

Version 29/02/2012



The ESPON 2013 Programme

TIGER
Territorial Impact of Globalization for Europe and its Regions

Applied Research Project 2013/1/1

Draft Final Scientific Report

Working paper 10
"European stock markets in the arena of financial globalization"

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In the framework of the global financial integration, the deregulation process, IT advances and the recent financialization of the world economy favours transnational financial flows. As a result, the high mobility and ubiquity of capital raise the question of the relevance of geography and places (O'Brien, 1992, Cairncross, 1997). Theoretically, it is possible to raise capital and to list equities on any listing places worldwide. However, far from forming a fluid, smooth and uniform world, the stock exchange industry generates high disparities, creates or revives new boundaries, while simultaneously strengthening the spatial concentration of financial actors within global cities (Sassen, 1991, 2002), and reinforcing the macro-regionalization pattern of globalization.

The aim of this descriptive study is to observe the impact of globalization on European actors, financial networks and territories, as revealed by stock exchange activities. To do so, the first section introduces the methodology and the scientific positioning, explaining the relevance of cross-border listings to analyse the situation of Europe within global financial flows. The second section attempts to assess the position of European regions, cities and stock markets in the globalization of capital raising and corporate issuers listing strategies. The analysis focuses on the attractiveness, competitiveness and openness of Europe and its stock markets, compared to other macro-regions. Moreover, the context of financial crisis questions its consequences on European stock markets' attractiveness, once replaced in the wider structural changes of the industry. Finally, the third section aims at highlighting the differentiated and unequal impacts of the global financial integration on territorial structures of Europe. Not only cross-border listings and global financial flows draw new frontiers within Europe, but they also rank listing places into hierarchies, classify stock markets according to their connectedness, the industry's specialization of their list or even the scope of their attractiveness. Moreover, the aim of this study is descriptive, not prescriptive. However, the findings might suggest path to convert those descriptions into actions.

1 – METHODOLOGY AND SCIENTIFIC POSITIONING: STUDYING THE PLACE OF STOCK MARKETS THROUGH CROSS-BORDER LISTINGS

1.1. Conceptual positioning

Scientific analyses that deal with stock markets often use market capitalization to assess their economic power and attractiveness in a worldwide perspective. However, this indicator is not perfectly adequate, insofar as capitalization statistics are 'stock data', but not 'flow data'. Moreover, market capitalizations of stock exchanges most often consider domestic markets and do not take into account foreign equities or related products. For these reasons, it is difficult to assess the place of European stock markets in the context of financial global integration by focussing only on this local attribute. To best fit the reality of the financial space -- made of places and flows --, it seems crucial to identify an indicator that combines local and relational attributes. We propose to mix local and relational approaches, using cross-border listings as that key indicator to examine the data base built for 115 stock markets.

1.2. Why are cross-border listings relevant?

The relevance of such an indicator can be justified thanks to the real and the long-lasting financial links it represents, the different dimensions that explain their direction and the attractiveness of the different stock markets as well. First, within the framework of financial globalization and deregulation of financial markets, cross-border listings enable firms to raise

capital and to list their shares on foreign markets, allowing their issuers to benefit from the savings of foreign investors. More fundamentally, cross-border listings build long-range and international financial links between the corporate issuers and their listing places. Let me highlight that the present paper focuses on corporate issuers who list their shares abroad, equities and related products. Secondly, cross-border listings embody the different components that explain the attractiveness of stock markets and confidence in them: the liquidity of the market organised by the stock exchange; the technical and socio-economic context offered by the financial centre or city, and the exchange regulation and laws promulgated by the State -- and EU as far as European stock markets are concerned. The attractiveness of a stock market is dependent upon the combined advantages of its stock exchange, city and country – in other words, either local and relational attributes. Thirdly, cross-listings involve real and long-lasting financial relationships between localised economic players. When a firm raises capital, one can observe two flows: the firm deposits its shares on the foreign market, and in return, it receives the investors' capital. This financial relation is an enduring one since the equity trading on the foreign market contributes to the valuation of the firm, which would be taken into account, for instance, in case of merger or public takeover bid. Last but not least, this quantitative indicator -- the number of cross-border listings -- allows a comparison of the different stock markets, considering both their attractiveness and their integration within the arena of financial globalization. The more foreign equities there are on the listing, the more the market might be considered as open to globalization. This makes the number of cross-border listings an effective proxy for assessing the scope of the European markets attractiveness and their place within the worldwide hierarchy of financial places.

1.3. Source, data base and methodology

We have created a data base of cross-border listings showing all active foreign equities or related products, listed on exchange-regulated markets around the world. The foundation of this data base partly rests upon the information provided by Datastream software, available from Thomson Reuters, a specialist group in the field of dissemination of financial information. The use of Datastream enables one to review details for each security, in the geographic domain and with respect to economic factors, such as capitalization or turnover. However, since some stock exchanges are not represented in the Datastream database, we have completed the data base by consulting official Internet websites of stock exchanges, and by contacting directly the data officers of the stock exchanges (through emails or phone calls) to obtain a list of foreign issuers. When available other information was collected as well: ISIN code, the type of stock, start date, stock status and the ICB code. We would like to point out that at this point, fifteen stock exchanges not covered by Thomson Reuters Datastream database host foreign equities. Although those stock exchanges are mainly limited to narrow markets, some others, such as Bolsa Mexicana de Valores list a great number of foreign equities.

The data were uploaded and collected between August and October 2011 and cover all issuers whose shares were listed in - or prior to – 2010, and which were active in 2011. The final dataset includes 2763 cross-border listings, the issuers' operational headquarters of which are located in 112 countries. The shares are listed on 66 stock exchanges and 79 listing places. Indeed, some stock exchange have several listing places, ie. NYSE Euronext and Nasdaq OMX Group. Amongst the whole universe of stock exchange, some list only domestic shares and do not host any foreign equities or related products. As a consequence, they are not taken into account in our data base.

The main innovation of our analysis is the use of these stock market indicators which are rarely studied in the literature concerning globalization or in ESPON studies. Another originality is the choice of the geographic indicator to determine the origin of the issuers. The official listings of stock markets usually provide the country of incorporation of listed firms, or at least the place where their shares were issued. This information might be supplied by different indicators, amongst which the ISIN code of equities, but the stock markets do not use systematically this identification code. However this methodological choice implies the possibility of a misleading origin, amongst which many tax havens -- where professional taxes are lower and regulation less restrictive than elsewhere -- or any intermediate country where equities might be issued. This official origin might distort the perception of the real word-wide circulation of capital. That is the reason why we completed the data base by the location of the listed issuers' operational headquarters, since most of the decisions (strategy of the networked firm or allocation of the raised capital) are made. Hence, it provides a better understanding of the listing functioning, economic partnership and spatial preferences. Thus, the operational residence seems suitable to study the effective economic and listing dyads (operational headquarters/listing place). Furthermore, this methodological choice fits the new "OECD Benchmark Definition of Foreign Direct Investment" (OECD, 2008, Terrien, 2009) that recommends to identify the origin of the FDI according to final investors and spill over corrected data of FDI flows. The aim is to circumvent as much as possible the bias of tax havens. This methodology intends to become the principal international norm for the dissemination of statistics related to FDI. The philosophy of our approach is then very closed.

2 – EUROPE WITHIN GLOBAL FINANCIAL INTEGRATION: ATTRACTIVENESS AND COMPETITIVENESS

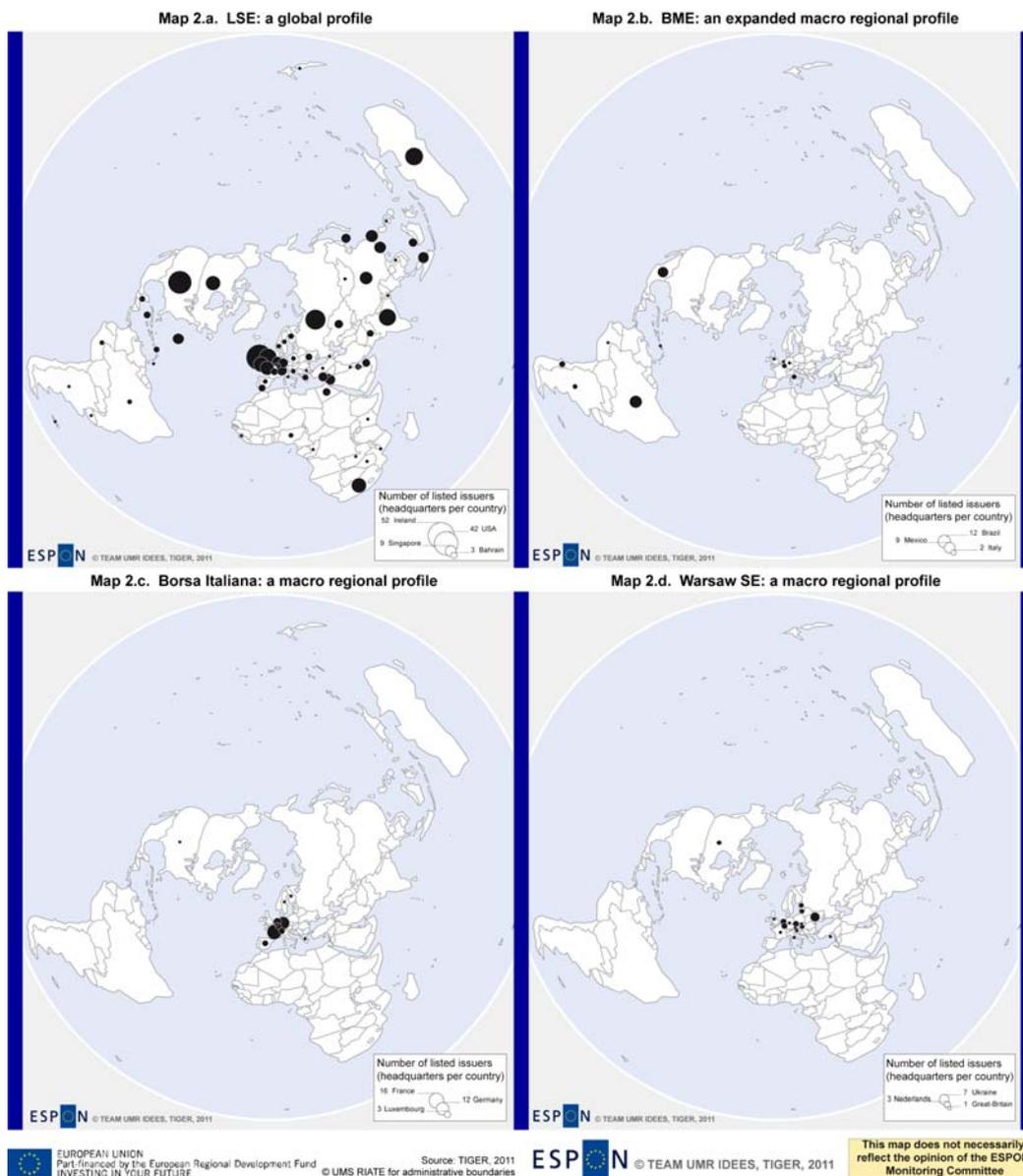
2.1. Unequal attractiveness of stock markets

The analyses we made using the 2010-2011 data base highlight some characteristics of European stock markets¹ and their place within the global financial integration. First they confirm our previous findings obtained thanks to a previous study (Sainteville, 2008): the unequal attractiveness of European stock markets, which involves also the competitiveness of their stock exchanges, their financial centres and the trade conditions – for example, national regulations and technology environment. Thanks to its reputation and to the liquidity of its market, the London Stock Exchange attracts corporate issuers from all over the world and we can affirm the global profile of its stock market (map 1a). On the other hand, listing places whose reputation is less well-established have a smaller area of attractiveness. For instance, Borsa Italiana² or Warsaw Stock Exchange list and quote European equities almost exclusively. Their profile of attractiveness is macro-regional (map 1c and 1d). A mixed profile is exemplified by BME, *Bolsas y Mercados Españoles*. Although it is largely regional in character, it also includes issuers from South and Central America -- a feature of long-standing cultural links and the mutual confidence that issuers and investors feel one for each other (map 1b). This expanded macro regional profile and those preferential relationships rely on a different kind of "proximities" (Sainteville, 2009).

Maps 1: Attractiveness profiles of 4 European stock exchanges (2010)

¹ In this study, "European stock markets" include stock markets and issuers from EU, plus those of Iceland, Norway, Liechtenstein and Switzerland (ESPON).

² Borsa Italiana is a part of London Stock Exchange Group since 2007.



Linkages between stock exchanges and their issuers might be favoured by cultural affinities; a common official language, shared colonial experience, other historical links, and, in the case of Islamic Finance, religious affinities. Let's point out that, according to the data base, the listing of NYSE-Euronext Paris hosts issuers from Subsaharian Africa, while Latin America is the origin of more than four-fifth of foreign companies listed on Spanish stock exchanges (map 1b). Spatial proximity also favours the neighbouring cross-border listings. All the more because shorter physical distance is coherently correlated with macro regional associations (such as NAFTA, EU) and might be strengthened by some institutional and supranational economic policy. The regulatory principle of "European Passport" is a good example. Beyond spatial proximities and cultural affinities, the economic familiarity is also relevant. It is also worth highlighting that financial preferences generally match trade partnerships. Lastly, mutual agreements signed by the different institutions (stock exchanges and other economic actors) enable mutual access to the associated markets both for issuers and members.

According to the data base, very few listings show a global pattern. Outside Europe, those only examples concern two New York stock markets: Nasdaq and NYSE Euronext. The attractiveness of emerging countries' stock markets, including Singaporean SGX, South African JSE, or Mexican BMV present an expanded macro-regional profile; whereas the gravitational strength of stock exchanges that list few foreign equities is more limited and does not exceed a restricted macro-regional framework. This macro-regional pattern appears to be a common intermediate stage towards the globalization of capital raising and equity listing activity.

2.2. Competitiveness of European stock markets and their integration within the financial globalization

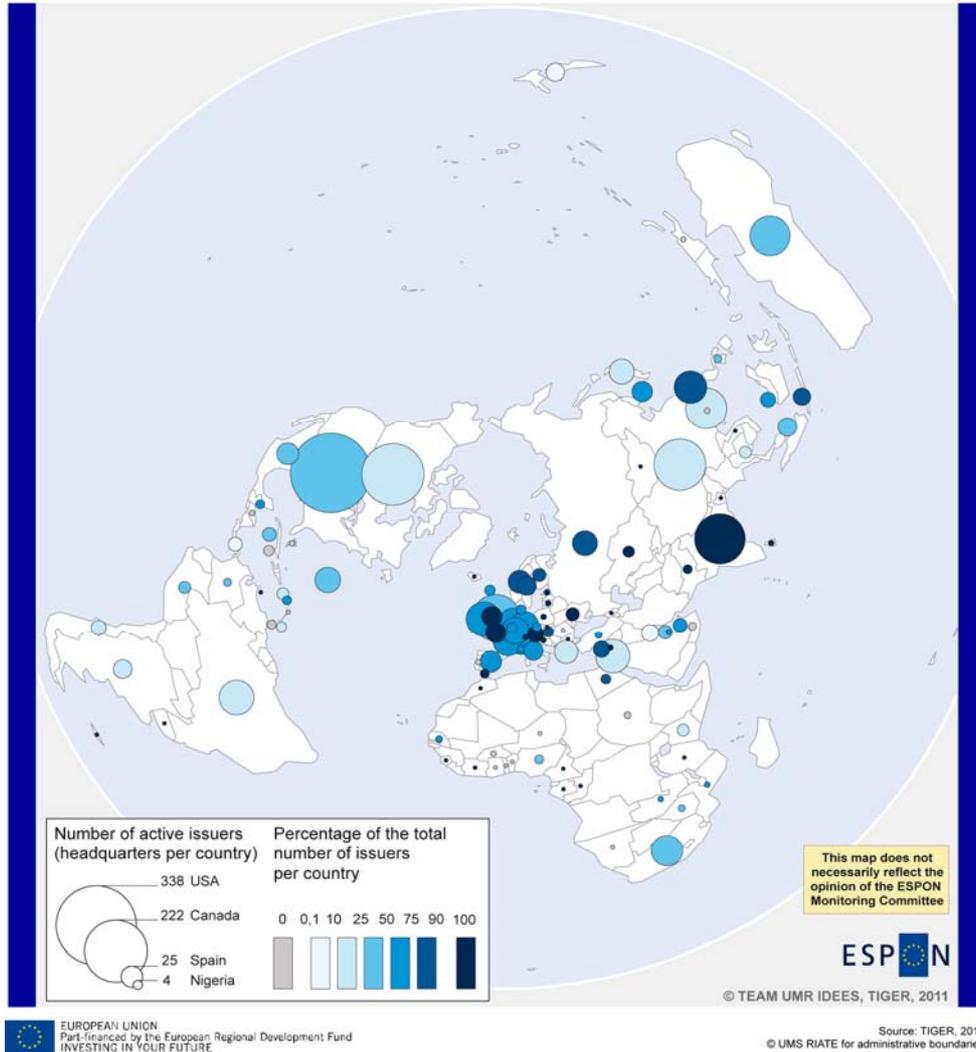
In the context of financial globalization, stock markets attractiveness is always comparative. This brings up the question of the competitiveness of European stock markets and their integration within the global financial flows and networks. The following maps show the location of issuers' operational headquarters that list shares on foreign stock exchanges. More precisely, the map 2 highlights the percentage of European stock markets chosen by firms in their selection of places to list their shares.

The first conclusion to be drawn is that Europe attracts issuers from all over the world with the exception of firms coming from a few countries such as Namibia, Sudan or Oman. Those African companies prefer listing their shares on neighbouring stock exchanges. By comparison with NAFTA and ASEAN plus Three regions, the coverage of the aggregated European stock markets seems to be the widest. Out of the 2763 issuers who list their shares abroad, 43% are hosted on European markets, 36,5% on NAFTA listing places, 7% on ASEAN Plus Three stock exchanges and 13,5% on other markets in the world. The comparable map for NAFTA (map 3) points out the lack of interest to corporate issuers from Africa, Eastern Europe or Persian Gulf countries for American listing places. This more limited profile can be explained by both geopolitical reasons and by the more restrictive listing conditions required by the American stock markets. For instance, the expansive listing costs might be prohibitive, while tough regulations like the Sarbanes-Oxley Act³ can dissuade foreign issuers.

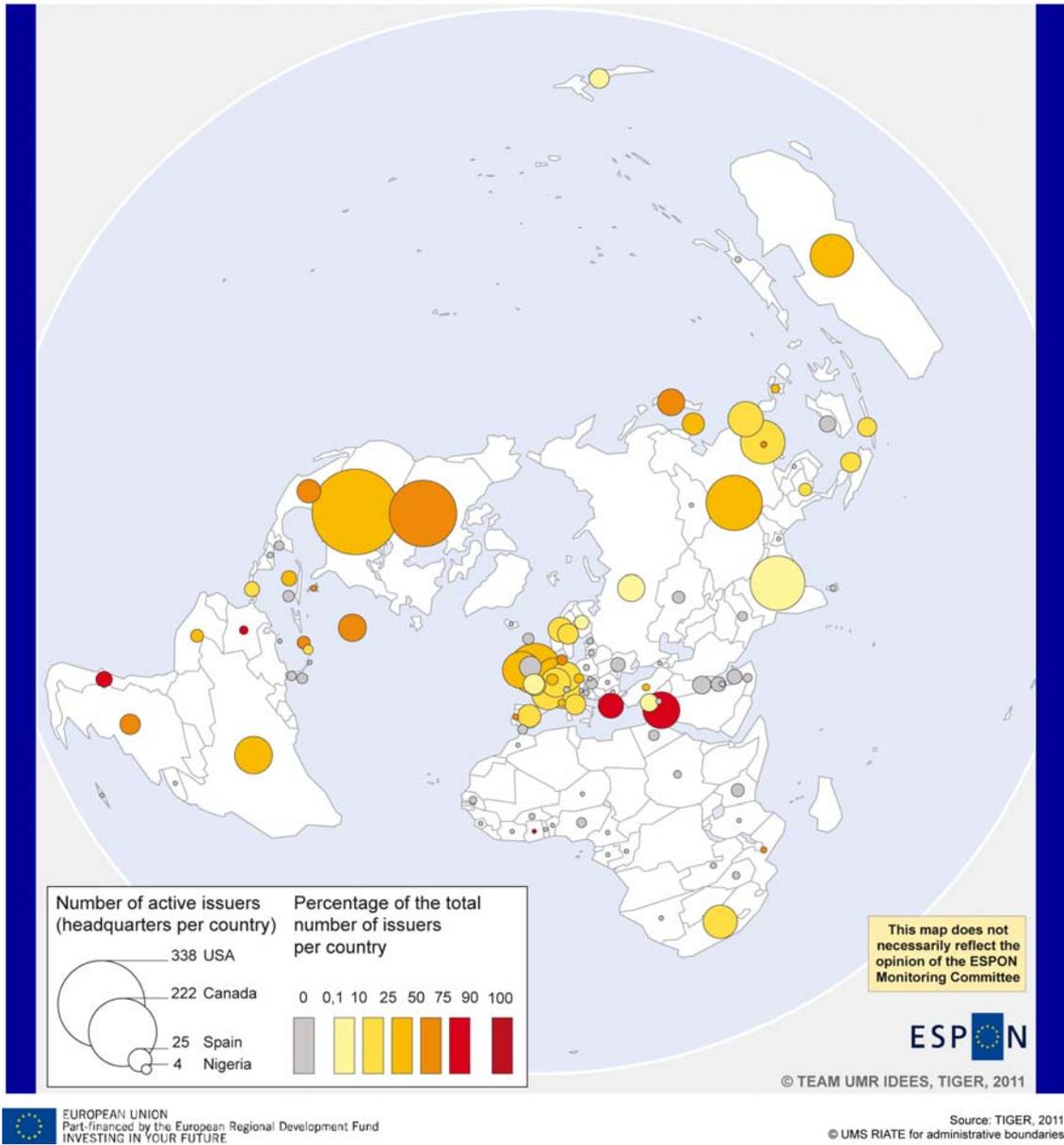
At the same time, the scope of recruitment of Asian stock markets is even more spatially restricted (map 4). Foreign western issuers who get their shares listed in Asia come from only ten countries. This group's share of the total listing in Asian stock markets never reaches 10% of the total of the issuers listed abroad in each country of origin. Almost no corporate issuers come from Latin America, Africa, Eastern Europe and Gulf region. Nevertheless since 2009, Beijing authorities planned to transform Shanghai into an international financial centre, which would be able to rival New York, London or even Hong Kong. One of the key measures is the opening of Chinese stock markets to foreign issuers, which ought to list their certificates and Chinese Depository Receipts on International Boards.

Map 2. Percentage of the foreign issuers listed on European stock exchanges

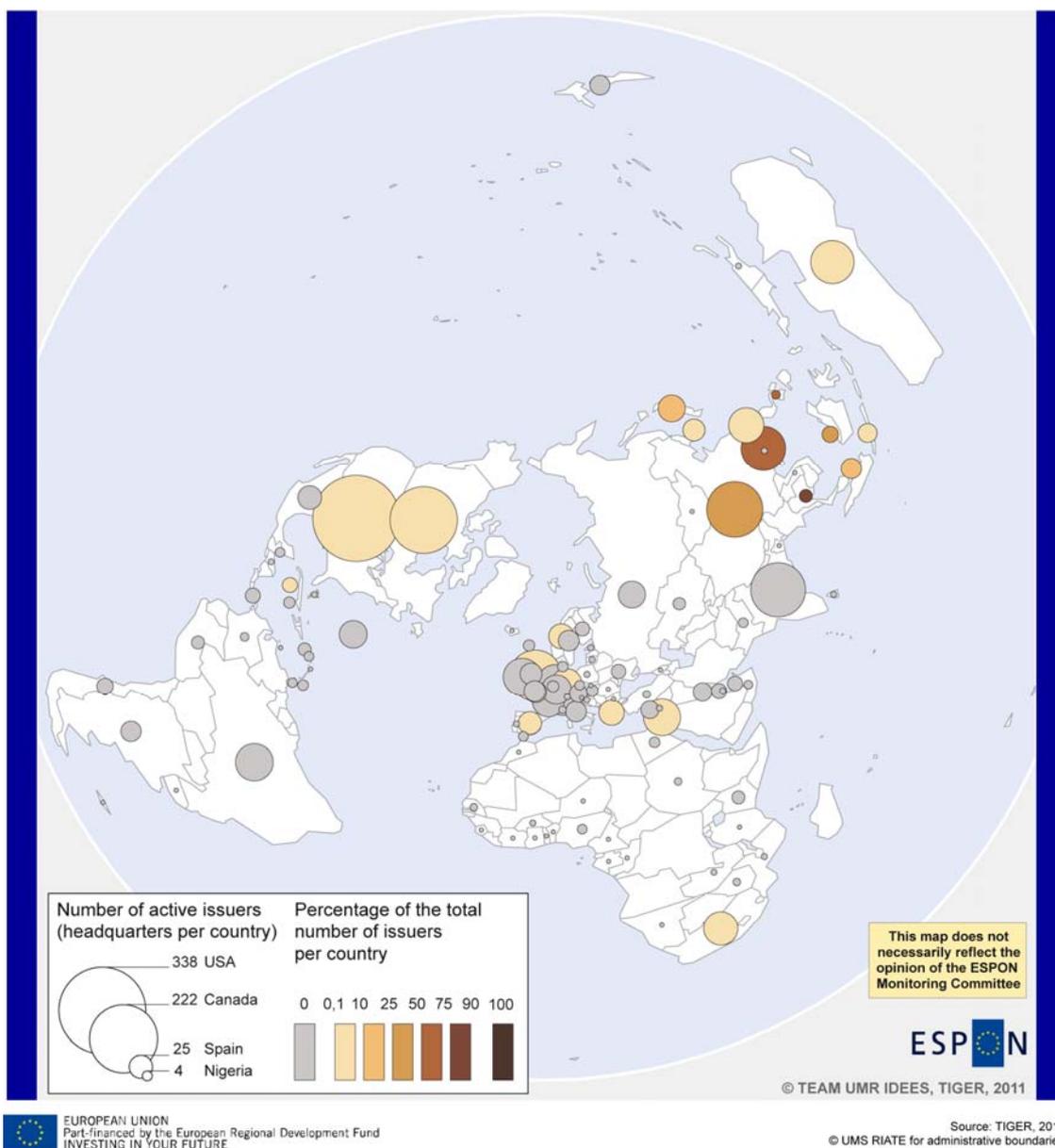
³ The Sarbanes-Oxley Act of 2002 has reformed the public companies accounting and the investor protection system, after number of major corporate and accounting scandals including Enron, Tyco International or WorldCom as well.



Map 3. Percentage of the foreign issuers listed on NAFTA stock exchanges

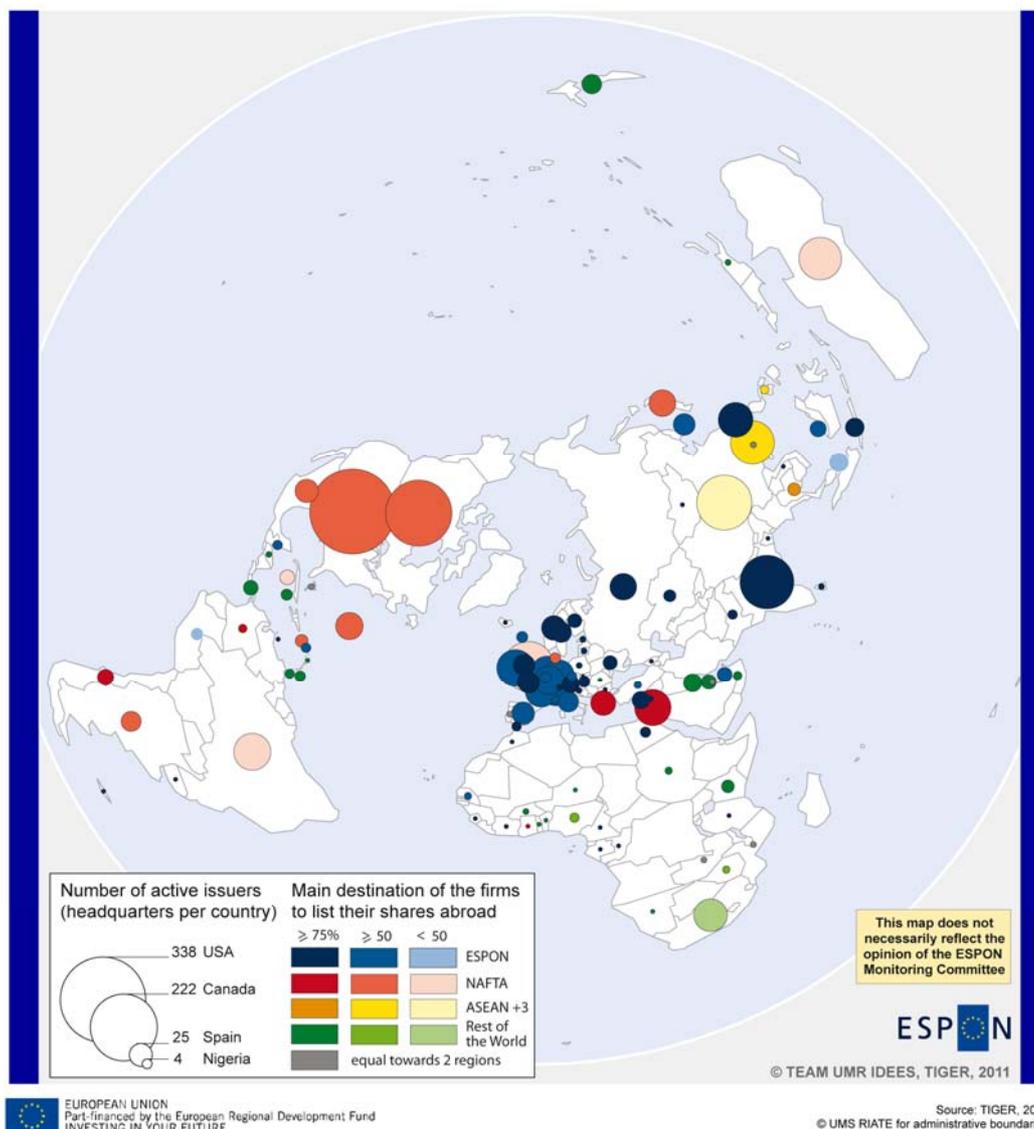


Map 4. Percentage of the foreign issuers listed on ASEAN + 3 stock exchanges



The comparative approach of the map 5 helps us to determine the attractiveness and the competitiveness of European stock markets on a world-wide scale, compared to the gravitational strength of American and Asian stock markets. Indeed, this map points out the main listing region of the issuers who list their shares abroad, according to their operational residence. The map confirms the regional pattern of capital-raising globalization. To a large extent, European issuers prefer to get their shares listed on European markets (map 5). Firms coming from North and Eastern Europe are particularly representative of this strategy. For instance, more than 75% of Scandinavian issuers who list their shares abroad have chosen a European stock market. As far as world-wide scale is concerned, the attractiveness of European stock markets prevails also for most Russian and African issuers. Some special cases also deserve our attention, such as the large number of Indian subcontinent issuers who list their shares on Luxembourg stock exchange; and, there is a strong preference by Israeli issuers for USA listing places. This financial link might reflect both the favoured political relationships and the specialization of the Nasdaq stock exchange that mainly lists technology and health care industries equities. Those two industries represent more than 70% of the Israeli issuers listed on Nasdaq.

Map 5. Attractiveness of listing regions: main destination of foreign listed issuers



The preference of the firms from United Arab Emirates towards European markets is built upon the strong links established with the London financial centre which has become a de-facto standard for Islamic finance in Europe (Bassens D., Derruder B., Witlox F., 2010). In order to attract UAE sovereign wealth funds and Persian Gulf listings, London was the first financial centre that have adapted to market *halâl* or permissible products. The LSE has launched two specific markets for *sukuk* trades (Islamic bonds) and has also set up tax exemptions. However, issuers from the neighbouring countries of Kuwait, Bahrain or even the Sultanate of Oman are mainly oriented towards other markets of the “rest of the world”, which do not recover from EU, NAFTA or ASEAN Plus Three regions. Issuers from these Arabian countries are predominantly listed on the Borse Dubai, notably on the Dubai Financial Market (DFM). Borse Dubai Group aspires to become the standard stock market and financial platform for this Middle East region and Islamic finance.

Corporate issuers listed either on NAFTA or on ASEAN Plus Three stock markets also present relational preferences. More than 75% of the companies coming from the Philippines, Thailand and China-Hong Kong list their shares on an Asian stock exchange, predominantly on the Singapore Exchange (SGX). Singapore already lists more foreign issuers' equities than the Japanese stock exchanges. As far as the hierarchical classification of stock markets is concerned, the SGX market seems thereby more open to global financial integration than the Japanese exchanges, despite the fact that Tokyo financial centre is often considered as the principal Asian "global city" (Sassen, 1991, 2002).

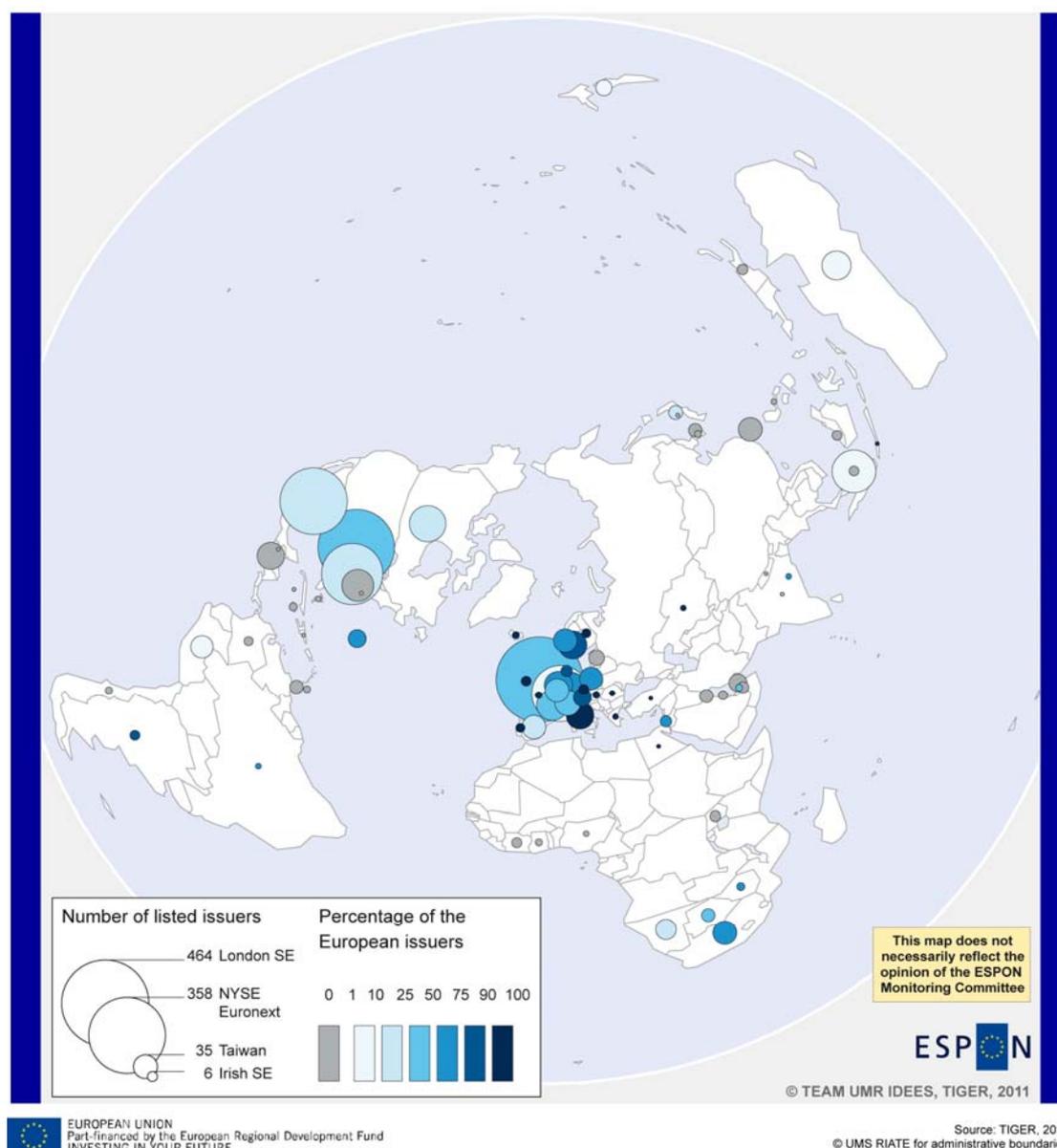
It should be highlighted also that corporate issuers from some emerging countries -- South Africa, Brazil or China -- have not necessarily made homogeneous choices, since their listing preferences concern less than half of their companies. After all, map 5 gives a glimpse of the places where European stock markets might focus their efforts to improve their attractiveness on local issuers.

2.3. Capital raisings of European firms on foreign stock markets

Maps 7 spotlight the preferential "listing regions" of the European issuers. To draw these maps, the listing places were gathered into regional groups, based on WUTS 2 -- World Unified Territorial System -- classification. The map 7a indicates the first preferential listing region, whereas the adjoining one displays the regions to which the European firms are secondarily attracted (map 7b). The main conclusion to be drawn confirms the macro-regional pattern of the globalized capital raising activity: the European issuers strongly prefer to list their shares on European markets. This first result is not surprising since, conversely, European stock exchanges attract European companies by a majority as well (map 6).

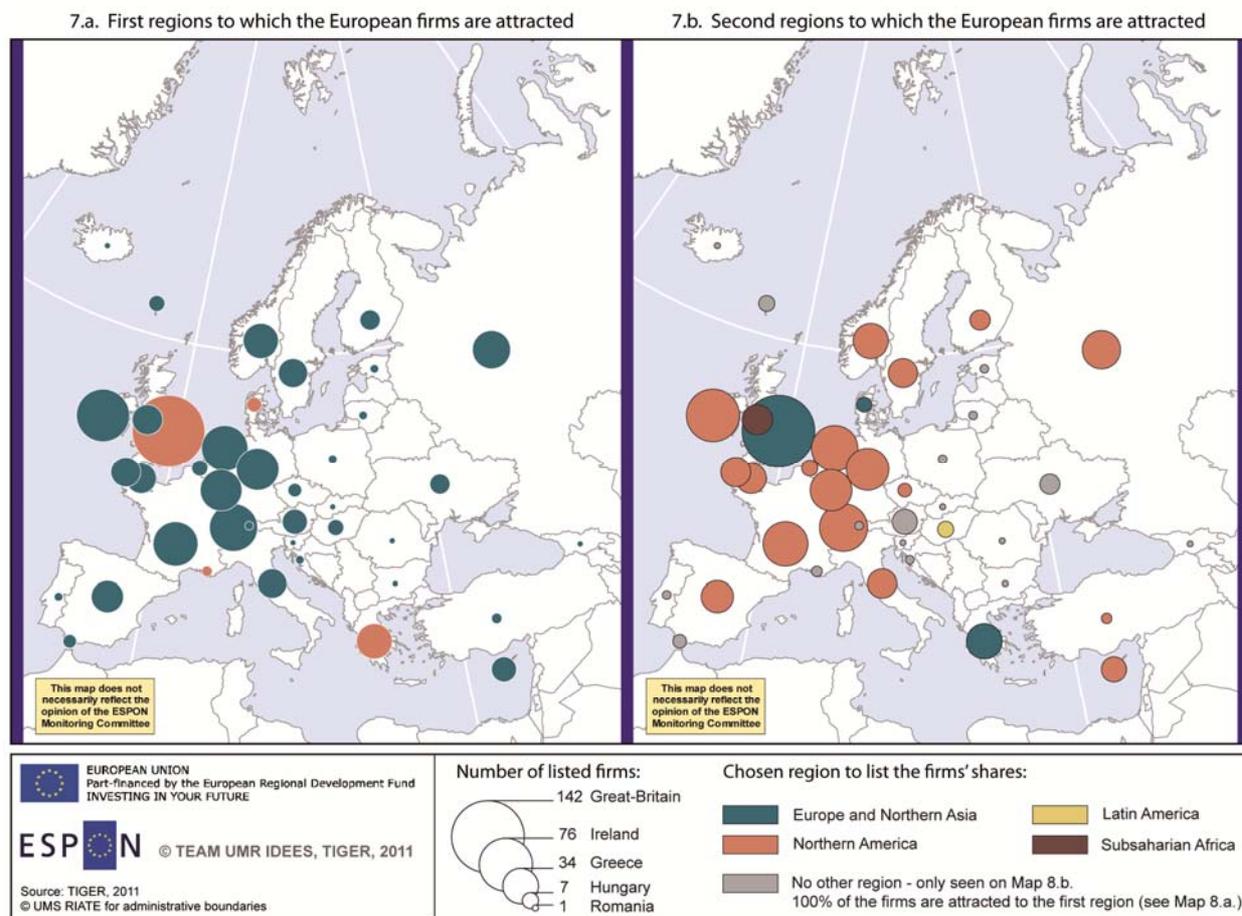
This prevalence might be explained thanks to the different individual choices of issuers and the proximities that were previously mentioned (section 2.1). But one must not underestimate the influence of the institutional environment. For, instance, the "European passport" creates a wider pool of investors and makes the trade of shares more coherent within financial Europe. Indeed, once a European Investment Services Provider (stock exchange member) or market operator has been authorised in its country of origin, it is able to provide services and financial products to customers in other EU member states. The actual financial pattern of trade or capital-raising might be partly a result of this institutional opportunity offered by the Investment Services Directive of 1993, and widened by the Markets in Financial Instruments Directive (MiFID) of April 2004, implemented in November 2007. Moreover, the consolidation process, the merger or the mutual agreements signed between European stock exchanges increase the potential of the European financial markets, and thereby strengthen the confidence of corporate issuers. For instance, the Wiener Börse has signed many memorandums of understanding and cooperation agreements many neighbouring stock exchanges of Eastern Europe since 2006 (Géneau de Lamarlière, Sainteville, 2008).

Map 6. Where do the European issuers list their shares?



As far as the foreign listings outside European markets are concerned, European firms rather have a cautious attitude. Incidentally, some of them – mainly eastern European issuers -- list their shares exclusively in Europe (map 7b). They are very selective and get listed only on the most liquid stock markets, such as North American ones (map 6). These Northern American markets represent the second preferential listing places of western European firms, after European markets (map 7b). On the other hand, European shares are practically absent from Asian stock exchanges (map 6). This might be explained either by the lack of confidence in the Asian stock markets despite the considerable growth of their domestic market, or the inconsistency of the regulations or quotation systems. For instance, European issuers are not admitted on the Chinese stock exchanges listing yet. Comparing maps 2 and 6 points out a real imbalance of stock markets attractiveness on one hand, and on the other hand an obvious asymmetric financial relationships in the globalization process of capital raising. One can deduct that, in opposition to preconceived ideas that the global financial integration would create a smooth, liquid and isotropic world, the maps highlight that it is not the case. Instead, capital flows are very selective and concentrated in the most attractive stock markets.

Maps 7. Regions to which the European firms are attracted

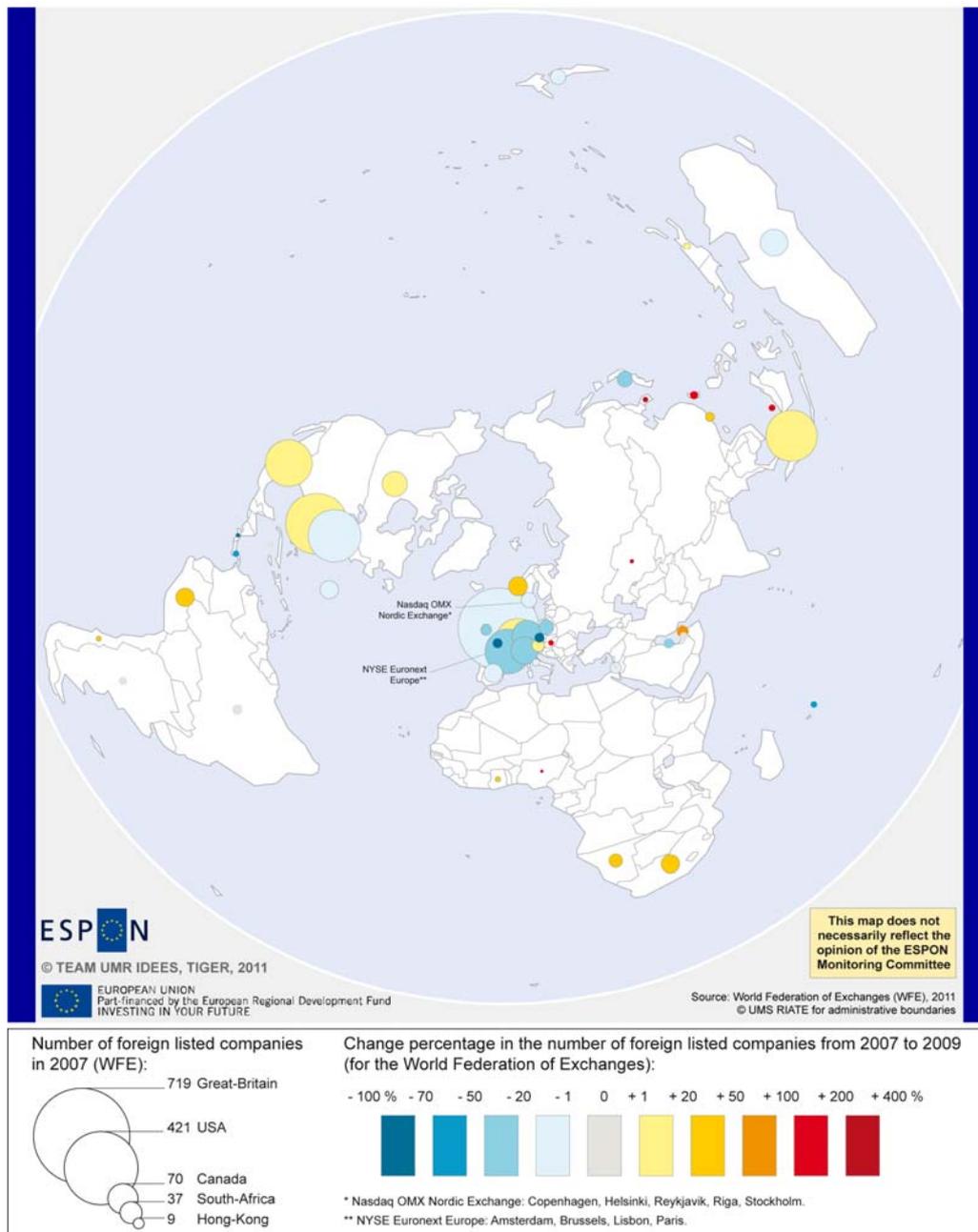


2.4. Consequences of the financial crisis on cross-border listings and stock- markets attractiveness

Keep in mind that the financial crisis started in North America with the U.S. subprime mortgage crisis, which relied initially on the banking sector. Since the borrowers' repayment ability was uncertain, credit institutions that authorized such home loans have securitized those debts and sold them as structured products to institutional investors and banks. Therefore, the original bank crisis changed into a financial crisis, which is affecting derivatives markets as well.

As far as capitalizations are concerned, stock markets were depreciated to a large extent during the year 2008. The main European stock indexes, such as Cac 40, fell to about 40%, whereas the domestic market capitalizations of the London stock exchange and NYSE Euronext Europe were twice as low as their level in 2007 -- respectively 3 851 705 and 4 222 679 USD millions in 2007 (WFE, 2012). The financial industry equities were particularly affected by this downtrend.

Map 8. Evolution of foreign issuers on the different stock markets (2007-2009)



What were the main effects of the financial crisis on the cross-border listings since 2007? Map 8 highlights the evolution of the number of foreign issuers on the different listing places, between 2007 and 2009. Obviously, cross-border listings hosted by many European stock exchanges decreased during that period of time. This might be explained by different factors. First, the number of Initial Public Offerings (IPO) and the amount of the raised capital diminished -- both for domestic and foreign issuers. This is even more the case for the listings of London Stock Exchange and Deutsche Börse, the IPO of which fell respectively around 65% and above 75% at the end of 2008. In a second step, a minority of issuers decided to remove their shares from the listings. Indeed, the weakness of the stock's appreciation might have become insufficient compared to the expensive listing costs. In addition, due to the weakness and the volatility of the equities' prices, some companies are not able to meet the listing requirements anymore. Nevertheless, the withdrawal of listings are very costly for firms and present most often restrictive regulatory terms as well, which have contributed to limiting the number of delisting during the period 2007-2008. Confronted by this crisis, stock

exchanges and regulators had to adapt their listing rules. To restrict the number of delisting among small companies, the NYSE decided to reduce the minimal threshold of capitalization required to get listed on the main market. But the strategies differed according to the economic context of the listing places. Thus, in the framework of a very dynamic domestic market where new equities were numerous, the Chinese stock exchange authorities have suspended the IPO process on Shanghai SE and Shenzhen SE from September 2008 to June 2009. At best, the aim was to protect the Chinese markets from the consequences of the financial crisis and panicked markets.

Nevertheless, it remains difficult to separate the effects of the current trend from the structural changes of both the stock exchange industry and the global economic context. The global decrease of the number of issuers might also be put together with the process of consolidation and mergers between listed firms. In addition, the listings of traditional stock exchanges have to face the competition of Multilateral Trading Facilities, Systematic Internaliser and their dark pools. Besides, the crisis seems to reveal more profound transformations and latent process, such as the withdrawal of the issuers on their domestic stock market – or the drop of the attractiveness of listing places. In addition to the lack of competitiveness or insufficient liquidity, this decline might also be explained thanks to high listing costs, financial and administrative constraints. For instance, the Sarbanes-Oxley Act of 2002 sets enhanced standards concerning listed firms' accounting and financial openness. This act aims to ensure the protection of investors, after a number of major corporate and accounting scandals (such as Enron in 2001 or WorldCom in 2002) that have affected investors up to billions of dollars. But this guarantee of security also generates very expansive costs for corporate issuers. As a result, many European issuers have removed their shares from American stock markets, such as the Allianz group who announced the withdrawal of its shares from the NYSE at the end of 2009. All facts considered, the financial crisis might have speeded up this process. On the other side of the Atlantic, Prospectus, Market abuse and Transparency European directives also introduce financial and regulatory constraints on European markets. Let's highlight that the Markets in Financial Instrument Directive was published in 2004 and implemented in 2007, meanwhile the financial crisis. That is the reason why market operators and national authorities have planned adjustments, particularly for small and medium sized companies that would encounter difficulties in fulfilling those high standards.

On a worldwide scale, the total number of IPO increased in 2010, but the attractiveness of listing places was very unequal. Taking into account both domestic and foreign issuers, more than two thirds of the IPOs were issued on ASEAN stock markets, more particularly on the Shanghai and Hong Kong Stock Exchanges. Nowadays, domestic stock markets of emerging countries experience a fast growth, especially in Brazil, China and India. Their fast growth started in the mid 2000, just before the crisis, and paradoxically around the same time as far as the Shenzhen SE is concerned. The financial crisis slowed down this growth, but most of the emergent markets have recovered and aim to compete with occidental markets. At the end of 2010, the respective domestic market capitalizations of Shanghai SE and Hong Kong SE used to follow the heels of NYSE Euronext Europe (WFE, 2011). The total sum of the domestic market capitalizations of the two Chinese stock exchanges (Shanghai and Shenzhen) was almost equivalent to those of combined Japanese listings of Tokyo and Osaka, and already overtook the London SE Group market capitalization⁴. Yet, the range of Asian listings' attractiveness remains mainly domestic, or at least macro-regional. Nevertheless, following the example of Taiwan SE -- the foreign listings which were predominantly formed until 2009

⁴ London SE data are consolidated into London SE Group after merger with Borsa Italiana

--, those stock markets might gradually open their listings to both foreign investors and issuers.

III - Spatial configuration of financial Europe as driven by cross-border listings

We previously observe the competitiveness and the position of Europe within the networks of capital raising, studying both the attractiveness of its stock markets and its issuers' choice to list their shares on foreign stock exchange outside Europe. In this third part of the analysis, the assessment of the global financial integration impact on European territories is at stake. How does globalization structure European spatial pattern? Which spatial features follow from the worldwide stock exchange activity and flows?

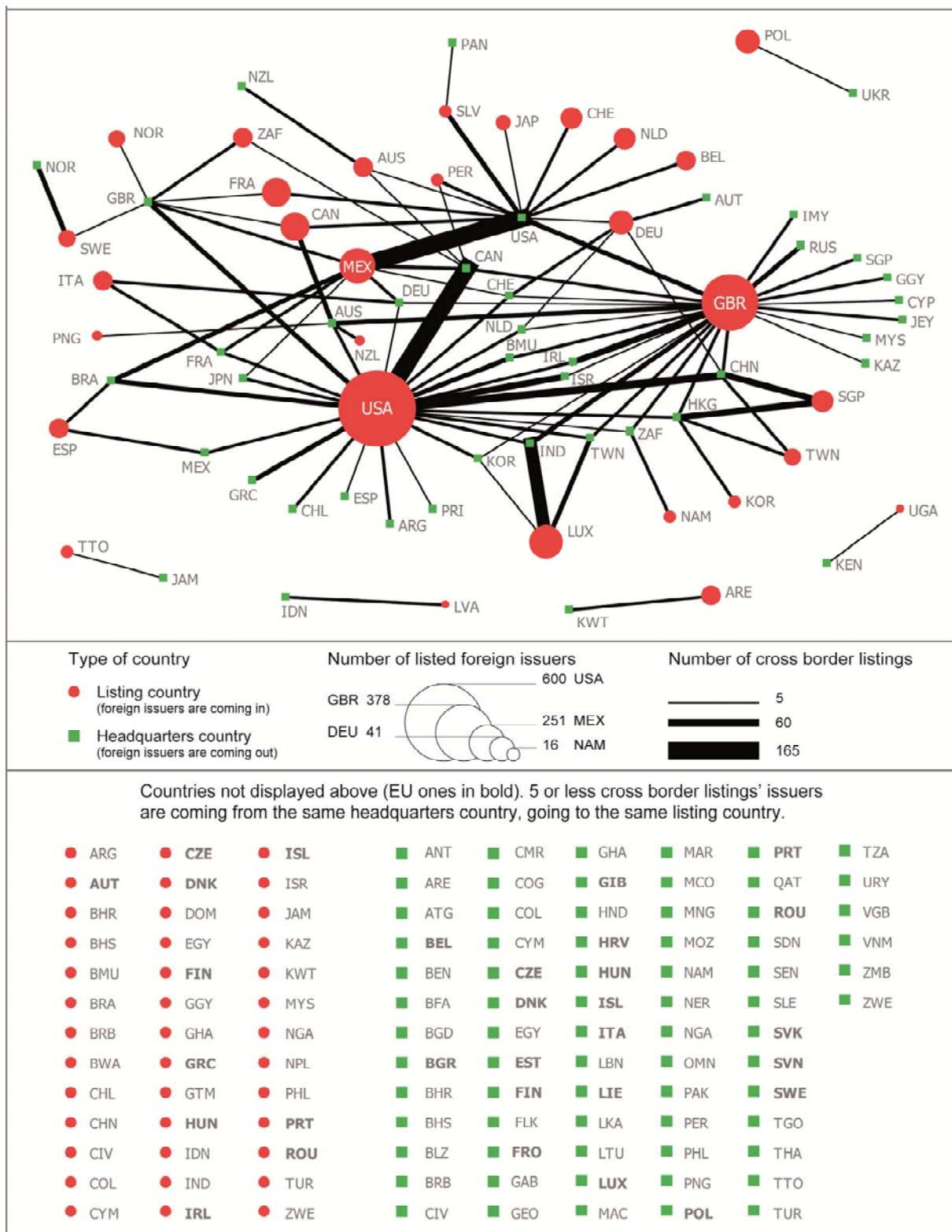
3.1. Ranking European stock markets and financial centres into a hierarchy

Cross-border listings enable us to determine the position of European stock markets and listing places into the global network of capital raising and quotation activity. In order to delimit nodal regions and to rank the stock markets into a hierarchy, we have applied the basic method of major flows to our matrix (Nyuston, Dacey, 1968). This method highlights the preferred listing choices of corporate issuers amongst foreign stock markets. As far as the key elements of the graph are concerned, green squares represent the issuers' countries of origin (location of their operational headquarters) and the red points designate the countries where the shares are listed (the location of the stock exchanges). The size of the dots reflects the number of listed foreign issuers. Only the links bigger than five cross-listings were taken into account. The width of the lines connecting the pairs reflects the number of connections, giving us a visual indicator of the intensity of connection. Clearly, the key points of connection in Europe are London, Paris, Frankfurt, Luxembourg and also the exchanges in Stockholm, Oslo, Zurich, and Milan, with participation from Madrid, Vienna and Warsaw.

The countries that are listed beneath the graph do not play a significant part in the worldwide network of cross-border listings (whatever the ground, either issuers or listing places). Amongst them stand some European actors, notably from Czech Republic, Denmark, Finland, Hungary, Iceland and Portugal, whose integration seems lower, since they neither attract more than five cross-border listings, nor list at least five of their issuers' shares abroad.

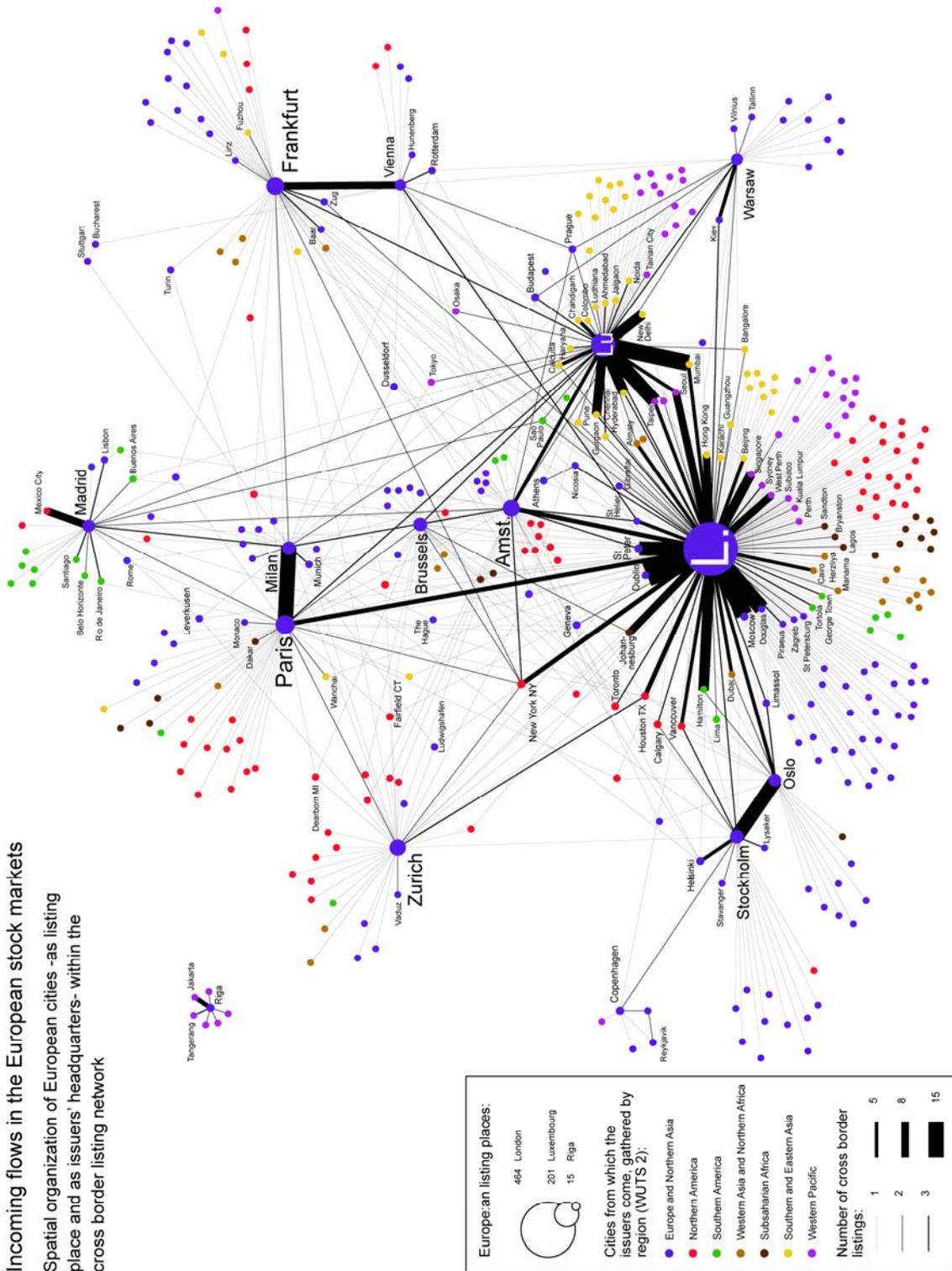
Graph 1 confirms that the cross-listings planet is polarised by two major stock markets: London and the American listing places. These attract issuers from many countries. According to this quantitative benchmark, secondary nodes also stand out since they attract at least 10 issuers from two different origins: the German, French, Italian, Swedish, Spanish and Luxembourg exchanges make up this group. Outside of Europe, those secondary nodes, which rely mainly on emergent economies that gradually gain ground and aim at becoming new regional centres, include Mexico, South Africa and of course Singapore, "The Asian Gateway", as its advertising slogan asserts. The graph also spotlights the mixed choice of Britain, Chinese, Australian, Brazilian and South African issuers with respect to their listing places, corroborating our comments in section 2.2.

Graph 1. Major foreign issuers' flows between countries' issuers and listing countries



Graph 2: Incoming flows in the European stock markets

Graph 2.
Incoming flows in the European stock markets
Spatial organization of European cities -as listing place and as issuers' headquarters- within the cross border listing network



3.2. Assessing the connectedness of European cities in global financial flows

The previous graph (graph 1) focused on the most consolidated financial relationships between the countries of issuers and their listing places (i.e. number of cross-border listings ≥ 5 , broken down by country). In contrast, Graph 2 represents the total universe of cross-border listings that involve European financial centres. In other words, it takes into account both the cross-listings within Europe, and the cross-border listings of issuers coming from anywhere else on Earth. Let's highlight that the circles in Graph 2 represent cities, both those that host headquarters of issuers listed abroad, and those that are equipped with a stock exchange. European cities are represented in blue; cities located in other macro-regions are color coded according to their WUTS 2 region of origin. In this graph, each link represents the sum total of cross-listings between two cities, whatever might be the place of origin and destination. For instance, the link between Frankfurt and Vienna takes into account both Austrian issuers who list their shares on Deutsche Börse, and German firms who get their equities listed on Wiener Börse. The aim is to give a glimpse of the different levels of connectedness between European cities and their connections to other cities in the world (graph 2, see caption). This graph highlights the way in which cross-border listings are connecting European cities to global financial networks. This graph might be compared to the analysis of inter-city connectedness as driven by financial flows and cross-border operational practices of firms (Knox, Pain, 2010).

As noted in the section 2.1, the most broadly-connected European financial centre is London. The greatest number of links of the City those with United States cities - especially New York and Houston TX (for hydrocarbon firms), as well as with members of the Commonwealth (Vancouver, Toronto and Calgary in Canada, Johannesburg in South Africa or West Perth in Western Australia) or "family" members like Dublin in Ireland, but also the British Crown Dependencies⁵. Within Europe, the main connections and interactions of London are established with Paris, Amsterdam, the Scandinavian capital cities Oslo and Stockholm.

In other European exchanges some ties are smaller than what would be expected. The weakness of the link between Zurich and Frankfurt might be explained in part by the concurrent locations of German issuers' headquarters in other cities such as Düsseldorf, Munich or Cologne; in other words, a "federal" distribution of the economic control centers that minimizes the role of Zurich. Another node is Luxemburg, where linkages are largely focused on long-distant patterns, particularly with cities located in Southern and Eastern Asia, notably in India, where the firms' shares are issued as equity related products.

In addition, the graph spotlights obvious financial dyads or at least multilateral preferential relationships between European cities. Spatial proximity and cultural familiarities seem to be the common thread to explain these ties. Amongst the most obvious dyads the Scandinavian capital cities stand out: Oslo and Stockholm. They total more than thirty cross-listings at a whole. Another characteristic dyad is composed with Frankfurt and Vienna financial places, which share at least 14 cross-listings. Amsterdam and Paris, two listing places of the NYSE-Euronext group seem more integrated in the European lattice-network of capital raising, since they are connected to the main economic cities of the region. Nevertheless, they do not present the same relational profile and financial partners. A preferential corridor stands out distinctly between Paris and Milan. This tie is imbalanced in favor of Paris where more than 15 Italian equities are listed on Eurolist of NYSE Euronext. Paris follows also in the wake of London, where French equities of firms Saint-Gobain or Total S.A are listed on LSE.

⁵ Some of them might be British or recover from other residence since the information provided by firm was unclear.

As far as Madrid is concerned, although the Spanish stock exchange lists equities of issuers headquartered in Milan, Rome or even Leverkusen in Germany, four fifth of its listing concern Latin American firms. In fact, Madrid's major financial partner is not European; it is Mexico City. The listing place of Madrid enables the integration of Southern and Central American issuers within the European market region. Moreover, Madrid serves as a bridgehead for the connection of Belo Horizonte and Sao Paulo (Brazil), Santiago (Chile) or Monterrey (Mexico) with European cities network. This position of entry point is all the more important because the South/Central American issuers are not listed on any other European stock exchange. A few other European financial centres also play this part of foothold to connect smaller European cities and their economic actors to global financial flows. Oslo, Copenhagen and Warsaw are relevant examples. For instance, issuers from Vilnius, Tallinn or Bratislava list their shares on WSE (Warsaw Stock exchange).

By defining nodes, dyadic preferential relationships and bridgeheads, cross-border listings reveal the roles of European cities within the spatial dynamics of the global financial flows.

3.3. Classifying European stock exchanges according to their foreign listing specialization

A review of European markets which focuses on the industry sector of their foreign issuers highlights that industry specialization is also important in defining stock markets profiles, their attractiveness and their place in the global financial integration. Specialisation by industry does not necessarily recover from a specific policy of stock exchanges; in some cases, it can also be traced to the confidence that issuers might feel from country economies that are experienced in particular fields. One can observe a certain amount of follow-the-leader behaviour amongst issuers, or at least, a phenomenon of aggregation of issuers who belong to the same industry. The following map (map 10b) presents a classification of European stock markets according to the most representative industry sectors of their foreign issuers. In order to arrive at this classification, the data base of the official listings was completed with the Industry Classification Benchmark⁶ (ICB) of each listed company. Then the typology based on a Hierarchical Agglomerative Cluster (HAC) analysis allowed us to identify several industry-specific profiles amongst stock markets, more or less specialized. This typology was built taking into account the whole stock exchanges of the data base. The aim was to point out the possible specialization of European stock markets, once replaced in the global context of cross-border listings. On which industries does rely the attractiveness of European listing places? Let's introduce few examples.

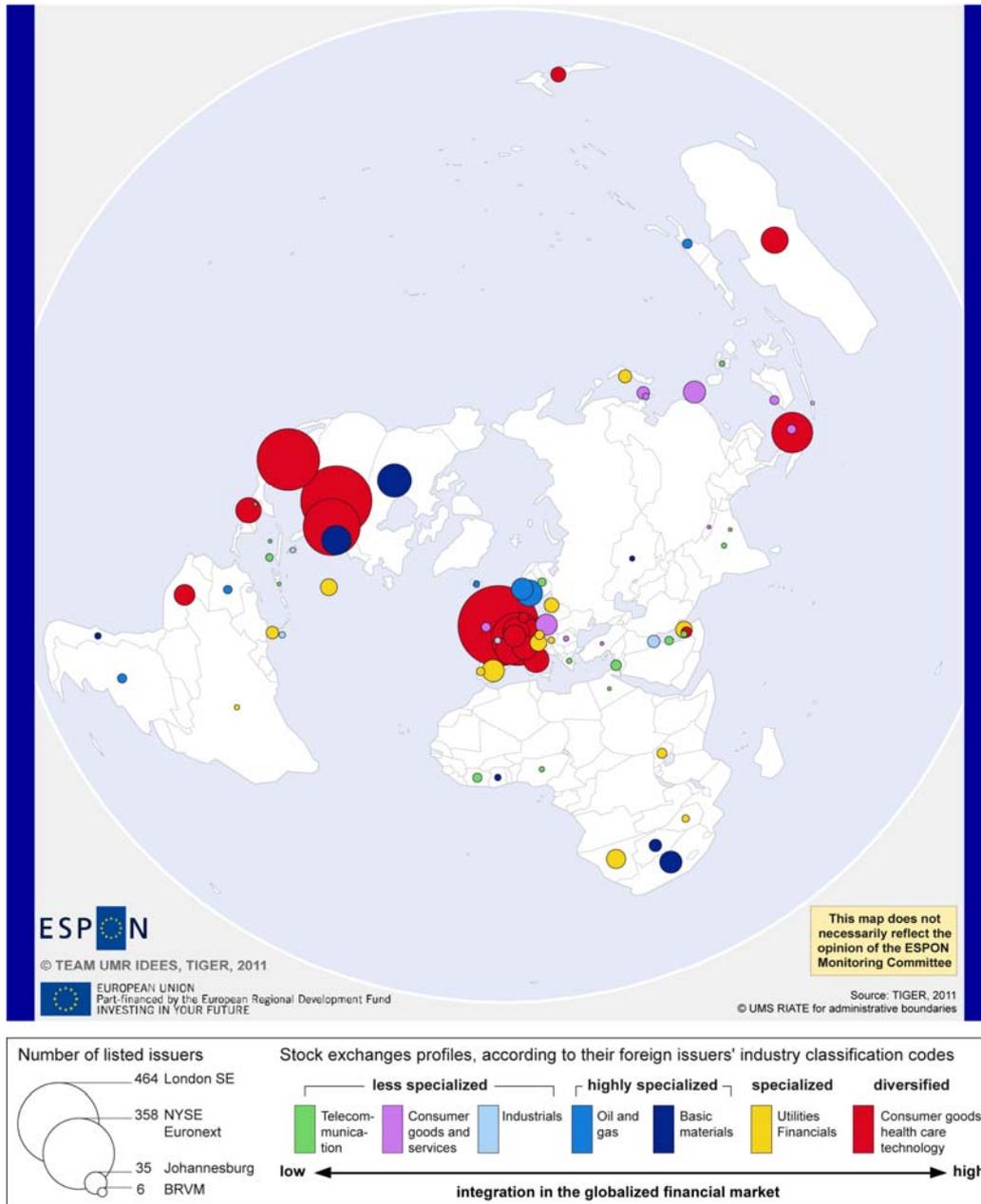
• A very specialized listing place : Oslo Børs and the Oil and Gaz industry

The Oslo Børs attracts many issuers whose businesses deal with Oil and Gas industry. Amongst the total of 34 foreign equities listed on the Norwegian stock exchange in 2010, 41% are engaged in the business of extraction, conversion or maritime transport of hydrocarbons. The specialization has a close link with the Norwegian economy, its culture and history. The resulting over-representation of oil and gas companies within the listing of Oslo Børs has been influenced by the performance of Norway as a producer of hydrocarbon. Thanks to its deposits in North Sea, Norwegian, and Barents Seas, the share of the hydrocarbon industry in the Norwegian GDP is closed to 15% and it attracts the confidence of both investors and corporate issuers. Interested issuers clearly recognized and reinforce the value of specialization. With the exception of four of them that also list their shares on the

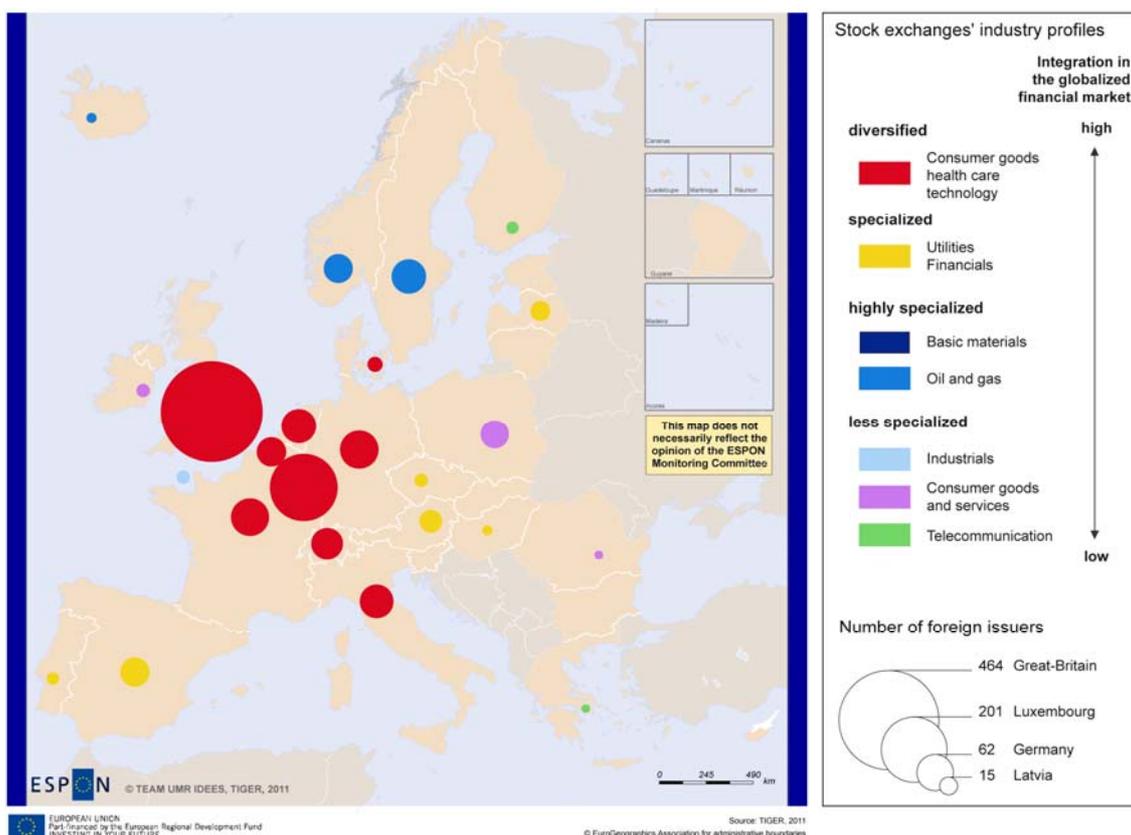
⁶ This ICB classification was developed by FTSE Group and Dow Jones Indexes

OMX stock exchange in Sweden, the others list exclusively on the Oslo stock exchange. As shown in maps 10, the issuers attracted by the Swedish listing place are drawn predominantly from the hydrocarbon industry as well. On a worldwide scale (map 10b), those very specialized profiles rely mainly on mining industry and basic materials. Many firms that mine gold, copper or extract mineral ores are listed on Johannesburg stock exchange, Canadian or Chilean listing places. Let's highlight that the profiles of those stock exchange lists match the economic profile of their national economy.

Map 10a: Stock exchanges' industry specialization in 2010



Map 10b: Stock exchanges' industry specialization in 2010 (Zoom Europe)



- **The diversified profile of Western Europe stock markets**

As far as the other results of the analysis are concerned, the most liquid and broadly-opened markets in terms of cross-border listings -- Luxembourg stock exchange, Deutsche Börse, Swiss Stock Exchange or two of the listing places of NYSE-Euronext (Paris and Brussels) – are more diversified, even if health-care and Industrials are the dominant industries. They attract many companies from high added-value and profitable industries such as cutting-edge technologies. Most of them are well-reputed, well-established and stable transnational firms. Therefore, these foreign issuers are able to fulfil the exacting standards required by both regulators and stock exchanges for Initial Public Offering.

- **The intermediate degree of specialization of Southern and Eastern Europe.**

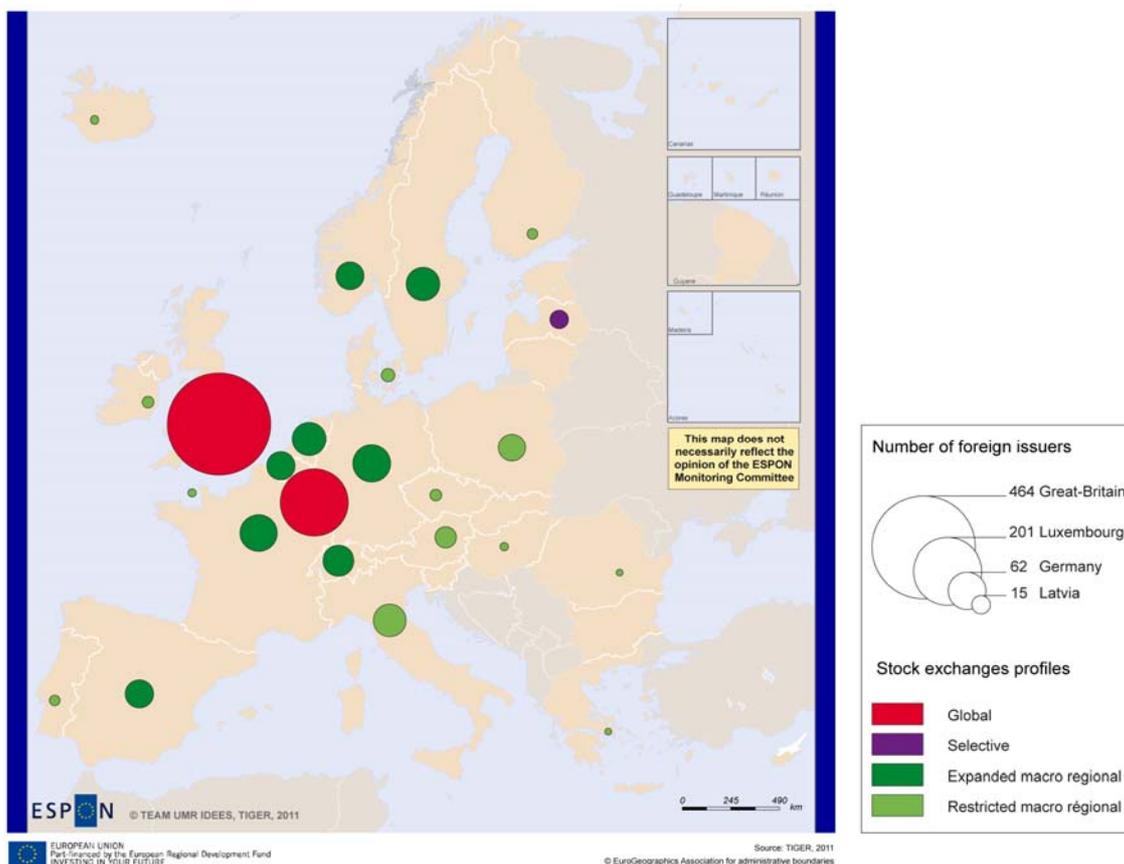
According to this typology, the stock markets of Southern and Eastern Europe are more or less specialized in financial and utilities, following the example of Wiener Stock Exchange. Goods and services industries are also well represented on the listings of East-central Europe stock markets. On the Polish and Romanian stock markets are mainly listed shares of the firms which manufacture consumer goods, among which agro-industrials products as far as Warsaw stock exchange is concerned.

Thus, in the competitive framework of financial globalization, the listing choices of foreign issuers seem to differentiate among stock markets relative to industry specialization. In addition to industry-orientation, the various directions of the listings contribute to the territorial organization of Financial Europe. We will examine this in the following section.

3.4. Cross-border listings highlight new kinds of frontiers

Cross-border listings reinforce some of the traditional frontiers within the European region. Contrary to popular belief, financial industry activity -- more specifically capital raising and listing activities -- is not so footloose and has a strong geographical impact on spaces and places.

Map 11: Stock exchanges' profiles



As we saw in section 2.1, European stock markets differ in attractiveness and reach – global, selective, and two kinds of macro-regional markets. According to the attractiveness of cross-border listings of London SE, NYSE Euronext Europe and Luxembourg SE, the center of gravity European stock exchange is the Western Europe. The further away from this western centre, the smaller and less-integrated the markets are (map 11). It is useful to note also that there are both North-South and East-West groupings which split Financial Europe into different parts. The East-West gradient is not surprising, since the stock markets of East-central Europe have entered more recently the free market economy. Many stock exchanges in East-central Europe used to exist before the communist period. The Prague Stock exchange, for example, was established in 1861, closed by the communist regime once the Second World War was over, and finally reopened in 1992. One year afterwards, in 1993, the Warsaw stock exchange also started quoting again after a 52-years interruption. This unstable historical context and the fact that it is relatively recent might explain the weakness of their attractiveness. As of today, they remain in the restricted macro-regional category.

This first North-South partition can also be combined with the spatial concentric model. Indeed, Borsa Italiana, the stock exchanges of Ireland and Portugal also present a restricted

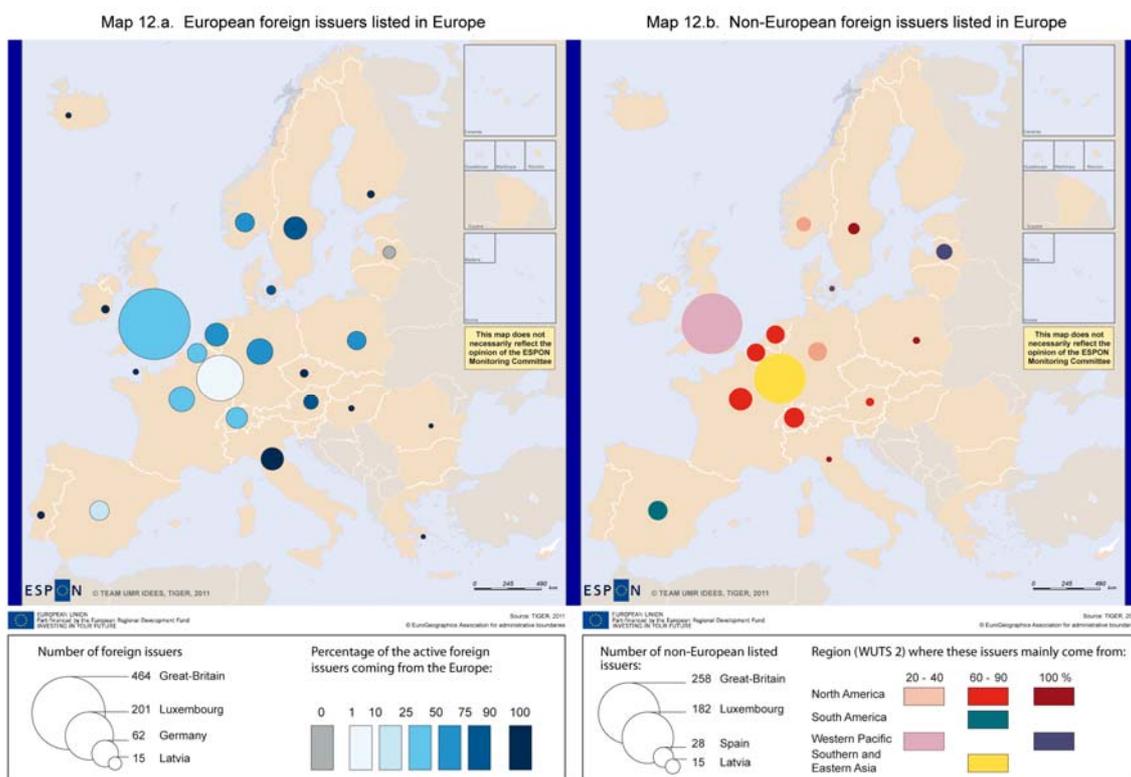
macro-regional profile.

The other stock exchanges of Western Europe are more opened to the financial global integration, since they list both European issuers' shares and equities of firms located outside EU. This is true for both markets with global and expanded macro-regional profiles.

The listing specialization of European stock markets (maps 10) also implies a spatial differentiation between the big stock markets whose listings are rather diversified and smaller markets that are more or less specialized. Once again, one can observe that financial Europe is divided, in both meridian and concentric aspects. Western European stock markets quote firms from almost all the industries, while listings of eastern European stock exchanges seem more specialized. The markets of European Northern and Southern margins -- Scandinavian and Iberian markets -- are also specialized by industry as we saw previously; Oil & Gas industry in Scandinavia and financials and utilities in Spain.

Finally, another set of divisions result from preferential relationships of located economic actors. Map 12a highlights that the European issuers are mainly attracted by European and Northern Asia markets as their primary listing places. Map 12b shows an obvious division along east-west lines: western European issuers choose a second listing in Northern America, whereas eastern European issuers list their shares exclusively in Europe. If we focus on the origin of the foreign issuers listed on European stock markets as shown in maps 12, we see another dimension. Map 12a confirms that European stock markets mainly list European issuers. But when the analysis is confined to non-European issuers, we find that eastern European and small western European stock markets quote no securities of foreign issuers at all (map 12b). In other words, they quote exclusively European issuers.

Maps 12: European stock markets mainly list European issuers



Conclusion

This descriptive study and its set of maps give a glimpse of the relative position of European stock markets in global financial flows, compared to their competitors. Their position and characteristics have been assessed according to cross-border listings as key indicator: openness and connectedness to financial globalization, scope of attractiveness, competitiveness, and possible specialization of foreign lists, and so on.

This descriptive study is useful to complete the knowledge of each European stock market. It might also be considered as decision-support tools and ought to be converted to action: it suggests questions for managers of stock exchanges, listing places and regulators to ask themselves in order to improve their competitiveness. Where are we versus the leader? Where do we want to go? How do we get there? As far as action is concerned, the different actors have to concentrate their efforts on the different components and factors of the stock market attractiveness, among which: liquidity of markets, characteristics of regulation, social networks of economic actors, etc.

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