the US cross-listing after the adoption of SOX it is possible that the negative effect of SOX is more profound for smaller companies.

Overall, there is strong empirical support for the hypothesis H3 that wealth effects of cross-listings on various host market varies over time. Furthermore, results of univariate analysis of the time-specific patterns of shareholders' wealth effects provide only weak support to the market segmentation theory and no support to the legal bonding theory. Importantly, the results highlight the relevance of the changes in listing environment in explaining the wealth benefits of cross-listings. The forthcoming **2.6.5** section on the change of the explanatory power of the determinants of shareholders' wealth effects of cross-listings over time continuous the discussion on how the introduction of euro in Europe and the adoption of SOX in the US have affected the sources of wealth around from cross-listings.

Determinants of shareholders' wealth effects of cross-listings

This section discusses the findings on the potential determinants of shareholders' wealth effects of cross-listings that are derived from various theoretical explanations. Expected impact of the determinants is summarised in Table I, while the variables are defined in Table II.

Summary statistics

Panel B of Table V reports summary statistics - number of observations, mean, median, and percentage of positive observations, of the explanatory and control variables. As expected, correlations between the host and home market returns, the measure of market segmentation, are the highest for listings within Europe (mean 0.66). In contrast to the argument that companies cross-list to bond to better legal

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[10] In this vein, Zhang (2007) and Litvak (2007) find significant negative abnormal returns around events leading to the passage of SOX and around announcements indicating that the Act will apply to cross-listed foreign companies.

environment, it is found that overall less than 50% of cross-listing events in the sample result in improvement in legal environment, quantified by both proxies for legal bonding, legal index and accounting standards index. The largest average improvement in legal environment occurs for British cross-listings: 68.8% and 97.2% of these listings result in exposure to higher accounting standards and better legal protection respectively. Regarding market liquidity, summary statistics shows that on average companies cross-list their stocks in more liquid market compared to the home market as the improvement in market liquidity variable has positive mean and median (0.72 and 0.30 respectively) and 65.2% of observations being positive. However, an improvement in liquidity mostly comes from British and American listings (81.8% and 80.0% share of positive observations respectively) and significantly less from European listings (only 38.4% of observations are positive). Even though the US is the most liquid host market in the sample (as reported in Table 1.4 and discussed in section 5.2.1), the largest improvement in liquidity occurs for British listings. Investor recognition is proxied by the quality of information environment, measured by country-level analyst coverage intensity. Table V reports that around half of cross-listing events in the sample result in improvement in information environment, with British and American listings resulting in improvement in information environment more frequently (around 54% positive observation for British and American listings vs. 43% for European listings). The largest improvement in analyst coverage intensity occurs for British listings. Regarding proximity between the host and the home markets, the US host market stands out by the average geographic distance between the capitals of the host and home markets – 6,286 km vs. 632 km and 707 km mean geographic distance for European and British listings respectively. Market timing is measured by improvement in GDP per capita between the host and home markets and also by DotCom bubble dummy variable. On average, companies cross-list their stocks in more developed markets, measured by GDP per capita, compared to the home market as indicated by positive mean and median of GDP per capita variable (0.21 and 0.12 respectively) with 69.7% of the observations being positive. Particularly, the improvement in GDP per capita is significant for American listings, 97.1% of which are associated with an improvement in the level of economic development. Furthermore, 8% of European cross-listings and 12% of the US cross-listings in the sample take place during the DotCom bubble. Regarding business strategy, cross-listing companies, on average, experience significant growth preceding the cross-listing: mean and median corporate sales growth for the total sample is 68% and 27% respectively. Also, on average 22% of cross-listings involve raising new equity capital; the percentage of capital-raising listings is the highest for the US subsample (30%). Company size, measure by market capitalization of the cross-listing stock, varies widely from 3.75 million GBP to 85.4 billion GBP. As expected, larger companies cross-list in the US (2.45 billion GBP median company size), while smaller

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companies choose the UK (0.6 billion GBP median company size). Furthermore, 53% of the cross-listing events in the sample are the first foreign listings (as opposed to consequent listings); the percentage of the first foreign listings is the highest for the UK subsample (69%). Lastly, Table V indicates that 28% of American listings have had OTC trading in the US prior the US stock exchange listing.

Multivariate regression analysis

Table VII reports the estimation results of regressions of CARs for 21-days (-10,10) days event window around the cross-listing announcement on a number of potential determinants of shareholders' wealth effects of cross-listings for base model specification (Models 1 and 2) and extended specification that includes interaction variables of the explanatory variables with host market dummy variables.

Market segmentation. Table VII reports that market correlation between the host and home market returns are negatively related to shareholders' wealth effects of cross-listings; however, this relationship is not statistically significant for the total sample (model 1). Based on the output of models 3 and 4 (Table VII), for European listings market correlations are a positive and significant determinant of CARs while for American listings – negative and statistically significant. The result for American listings is consistent with theoretical argument related to international portfolio diversification benefits and the market segmentation theory (Hypothesis H4.1a), while the result for European listings can be interpreted as in line with the proximity preference theory rather than the market segmentation theory.

Legal bonding. Improvement in legal environment is a positive determinant of shareholders' wealth effects of cross-listings in models 1 and 2 (Table VII) where legal environment is quantified by legal index. This relationship is particularly significant for British listings in models 3 and 4 (Table VII) where the legal environment is proxy by the accounting standards. These findings are supportive of Hypothesis H4.2a.

Liquidity. Based on the liquidity theory of shareholders' wealth effects of cross-listings, improvement in market liquidity should be associated with positive abnormal returns. However, no empirical evidence is found to support the hypothesis H4.3 as market liquidity improvement variable in the multivariate regressions has insignificant or negative coefficients (Table VII).

Investor recognition. Also opposite to expectations (Hypothesis H4.4), improvement in analyst coverage intensity variable has insignificant or negative coefficients (Table VII).

<u>Proximity preference</u>. Supportive of Hypothesis H4.5, geographic distance is negatively related to CARs around the cross-listing announcement for the total sample and sub-sample by host market; this relationship is statistically significant for the total sample (models 1 and 2, Table VII).

<u>Market timing</u>. Improvement in GDP per capital is a positive but statistically insignificant determinant of shareholders' wealth effects of cross-listings. Another proxy for the market timing theory of shareholders' wealth effects of international cross-listings, DotCom bubble dummy variable, has positive coefficient estimates for all sub-sample, and statistically significant for the total sub-sample (model 1, Table VII). These findings provide support to hypotheses H4.6a and H4.6b.

<u>Business strategy</u>. Consistent with the expectations (Hypothesis H4.7a), Table VII shows that there is a significant variation in CARs depending on the company's industry. Companies from natural resources sector industry experience positive and statistically significant at least at 5% abnormal returns around the cross-listing. Supportive of Hypothesis H4.7b, sales growth is found to be a positive and significant predictor of the cross-listing CARs only for British and American listings (model 4). Also Table VII reports that capital raising activity in the foreign market is positively and statistically significantly associated with CARs only for British listings (models 3 and 4), consistent with Hypothesis H4.7c.

<u>Other determinants</u>. Consistent with expectations, Table VII reports that smaller companies experience larger CARs around the cross-listing announcement. This result is particularly strong both by the magnitude and statistical significance for British cross-listings (models 3 and 4). Contrary to expectations and findings of univariate analysis, first foreign listing variable is insignificant in multivariate regression (Table VII). Finally, prior-OTC variable, which indicates that the stock had been traded on OTC market in the US prior to the exchange listing, has a negative coefficient, in line with expectations, but statistically insignificant.

To summarize, analysis of the joint significance of the potential determinants of shareholders' wealth effects of cross-listings for the total sample reveals that improvement in legal environment, listing during DotCom bubble and the company's affiliation with natural resources industry are the positive and significant determinants, while geographic distance and company size are the negative and significant determinants. Therefore, there is empirical confirmation of the following theories on shareholders' wealth effects of cross-listings on various host markets: legal bonding, market timing, proximity preference and business strategy. Even after controlling for the potential determinants, host UK and host US dummy variables have positive and statistically significant coefficient estimate that can be interpreted as in line with the signalling theory of shareholders' wealth effects of cross-listings (Fuerst, 1998). Furthermore, multivariate analysis of the determinants by host market reveals that

correlation between the host and home market returns is the positive and significant determinant of CARs around European listing; improvement in legal environment, company growth and capital raising activity (positive) and company size (negative) are significant determinants of CARs around British listings. This means that market segmentation, legal bonding and business strategy are empirically valid explanations of shareholders' wealth effects of British cross-listings. Finally, correlation between the host and home market returns (negative) and company growth (positive) are found to be significant determinants of CARs around American listings. In other words, shareholders' wealth effects of American listings can be explained by market segmentation and business strategy theories.

Change of the explanatory power of the determinants over time

Arguably, significant capital market developments, such as Euro introduction in the EU and the adoption of SOX in the US, have changed cross-listing net benefits and have affected the determinants of shareholders' wealth effects of cross-listing. In addition to the univariate analysis of the variation of excess returns over time, the impact of Euro and SOX is evaluated using multivariate regression analysis[11]. The output is reported in Tables VIII and IX accordingly.

Impact of Euro on the determinants of the wealth effects of European cross-listings

Table VIII reports that, the determinants of shareholders' wealth effects of foreign listings differ significantly for European cross-listings that take place before and after introduction of Euro. Before Euro introduction, only listing in a foreign country with higher level of economic development is associated with significant change in stock's market price. While shareholders' wealth impact of cross-listings within Euro zone can be explained by the improvement in legal environment that contributes positively and by market correlation between the host and home market returns and geographic distance that contribute negatively; also smaller and higher-growth stocks have higher CARs around the cross-listing announcement within Euro zone.

Impact of SOX on the determinants of shareholders' wealth effects of the US cross-listings

The most significant determinant of the price reaction to American listing before SOX introduction is company size (negative contribution), i.e. smaller stocks have experienced larger abnormal returns around the cross-listing. Also, CARs before SOX introduction are positively related to the company growth and are higher for listings that took place during the bullish period of the DotCom bubble. The

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[11] Multivariate regression analysis on the impact of AIM would be statistically unreliable due to the limited number of AIM listing events in the sample.

significant determinants of shareholders' wealth effect of American listing after SOX adoption are completely different. In contrast, larger companies from developed countries experience abnormal positive returns around announcement of listing in the US after year 2002, which is in line with findings of Litvak (2008) that SOX particularly negatively affects smaller and riskier companies and companies from countries with strong investor protection. It is also found that improvement in legal environment is a positive factor contributing to cross-listing CARs after SOX adoption. Finally, an exchange listing in the US that takes place after SOX adoption negatively affects stock price for companies that have had their stock traded in the US OTC market prior to the exchange listing as suggested by the negative and significant at 5% coefficient estimate on the 'prior US OTC' dummy variable.

The empirical evidence confirms that shareholders' wealth effects of international cross-listings change over time subject to important capital market developments that affect listing and trading environment. More specifically, shareholders' wealth effects of foreign listing and the explanatory power of its determinants are affected by the introduction of Euro for European foreign listings, the introduction of AIM[12] for British foreign listings and the adoption of SOX for the US foreign listings.

Overall, the empirical results on the determinants of wealth effects of the cross-listings indicate the following. The market segmentation theory holds only for American listings and cross-listings within Euro zone. Although less than half of cross-listings in the sample take place on the market with legal environment better than that of the home market, it is found that, in line with the legal bonding theory, the improvement in investor protection contributes to the positive abnormal returns around a cross-listing. This relationship particularly holds for British listings and listings within Euro zone. Liquidity improvement via a cross-listing on a more liquid market seems to be a considerable motivation of the cross-listing decision. However, the degree of the improvement in market liquidity cannot explain shareholders' wealth effects of a cross-listing, i.e. there is no empirical support for the liquidity theory for neither of the host markets in the sample. An improvement in information environment determines positive shareholders' wealth effects of a cross-listing, supportive of the investor recognition theory, only for American listings that take place after the SOX adoption. Geographic distance is a significant negative determinant of shareholders' wealth effects of cross-listing, in line with the proximity preference theory, particularly, for the Euro zone listings and for British listings. It is found that a cross-listing on the market that economically outperforms the home market and on the market during the period of high investor sentiment, i.e. 'hot' market, is associated with an increase in stock shareholders'

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[12] The impact of AIM is evaluated using unvariate analysis only due to insufficient number of observations for multivariate analysis. Accordingly, no conclusions on the impact of AIM on the explanatory power of the determinants of the value effects of cross-listing can be drawn.

wealth, supportive of the market timing theory. In line with the business strategy theory, it is found that a significant variation in the abnormal returns around cross-listing can be explained by the firm-specific factors: high-growth companies, companies associated with natural resources industries and companies that raise new equity capital in the UK experience higher positive returns around the cross-listing announcement. Finally, company size is found to be a significant negative determinant of the market reaction to foreign listing, particularly, for Eurozone listings, for the AIM listings and for American listings that take place before the SOX adoption. Noticeably, company size becomes a positive determinant of shareholders' wealth effects of cross-listing for American listings that take place after the adoption of SOX, which can be attributed to the relatively higher costs of compliance with SOX for smaller companies. In the same way, higher listing and compliance costs of the US exchange listing after the adoption of SOX can explain the negative contribution to shareholders' wealth effects of an up-grade from an OTC listing to an exchange listing in the US.

Conclusions

This study compares shareholders' wealth effects of foreign listings in the US, in the UK and within Europe by European companies and examines the determinants of the cross-sectional variation of these effects. First, it is empirically shown that international cross-listings have a positive and significant impact on shareholders' wealth of around 1.8% cumulative abnormal returns during 21 around the cross-listing announcement. Second, it is shown that shareholders' wealth effects of cross-listing vary significantly among the destination markets. A cross-listing in the US market, which is the most economically and financially developed, liquid and information-rich market in the sample, results in the largest stock price increase – around 3.3% CARs around the cross-listing announcement. It is followed by a cross-listing in the UK that results in, on average, 2.7% CARs around the announcement; while a cross-listing within Europe has an insignificant effect on the stock price.

Third, the study contributes to the literature by evaluating how shareholders' wealth effects around cross-listings change over time. No evidence is found that average excess returns around an international cross-listing are diminishing over time. However, there is evidence found of the increased variation in the cross-listing shareholders' wealth effects after year 2000. Thus, a cross-listing in the US yields positive and significant excess returns if it takes place before year 2000 and insignificant returns if it takes place in the 2000s. In contrast, a British cross-listing generates positive and significant abnormal returns for the listing company only if it takes place in the 2000s. These findings are in line

with the argument of Zingales (2007) that the US capital market is losing its competitive edge. European listings, however, both before and after the year 2000, on average, have no impact on the stock returns. Nevertheless, European listings that take place in the 2000s are more likely to generate losses for shareholders of the cross-listing company. Time-specific variation in shareholders' wealth effects are driven by the significant capital market developments in Europe, the UK and the US. Empirically, no evidence is found that the introduction of the Euro affects shareholders' wealth impact of a cross-listing within Europe. In contrast to the expectations, it is found that significant positive excess returns around British listings in recent years are driven by the excess returns around AIM listings, while the excess returns around Main Market listings are insignificant. Lastly, in contrast to the legal bonding argument, it is found that SOX negatively affects shareholders' wealth effects of cross-listings in the US.

Finally, this study evaluates joint significance of alternative theories of the sources of shareholders' wealth effects of international cross-listings and, more importantly, show that the significance of these alternative theories changes over time subject to the important changes in the cross-listing environment such as the introduction of Euro in the EU and the adoption of SOX in the US. Empirically the market segmentation theory of shareholders' wealth effects of cross-listings holds only for American listings and cross-listings within Euro zone. The legal bonding theory is valid for British listings and listings within Euro zone. No empirical support is found for the liquidity theory for neither of the sub-samples. The investor recognition theory holds only for American listings that take place after the SOX adoption. The proximity preference is a valid explanation for the Euro zone listings and for British listings. There is empirical evidence that the market timing theory has an explanatory power of shareholders' wealth effects of cross-listings. Also strong empirical support is found for the business strategy theory.

To conclude, while on average a cross-listing of a European company is a shareholders' wealth-enhancing corporate event, there is a large variation in market reaction to a foreign listing. A company that is deciding to list on a foreign exchange in order to improve stock shareholders' wealth must take into account market conditions, industry-specific trends and more importantly, carefully weigh the listing costs, both direct and indirect, against potential benefits.

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Table I. Potential determinants of shareholders' wealth effects of international cross-listing

Proxy variable	Level of the variable	Expected impact on the stock price
Market segmentation		
Correlation of the host and home market index returns	Country- specific	+
Different periods of time – before and after year 2000	Time- specific	Stronger positive before 2000
For Eurozone listings – before and after Euro introduction	Time- specific	Stronger positive before Euro introduction
Legal bonding		
Improvement in accounting standards from cross-listing	Country- specific	+
Improvement in investor protection from cross-listing	Country- specific	+
UK listings: Main Market listings vs. AIM listings	Time- specific	Stronger positive for Main Market listings
US listings: before and after SOX adoption	Time- specific	Stronger positive after SOX adoption
Liquidity		
Improvement in market liquidity from cross-listing	Country- specific	+
Investor recognition		
Improvement in analyst coverage intensity from cross-listing	Country- specific	+
Proximity preference		
Geographic proximity measure (distance in km)	Country- specific	-
Market timing		
Improvement in GDP per capita from cross-listing	Country- specific	+
DotCom bubble	Time- specific	+
Business strategy		
Sales growth	Company- specific	+
Industry	Company- specific	variation
Capital raised	Listing- specific	+
Other determinants		
Company size	Company- specific	+
First foreign listing	Listing- specific	+
US listings: prior OTC listing	Listing- specific	-

Table II. Explanatory and control variables

Proxy variable	Variable level	Definition	Data source
Market segmentation			
Correlation of the host and home market index returns	Country-specific	Correlation of the home and host market returns is calculated using monthly return of DS Total Market indices over 3 years before the cross-listing event	DS Total Market indices return data are from DataStream
Eurozone listings: before and after Euro introduction	Time-specific	dummy variable =1 if the listing takes place within Eurozone, i.e. both host and home markets are within the Eurozone after Euro introduction; =0 otherwise	Euro introduction dates are from European Commision (1)
Legal bonding			
Improvement in accounting standards from cross-listing	Country-specific	An improvement in accounting standards is a positive difference between the host market accounting standards index and the accounting standards the stock was exposed to prior to the cross-listing, i.e. maximum of the home market accounting standards index and any other foreign host market accounting standards indices where the stock was cross-listed previously (2)	Accounting standards index data are from La Porta et al (1998)
Improvement in investor protection from cross-listing	Country-specific	Legal protection is proxied by legal index calculated as the product of the anti-director rights index and the rule-of-law index. An improvement in legal protection is a positive difference between the host market accounting standards index and the accounting standards the stock was exposed to prior to the cross-listing, i.e. maximum of the home market accounting standards index and any other foreign host market accounting standards indices where the stock was cross-listed previously (2)	Anti-director-rights index is from Djiankov et al (2007), the Rule-of-law index is from Kaufmann et al (2005)
UK listings: Main Market listings vs. AIM listings	Time-specific	dummy variable =1 if the listing takes place in the UK on AIM of LSE; =0 otherwise	London stock exchange
US listings: before and after SOX adoption	Time-specific	SOX dummy variable =1 if the host market is the US and the listing that takes place in year 2002 or after; =0 otherwise	dataset
Liquidity			
Improvement in market liquidity from cross-listing	Country-specific	Market liquidity is the annual market turnover ratio calculated as the value of all trades of the DS Total Market index over the total market capitalization of the index for the year preceding the cross-listing. An improvement in market liquidity is a positive log-difference between the host market liquidity and the market liquidity the stock was exposed to prior to the cross-listing, i.e. maximum of the home market liquidity and any other foreign host market liquidity where the stock was cross-listed previously (2)	Market capitalization and turnover by value for DS Total Market indices data are from DataStream
Investor recognition			
Improvement in analyst coverage intensity from cross-listing	Country-specific	Analyst coverage intensity is calculated as the number of 1-year EPS analyst estimates per company for each country-year proceeding cross-listing. An improvement in analyst coverage intensity is a positive log-difference between the host market analyst coverage intensity and analyst coverage intensity that the stock was exposed to prior to the cross-listing, i.e. maximum of the home market analyst coverage intensity and any other foreign host market analyst coverage intensity where the stock was cross-listed previously (2)	Data on 1-year EPS analyst forecasts are from I/B/E/S database

Table II continued

Proximity preference			
Geographic distance	Country-specific	Natural logarithm of the distance in km between the capital cities of host and home markets	Sarkissian and Schill (2004)
Market timing			
Improvement in GDP per capita from cross-listing	Country-specific	GDP per capita is calculated as 3-year moving average of GDP per capita in current international dollars for 3 years proceeding cross-listing. An improvement in GDP per capita is a positive log-difference between the host market GDP per capita and GDP per capita that the stock was exposed to prior to the cross-listing, i.e. maximum of the home market GDP per capita and any other foreign host market GDP per capita where the stock was cross-listed previously (2)	GDP per capita in current international dollars data are from UN statistics
DotCom bubble	Time-specific	Dummy variable that equals one if the listing takes place during the period of time from Jan 1999 to Mar 2000 and zero otherwise	dataset
Business strategy			
Sales growth	Company-specific	Company total sales (revenue) 3-year growth for the preceding year	Company total sales data are from DataStream
Industry	Company-specific	Industry dummy variables based on the FTSE/DJ Industry Classification; Basic Materials, Consumer Goods, or Industrials are further combined into industry group 'Manufacturers'; Oil & Gas and Utilities are further combined into industry group 'Natural resources'	Stock level FTSE/DJ Industry Classification data are from DataStream
Capital raised	Listing-specific	Dummy variable that equals one if the cross-listing involves issue of new equity and zero otherwise	Data on capital raising activity is from BNY and Citibank ADRs databases and Thomson One Banker Equity Deals database
Other determinants			
Company size	Company-specific	Log of the company's market capitalization (market value of common equity) in GB pounds prior to the cross-listing	Market capitalization and exchange rates to GB pounds data are from DataStream
First foreign listing	Listing-specific	Dummy variable that equals one if the listing is the first foreign listing by the company and zero otherwise	dataset
Control variables			
For US listings - prior OTC listing	Listing-specific	Dummy variable that equals one if the listing takes place in the US and the company has had US OTC trading prior to the cross-listing and zero otherwise	dataset

(1) http://ec.europa.eu/economy_finance/euro/index_en.htm

(2) improvement in the variable X from cross-listing in n-th foreign host market is calculated as follows:

$$\Delta X_n = \max \left[(X_n - \max (X_{home}, X_1, \ldots, X_{n-1})), 0 \right]$$

Table III. Sample description

This table provides sample distribution by host and home countries and by host country and period of time. Home country is the country of domicile of the cross-listing company. Host country is the cross-listing destination country. Any European country that contributes at least on cross-listing observation is included in the sample. In addition to European countries the US is included in the sample as host country. The total sample consists of 254 cross-listing announcement events.

	Host country																				
	AUSTRIA	BELGIUM	BULGARIA	DENMARK	FINLAND	FRANCE	GERMANY	IRELAND	ITALY	LUXEMBURG	NETHERLANDS	NORWAY	POLAND	PORTUGAL	SPAIN	SWEDEN	SWITZERLAND	UK	US	TOTAL	% of Total
Home country:																					
AUSTRIA	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	5	2.0
BELGIUM	0	0	0	0	0	2	0	0	0	3	3	0	0	0	0	0	0	1	1	10	3.9
CZECHREP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4
DENMARK	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	5	2.0
FINLAND	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	5	2.0
FRANCE	0	5	0	0	0	1	1	0	1	0	0	0	0	0	1	1	2	2	11	25	9.8
GERMANY	3	0	1	0	0	4	0	0	3	0	1	0	0	0	3	1	0	6	15	37	14.6
GREECE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1.2
HUNGARY	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	1	0	4	1.6
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	3	18	7.1
ITALY	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	4	7	2.8
LUXEMBURG	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0.8
NETHERLANDS	0	3	0	0	0	2	4	0	0	0	0	0	0	0	0	0	3	2	7	21	8.3
NORWAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	6	10	3.9
POLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4
RUSSIA	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	2	12	4.7
SPAIN	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	1	2	6	2.4
SWEDEN	0	1	0	3	1	1	1	0	0	0	1	1	0	0	0	0	3	1	3	16	6.3
SWITZERLAND	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3	8	14	5.5
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.4
UK	0	1	0	0	0	6	3	4	0	0	3	0	0	0	0	0	1	0	33	51	20.1
Period of Time:																					
1982-1989	0	3	0	1	1	7	7	0	0	0	1	1	0	0	0	3	3	7	13	47	18.5
1990-1999	3	7	0	2	1	5	9	2	5	3	6	0	0	0	4	1	4	17	45	114	44.9
2000-2007	1	0	1	0	0	7	2	2	1	1	1	0	3	2	0	0	2	24	46	93	36.6
TOTAL	4	10	1	3	2	19	18	4	6	4	8	1	3	2	4	4	9	48	104	254	100
% of Total	1.6	3.9	0.4	1.2	0.8	7.5	7.1	1.6	2.4	1.6	3.1	0.4	1.2	0.8	1.6	1.6	3.5	18.9	40.9	100	

Table IV. Host markets characteristics: descriptive statistics

This table reports mean and median values of market characteristics for three host markets: European markets (excluding the UK), the UK and the US. Market liquidity is measured by the annual market turnover ratio calculated as the value of all trades of the DS Total Market index over the total market capitalization of the index for the year preceding the cross-listing. Analyst coverage intensity is calculated as the number of 1-year EPS analyst estimates per company for each country-year proceeding cross-listing. Capital market size is the total market value of the DS Total Market index in GB pounds in the year proceeding cross-listing. Accounting standards index is from La Porta et al (1998). Legal protection is quantified by legal index calculated as the product of the anti-director rights index from Djiankov et al (2007) and the rule-of-law index from Kaufmann et al (2005). GDP per capita is calculated as 3-year moving average of GDP per capita in current international dollars for 3 years proceeding cross-listing.

	Host market								
	Europe			UK			US		
Host market characteristics	N	Mean	Median	N	Mean	Median	N	Mean	Median
Capital market size, billion GBP	100	175.8	52.4	48	992.0	1,115.4	104	5,221.9	6,716.2
Market liquidity	75	560.7	463.4	45	845.5	674.1	104	1085.6	941.3
Analyst coverage intensity	89	37.96	22.91	45	20.12	18.79	104	25.39	24.04
Accounting standards	94	65.1	64.0	48	78.0	78.0	104	71.0	71.0
Legal protection	101	5.03	4.62	48	8.75	8.75	104	4.77	4.77
GDP per capita, current USD	102	20,390	18,466	48	22,799	23,315	104	28,516	30,198

Table V.   Dependent and explanatory variables: descriptive statistics

The table reports descriptive statistics - number of observations, mean, median, and percentage of positive observations, of the dependent variable (Panel A) and also of the explanatory and control variables (panel B) for the total sample of 254 cross-listing announcement events and for subsamples by host market. Dependent variable is cumulative abnormal returns (CARs) estimated as a sum of market-adjusted returns during 21-days (-10,10) days event window around the cross-listing announcement. All explanatory and control variables are defined in Table II.

Theory	Variable	All host markets							Europe				UK				US			
		N	Mean	Median	Min	Max	St Dev	>0, %	N	Mean	Median	>0, %	N	Mean	Median	>0, %	N	Mean	Median	>0, %
	Panel A. Dependent variable																			
	CARs	254	0.018***	0.008	-0.283	0.794	0.107	52.0	102	-0.002	-0.002	47.1	48	0.027**	0.015	58.3	104	0.033**	0.014	53.8
	Panel B. Explanatory and control variables																			
Market segmentation	Market correlation	243	0.63	0.67	-0.05	0.94	0.18		94	0.66	0.69		48	0.61	0.63		101	0.61	0.65	
Legal bonding	Legal protection improvement	229	3.51	0.0	0.0	27.00	5.10	41.5	101	0.58	0.00	36.6	48	4.02	2.52	68.8	104	0.41	0.00	24.0
Legal bonding	Accounting standards improvement	229	3.51	0.0	0.0	27.00	5.10	46.7	91	1.81	0.00	26.4	36	9.19	6.50	97.2	102	3.01	0.00	47.1
Liquidity	Market liquidity improvement	201	0.72	0.3	0.0	4.43	1.04	65.2	73	0.34	0.00	38.4	33	1.50	1.07	81.8	95	0.74	0.46	80.0
Investor recognition	Analyst coverage improvement	231	0.33	0.0	0.0	2.60	0.50	49.8	88	0.34	0.00	43.2	44	0.39	0.23	54.5	99	0.29	0.04	53.5
Proximity preference	Geographic distance	240	7.33	7.1	5.1	9.02	1.31		98	6.24	6.14		40	6.41	6.14		102	8.74	8.73	
Proximity preference	Geographic distance, km	240	3,048	1,209	170	8,261	2,829		98	632	433		40	707	463		102	6286	6198	
Market timing	GDP per capita improvement	254	0.21	0.12	0.0	1.59	0.31	69.7	102	0.10	0.00	48.0	48	0.33	0.04	56.3	104	0.27	0.26	97.1
Market timing	DotCom bubble	254	0.08	0.0	0.0	1.00	0.27		102	0.08	0.00		48	0.00	0.00		104	0.12	0.00	
Business strategy	Sales growth	211	0.68	0.27	-11.90	19.94	2.11		84	0.97	0.27		37	0.15	0.29		90	0.62	0.31	
Business strategy	Capital raised	254	0.22	0.00	0.00	1.00	0.41		102	0.12	0.00		48	0.25	0.00		104	0.30	0.00	
Control variable	Company size	254	7.07	7.44	1.32	11.35	2.07		102	7.01	7.32		48	6.01	6.38		104	7.63	7.80	
Control variable	Company size, million GBP	254	5,484	1,702	3.75	85,366	10,630		102	3,893	1,515		48	3,079	589		104	8,154	2,448	
Control variable	First foreign listing	254	0.53	1.00	0.00	1.00	0.50		102	0.46	0.00		48	0.69	1.00		104	0.52	1.00	
Control variable	US listings: prior OTC	254	0.11	0.00	0.00	1.00	0.32		102	0.00	0.00		48	0.00	0.00		104	0.28	0.00	

Table VI. Shareholders' wealth effects of cross-listing over time

The table reports mean cumulative abnormal returns around cross-listing announcement for total sample of 254 cross-listing announcement events and for subsamples by different periods of time. Abnormal returns are market-adjusted returns with DataStream Total Market index returns in local currency used as a proxy for market returns. Cumulative abnormal returns are calculated as sum of abnormal returns over the 21-days (-10, 10) days event window. Panel A also reports the number of observations for each subsample and t-statistics (in parenthesis). Additionally Panel A reports median, minimum and maxim value, and percentage of positive observations. '***' indicates significant at 1%, '**' indicates significant at 5% and '*' indicates significant at 10%.

Subsample	N	Mean	Median	Min	Max	>0, %
All host markets	254	**0.018**** (2.63)	0.008 (0.57)	-0.28	0.79	52.0
before 2000	157	**0.013**** (2.12)	0.013 (2.16)	-0.24	0.21	54.1
2000s	97	**0.025*** (1.74)	-0.001 (0.09)	-0.28	0.79	48.5
Host Europe	102	-0.002 (-0.28)	-0.002 (0.8)	-0.28	0.21	47.1
before 2000	78	0.003 (0.37)	0.003 (0)	-0.24	0.21	50.0
2000s	24	-0.019 (-1.03)	**-0.006***** (15.76)	-0.28	0.12	37.5
before Euro	91	-0.004 (-0.45)	-0.001 (0.72)	-0.28	0.21	47.3
Eurozone	11	0.011 (0.6)	-0.005 (2.09)	-0.10	0.12	45.5
Host UK	48	**0.027**** (2.11)	**0.015**** (6.93)	-0.21	0.32	58.3
before 2000	24	0.003 (0.22)	-0.002 (0)	-0.21	0.13	50.0
2000s	24	**0.051**** (2.59)	**0.040***** (28.02)	-0.10	0.32	66.7
Main Market	39	0.014 (1.15)	**0.012**** (4.12)	-0.21	0.20	56.4
AIM	9	**0.084*** (2.08)	**0.070***** (28.1)	-0.07	0.32	66.7
Host US	104	**0.033**** (2.49)	0.014 (1.37)	-0.20	0.79	53.8
before 2000	55	**0.031**** (2.9)	**0.028***** (13.86)	-0.17	0.20	61.8
2000s	49	0.035 (1.37)	-0.010 (2.59)	-0.20	0.79	44.9
before SOX	83	**0.034**** (2.67)	**0.023**** (4.22)	-0.17	0.55	56.6
after SOX	21	0.029 (0.69)	**-0.008**** (5.15)	-0.20	0.79	42.9

Table VII. Determinants of shareholders' wealth effect of cross-listing

Variable	Model 1	Model 2	Model 3 Variable	Model 3 Variable*Host Europe	Model 3 Variable*Host UK	Model 3 Variable*Host US	Model 4 Variable	Model 4 Variable*Host Europe	Model 4 Variable*Host UK	Model 4 Variable*Host US
Host Europe	-0.024	-0.002	**-0.049****				-0.02			
	(-0.96)	(-0.17)	(-2.09)				(-1.44)			
Host UK	0.068	**0.078*****	-0.008				0.022			
	(1.34)	(2.98)	(-0.28)				(0.97)			
Host US	0.02	**0.035***	-0.018				0.013			
	(0.78)	(2.05)	(-0.65)				(0.59)			
Market Correlations	-0.005			**0.181*****	0.182	**-0.201***		**0.195*****	0.148	**-0.191***
	(-0.09)			(2.76)	(1.40)	(-2.27)		(2.99)	(1.22)	(-2.64)
Accounting standards improvement	-0.001	-0.001		0.003	**0.009***	-0.003		0.002	**0.01*****	-0.004
	(-0.66)	(-0.70)		(0.96)	(2.16)	(-0.85)		(0.84)	(3.83)	(-1.04)
Legal protection improvement	**0.014***	**0.015***								
	(1.79)	(2.37)								
Market liquidity improvement	-0.003			-0.02	**-0.032***	-0.001		-0.008	**-0.033***	0.003
	(-0.27)			(-0.89)	(-1.82)	(-0.05)		(-0.41)	(-1.87)	(0.22)
Analayst coverage intensity improvement	-0.017	-0.014		-0.009	**-0.349***	0.005		-0.012	**-0.447*****	0.004
	(-0.86)	(-0.95)		(-0.37)	(-1.95)	(0.15)		(-0.53)	(-3.48)	(0.13)
Geographic distance	**-0.04***	**-0.027***		-0.018	-0.056	-0.054				
	(-2.21)	(-2.16)		(-0.93)	(-0.93)	(-0.21)				
GDP per capita improvement	0.09	0.064								
	(1.10)	(1.33)								
DotCom bubble	**0.057***	0.052		0.024		0.075		0.027		0.073
	(1.68)	(1.48)		(0.52)		(1.35)		(0.58)		(1.47)
Sales growth	0.004	0.004		0.005	0.005	**0.023***		0.003	**0.006***	**0.023***
	(0.81)	(0.87)		(0.86)	(1.30)	(1.75)		(0.66)	(2.32)	(1.72)
Industry Financials	0.009		0.034							
	(0.31)		(1.29)							
Industry Healthcare	0.008		0.011							
	(0.18)		(0.34)							
Industry Manufacturing	0.024		**0.036***							
	(1.03)		(1.80)							
Industry Resources	**0.067***	**0.052***	**0.10*****				**0.069***			
	(1.95)	(2.41)	(2.69)				(2.16)			
Industry Technology	0.026		0.056							
	(0.61)		(1.46)							
Capital raised	-0.002			0.004	**0.26*****	-0.029		0.001	**0.252*****	-0.018
	(-0.06)			(0.08)	(5.58)	(-0.93)		(0.01)	(5.26)	(-0.65)
Company size	-0.007	**-0.007***		-0.005	**-0.017***	-0.005		-0.004	**-0.016***	-0.007
	(-1.51)	(-1.83)		(-0.68)	(-2.05)	(-0.63)		(-0.64)	(-2.25)	(-0.92)
First foreign listing	0.005			-0.013	-0.01	0.016				
	(0.31)			(-0.60)	(-0.21)	(0.66)				
US prior OTC	-0.033	-0.030				-0.031				-0.024
	(-1.40)	(-1.35)				(-1.11)				(-1.02)
Adj-R2	*0.033*	*0.0858*	*0.110*				*0.150*			
N	*154*	*180*	*154*				*154*			

The table reports the estimation results of regressions of CARs for 21-days (-10,10) days event window around cross-listing announcement on a number of potential determinants of shareholders' wealth effects of cross-listing in the multivariate framework. CARs are calculated as sum of abnormal returns over 21-days event window. Abnormal returns are market-adjusted returns with DataStream Total Market index returns in local currency used as a proxy for market returns. The explanatory variables are defined in

Table II. Regressions specifications are as follows. Model 1and Model 2: $CAR_i = \Sigma_{n=EU,UK,US} \beta_n Host_n + \Sigma_j \beta_j X_{i,j} + \varepsilon_i$, and Model 3 and Model 4: $CAR_i = \Sigma_{n=EU,UK,US} \beta_n Host_n + \Sigma_j \Sigma_{n=EU,UK,US} \beta_{j,n} (Host_n X_{i,j}) + \varepsilon_i$, where $Host_n$ - host market dummy variable; X_i - an explanatory variable or, in case of market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size variables, a host market- adjusted variable - ε_j from the regression $Var_j = \Sigma_{n=EU,UK,US} \beta_n Host_n + \varepsilon_j$. Standard errors, reported in parentheses, are robust to autocorrelation and heteroskedasticity (Newey-West). '***' indicates significant at 1%, '**' indicates significant at 5% and '*' indicates significant at 10%.

Table VIII. Impact of Euro on the determinants of shareholders' wealth effect of cross-listing

	Model 1				Model 2			
	Variable	Variable *Host Europe* before Euro	Variable *Host Europe* Euro zone	Variable *Host UK	Variable *Host US	Variable	Variable *Host Europe* before Euro	Variable *Host Europe* Euro zone	Variable *Host UK	Variable *Host US
Host Europe	-0.009 (-0.5)					0.002 (0.26)				
Host UK	0.05 (1.31)					0.025 (0.91)				
Host US	-0.012 (-0.64)					0.006 (0.41)				
Market Correlations		-0.035 (-0.49)	**-0.237*** (-2.7)	0.158 (1.63)	-0.203** (-2.4)		-0.041 (-0.59)	**-0.248** (-2.26)	0.155 (1.45)	-0.197** (-2.4)
Legal protection improvement		0.007 (0.54)	**0.055*** (3.53)	0.013 (1.45)	-0.01 (-0.48)		0.007 (0.57)	**0.043*** (3.16)	0.012 (1.18)	-0.009 (-0.44)
Analayst coverage intensity improvement		0.01 (0.4)	-0.024 (-1.6)	0.031 (0.47)	0.01 (0.26)		0.012 (0.52)	-0.013 (-0.8)	0.03 (0.45)	0.007 (0.19)
Geographic distance		-0.007 (-0.42)	**-0.069*** (-2.78)	-0.168*** (-4.76)	-0.097 (-0.37)		-0.007 (-0.42)	**-0.048** (-2.2)	-0.152*** (-3.93)	-0.117 (-0.44)
GDP per capita improvement		**0.356** (2.45)	0.016 (0.37)	0.05 (0.44)	0.032 (0.4)		**0.359*** (2.94)	-0.032 (-0.89)	0.029 (0.26)	0.037 (0.49)
DotCom bubble		0.055 (1.01)			0.084* (1.71)		0.056 (0.98)			0.086* (1.71)
Sales growth		0.002 (0.55)	**0.029** (2.07)	-0.002 (-0.61)	0.024* (1.75)		0.002 (0.43)	0.013 (1.36)	-0.001 (-0.41)	0.024* (1.81)
Industry Financials	0.022 (0.99)									
Industry Healthcare	0.002 (0.06)									
Industry Manufacturing	0.01 (0.53)									
Industry Resources	**0.098*** (3.13)					**0.083*** (3.02)				
Industry Technology	0.022 (0.62)									
Capital raised		-0.002 (-0.04)	0.066 (1.59)	0.219*** (3.00)	-0.026 (-0.87)		-0.001 (-0.02)	0.041 (0.89)	0.198** (2.55)	-0.016 (-0.57)
Company size		0.004 (0.35)	**-0.027*** (-2.76)	0.0 (0.03)	-0.009 (-1.1)		0.006 (0.73)	**-0.023** (-2.47)	0.005 (0.89)	-0.01 (-1.21)
First foreign listing		-0.007 (-0.25)	**-0.048*** (-1.80)	-0.048 (-1.48)	0.017 (0.74)					
Adj-R2		*0.0954*					*0.1286*			
N		184					184			

The table reports the estimation results of regressions of cumulative CARs for 21-days (-10,10) days event window around cross-listing announcement on a number of potential determinants of shareholders' wealth effects of cross-listing in the multivariate framework. CARs are calculated as sum of abnormal returns over 21-days event window. Abnormal returns are market-adjusted returns with DataStream Total Market index returns in local currency used as a proxy for market returns. The explanatory variables are defined in Table II. Regression specification is as follows: $CAR_i = \Sigma_{n=EU,UK,US} \beta_n Host_n + \Sigma_{Deuro} \beta_{EU,Deuro}(Host_{EU} X_{i,j} D_{euro}) + \Sigma_j \Sigma_{n=UK,US} \beta_{j,n} (Host_n X_{i,j}) + \varepsilon_i$, where $X_{i,j}$ - an explanatory variable or, in case of market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size variables, a host market- adjusted variable - ε_j from the regression $Var_j = \Sigma_{n=EU,UK,US} \beta_n Host_n + \varepsilon_j$; D_{euro} - one of the two dummy variables related to Euro introduction – $D_{beforeEuro}$ and $D_{Eurozone}$. Standard errors, reported in parentheses, are robust to autocorrelation and heteroskedasticity (Newey-West). '***' indicates significant at 1%, '**' indicates significant at 5% and '*' indicates significant at 10%.

Table IX. Impact of SOX on the determinants of shareholders' wealth effect of cross-listing

	Model 1					Model 2			
	Variable	variable *Host Europe	variable *Host UK	variable* Host US *prior SOX	variable* Host US *post SOX	Variable	variable *Host Europe	variable *Host UK	variable* Host US *prior	variable* Host US *post SOX
Host Europe	-0.022 (-1.07)					-0.025** (-2.04)				
Host UK	0.005 (0.13)					-0.013 (-0.70)				
Host US	0.0 (0.02)					0.025 (1.39)				
Market Correlations							0.193*** (3.13)	0.319** (2.81)	-0.035 (-0.38)	-0.131 (-1.06)
Accounting standards improvement							0.002 (0.79)	0.006* (1.70)	-0.005 (-1.42)	**0.01*** (1.66)
Legal protection improvement		0.005 (0.7)	0.011 (1.12)	0.009 (0.56)	0.087 (1.49)					
Market liquidity improvement							-0.008 (-0.32)	0.013 (0.84)	0.002 (0.16)	-0.031 (-1.23)
Analayst coverage intensity improvement		0.017 (1.23)	-0.018 (-0.47)	-0.017 (-0.8)	**0.205*** (2.32)					
Geographic distance		-0.019 (-1.37)	-0.117*** (-3.52)	-0.169 (-0.78)	0.825 (1.64)					
GDP per capita improvement		0.379*** (3.01)	0.007 (0.09)	0.09 (1.26)	**-0.756*** (-2.98)					
DotCom bubble		0.024 (0.5)		0.057 (1.11)			0.025 (0.54)		0.067 (1.44)	
Sales growth							0.003 (0.72)	0.005 (1.37)	0.031 (1.60)	0.001 (0.23)
Industry Financials	0.028 (1.27)									
Industry Healthcare	0.034 (1.19)									
Industry Manufacturing	0.027 (1.29)									
Industry Resources	0.086*** (3.07)					0.035 (1.29)				
Industry Technology	0.052 (1.49)									
Capital raised		0.023 (0.74)	0.103* (1.75)	-0.032 (-1.07)	-0.052 (-0.68)					
Company size		0.001 (0.11)	-0.004 (-0.49)	-0.015 (-1.54)	**0.017*** (1.65)		-0.002 (-0.37)	-0.009 (-1.02)	**-0.022*** (-2.15)	0.002 (0.20)
First foreign listing		-0.007 (-0.38)	-0.014 (-0.46)	0.028 (1.34)	**0.069*** (1.83)					
prior US OTC				-0.016 (-0.58)	-0.047 (-1.55)				-0.001 (-0.02)	**-0.055*** (-2.27)
Adj-R2	0.0754					0.2114				
N	218					155				

The table reports the estimation results of regressions of cumulative abnormal returns for 21-days (-10,10) days event window around cross-listing announcement on a number of potential determinants of shareholders' wealth effects of cross-listing in the multivariate framework. CARs are calculated as sum of abnormal returns over 21-days event window. Abnormal returns are market-adjusted returns with

DataStream Total Market index returns in local currency used as a proxy for market returns. The explanatory variables are defined in Table II. Regression specification is as follows:

$$CAR_i = \Sigma_{n=EU,UK,US} \beta_n Host_n + \Sigma_{Dsox} \beta_{US,Dsox}(Host_{US} X_{i,j} D_{SOX}) + \Sigma_j \Sigma_{n=EU,UK} \beta_{j,n} (Host_n X_{i,j}) + \varepsilon_i$$

where $X_{i,j}$ - an explanatory variable or, in case of market correlation, improvement in accounting standards, improvement in legal investor protection, improvement in GDP per capita, geographic proximity, and company size variables, a host market- adjusted variable - ε_j from the regression

$Var_j = \Sigma_{n=EU,UK,US} \beta_n Host_n + \varepsilon_j$; D_{SOX} - one of the two dummy variables related to SOX adoption - $D_{beforeSOX}$ and $D_{afterSOX}$. Standard errors, reported in parentheses, are robust to autocorrelation and heteroskedasticity (Newey-West). '***' indicates significant at 1%, '**' indicates significant at 5% and '*' indicates significant at 10%.