Emerging Stock Markets in Historical Perspective: A Research Agenda

By

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A RESEARCH AGENDA 

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Abstract 

This paper surveys the recent empirical literature on emerging stock markets of the last quarter of 
the 20th century and elaborates on its theoretical insights and empirical methods to design a 
research agenda on the “emergence” of equity markets in European peripheries before 1913. We 
present some preliminary evidence, both qualitative and quantitative, on the timeline and 
patterns of stock market emergence. The cases of the Madrid and several South-East European 
stock exchanges (Vienna, Belgrade, Bukarest, Sofia, Athens, and Istanbul) are used to exemplify. In 
the second part of the paper, we focus on three key empirical issues which should be addressed by 
financial historians: the determinants of stock market development, the realized return on market 
indices, and the specific characteristics (higher volatility, persistence, non-normality) of returns. 

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exchanges of Belgrade, Bukarest, Sofia, Zagreb (Ivanov) and Istanbul (Tuncer).
Introduction

The usual definition of “emerging stock markets”, as provided by the International Finance Corporation (IFC), is based on two main characteristics: economic growth (a market based in a “developing” country) and market development (level of stock market capitalization). The “emergence” fact is a concept also related to information availability (usually linked both to growth and market development), so that the “when” of emergence is set as the first date for which a stock market index was computed (in some cases backfilled) at some point during the 1970s-80s.

However, as noted by Goetzmann and Jorion (1999a), many of the “emerging” markets of the last quarter of the 20th century have histories going back to the late 19th or early 20th century, as in the case of Latin American, or Southern- and Eastern European markets. In fact, many of them “re-emerged” only recently after a period of “submergence”—i.e. a period during which data on market indices were not available due to a variety of factors: shut-downs due to wars, nationalizations, or political and institutional changes, or simply because price collapses made domestic and outside investors lose interest in the market. This “submerged” period usually originated with the political economy shifts which led to the “Great Reversal” of financial markets emphasized by Rajan and Zingales (2003).

The aim of this research project is to study the “true” emergence period of stock markets in European “peripheral” and “developing” economies, which is usually dated between the 1870s and the 1920s in coincidence with the heyday of the first financial globalization. The first phase of the project will focus on data collection (prices, dividends, firms quoted, nr. of stocks issued, trade volume when available) at high frequency (daily and weekly), based on a consistent methodology and leading to the estimate of sectoral and global indices truly comparable across countries. Qualitative information will also be collected, including legal framework, regulation and microstructure.

The second phase will use these quantitative and qualitative data to promote empirical research on the characteristics and performance of Europe’s historical “emerging” markets. For such purpose, the research literature on recent emerging markets provide a useful theoretical
framework as well as a variety of testable hypotheses and empirical methods, which represent a natural background for innovative empirical research on historical cases. In turn, we contend that the study of historical markets can provide useful and original insights which may be of interest to financial economists.

In this paper, we survey the historical information currently available and explore how some key issues dealt with by the recent literature could be “transplanted” and addressed in a historical setting. Section 1 (“when did stock markets emerge in European peripheries?”) defines European “emerging markets” of the past, surveys some of the historical information available and highlights some interesting results of recent historical research. In the rest of the paper we elaborate on the results of recent empirical research on emerging markets to identify some critical issues which financial historians should investigate. Section 2 is devoted to discuss the determinants of stock market development and the factors which may have slowed down or constrained stock market development in historical emerging markets. Section 3 deals with the realized return of market indices in European emerging markets and provide preliminary empirical data on whether they yielded higher returns compared to more mature market. Section 4 surveys some peculiar characteristics of market indices of recent emerging markets (volatility, persistent, non-normality of returns) identified by the empirical literature, and elaborates a set of working hypotheses applicable to our historical setting and provides some preliminary empirical evidence.

1. **When did stock markets “emerge” on the European periphery?**

1.1 **Theoretical issues**

Historically private equity markets emerged during the 19th century, and especially after 1850. Their emergence was related to the process of industrialization, with the rise of joint-stock public utilities, mining and manufacturing firms increasingly dependent on external finance. To identify “emerging” stock markets according to the joint criteria of economic growth and market capitalization, we look first at GDP per capita. Using Maddison’s estimates, we show in Figure 1 a scatter plot of initial (1870) GDP per capita and its annual average growth rate in 1870-1913. The graph provides mixed evidence of convergence, with relatively poor countries of the European
peripheries growing at a higher rate than the richest economies of the North-West (UK, Netherlands, Belgium) although just in line or even below industrializing core economies (France, Germany, Switzerland). Portugal and Sweden stand out as clear outliers in opposite direction. It can also be noticed that European peripheries’ growth was generally outperformed by the most important developing economies overseas (with the exception of Brazil and Uruguay).

**Figure 1: Growth and convergence in Europe 1870-1913**

As far as market development is concerned, however, information is unevenly available for European peripheral countries and its quality and comparability are not easy to ascertain. In Figure 2, we plot data on stock market capitalization and the number of listed domestic companies (per million of inhabitants) provided by Rajan and Zingales (R&Z 2003) for the year 1913, which have been widely quoted. In general, these data show a clear positive correlation between income level and stock market development; however, both indicators show also a very large dispersion at similar levels of income per capita. Countries with lower market development (Russia, Italy and Norway in Europe, Chile and Argentina in Latin America) have capitalization ratios slightly below 20%. Should we regard the latter as a reasonable “emergence” threshold? Another interesting aspect is that the ranking of countries according to the normalized number of listed companies differs significantly from that based on market capitalization. Which one should we prefer?
We hasten to add that the quality of the capitalization ratios presented by Rajan and Zingales for 1913 has been questioned, for instance by La Porta et al (2008). Apart from criticizing some odd findings (such as Cuba and Egypt as the most developed stock markets in 1913), La Porta et al. find that data collected by R&Z are far from homogenous (as stocks and bonds, both private and government, are pooled together in some cases)\(^1\) and also include secondary listings – i.e. stocks of firms incorporated and primarily listed in foreign countries.\(^2\) Also the reported capitalization ratio for the USA has been criticized as clearly underestimated, suggesting that 90 per cent (instead of 40 per cent) would be a more reasonable value (Sylla 2006).

The criticism levelled against the definition of “stock market capitalisation” (SMC) used in the seminal Rajan&Zingales 2003 paper raises methodological issues relevant to our research. It is sensible to distinguish between the following three points:

(a) Should SMC only relate to stocks or to stocks AND bonds?

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\(^1\) As explained by R&Z (2003) in their data appendix, “to assess the importance of the equity market in 1913 we rely on two approaches. Whenever possible we secure a copy of a stock exchange handbook in 1913 (or the closest year before 1913). Using the handbook we identify the number of domestic companies listed, the number of shares of each company, and the price per share. We then compute the total stock market capitalization as the sum of the product of price times the number of shares. We were able to do this for Australia, Brazil, Canada, Cuba, Denmark, Germany, Italy, Netherlands, Russia, Sweden, Switzerland, the United Kingdom, and the United States. A second source was various issues of the Bulletin of the International Institute of Statistics (IIS). Starting in the late nineteenth century, statisticians from all over the world met every year for a conference. This association formed a special group to compute the importance of security markets in different countries. Unfortunately, many of the reports club together stocks and bonds but we do obtain some disaggregate information for some countries.”

\(^2\) As La Porta et al. relate stock market development to legal origins, they argue that secondary listing of foreign companies should not be taken into account, as they are incorporated in their home jurisdiction and subject to the legal rules of the latter, so that their inclusion would overestimate the impact on stock market development of the host market legal institutions.
(b) Should SMC be confined to external finance of private entities?
(c) Should SMC be confined to external finance of domestic companies (i.e. by netting out secondary listing of foreign companies)?

On (a), we are inclined to include stocks as well as bonds, principally for two reasons. First, our focus is on the ability of the market to allow private firms to raise external finance (and not only equity). Second, 19th century stock markets knew hybrid forms of assets that combine characteristics of stocks (dividend payment) and of bonds (guaranteed coupon payment which acted as a minimum dividend).³

As for (b), SMC does generally not include government bonds traded at the stock exchange. As will become clearer below when outlining some historical evidence on stock market development in peripheral countries, it might well be that this focus is too narrow in understanding stock market development for the set of countries we are interested in. More specifically, for a number of stock exchanges in the European periphery it appears that they principally (in some cases almost exclusively) traded government bonds during the first decades of their existence; only later did they develop a market for providing external finance for private enterprise. The most tempting explanation for this development seems connected to the Gerschenkron hypothesis that 19th century emerging economies (economically backward countries in his parlance) had to rely on massive state intervention if they wanted to catch-up with the economically more advanced countries. This is to say that a great deal of the capital raised via government bond issues probably went into domestic industrial activity but it went there indirectly rather than directly as in the classical Anglo-Saxon case.

Moreover, the boundaries between privately owned companies and publicly owned companies were less sharp in 19th century reality than often assumed; this was, again connected to the Gerschenkron hypothesis, probably even more the case in the periphery than the core. European railway development, for instance, began as private enterprise in many European countries; slowly but surely this was then transferred into public ownership, often in ways that were not fully transparent.

On (c), it is worth appreciating the reasons why some authors want to eliminate second listing from SMC. As La Porta et al. relate stock market development to legal origins, they argue

³ One of the few remnants of this hybrid form is the stocks of the Swiss National Bank: while they guarantee an annual interest rate of 1.5%, the actual dividend is almost always higher than this value.
that secondary listing of foreign companies should not be taken into account, as they are incorporated in their home jurisdiction and subject to the legal rules of the latter, so that their inclusion would overestimate the impact on stock market development of the host market legal institutions. In our case, by contrast, there is no specific reason to exclude secondary listing, and it could probably be argued that secondary listings look like a useful additional indicator of domestic stock market development: if the domestic stock market were not sufficiently developed, foreign companies would not bother to be listed.

1.2 Where does the financial history literature stand?

In any case, the existing research is far from providing a comprehensive and comparable picture of stock market development for European peripheral countries by early 20th century, let alone the last quarter of the 19th century. Dimson et al. (2002) and subsequent updates have reconstructed market indices and equity returns series dating back to 1900 for Ireland (based on original archival data: 1900-33), Italy (based on original data and a stock market index calculated for internal purposes by the Bank of Italy since 1912), Norway (based on national statistics 1900-17 and post-1918), Spain (based on a general index estimated by the Madrid Stock Exchange 1900-18) and Sweden (based on an index estimated by the Swedish Riksbank). However we were not able so far to assess whether their background data would allow to estimate stock market capitalization, although we suspect that they are not. For other European peripheral countries, which possibly had gone through significant stock market developments by 1913, index data are available only since a much later stage. By instance, using data compiled by the League of Nations’ Statistical Yearbook and the International Conference of Economic Services, Jorion and Goetzmann (1999) use stock market indices for Portugal since 1930 and Greece since 1929. The timeline of data availability is similar for new sovereign entities born from the dissolution of the Eastern Empires: Finland since 1931, Czechoslovakia since 1921, Hungary since 1925, Poland since 1921 and Romania since 1937.

However, as shown in the following table 1, stock markets in peripheral economies were generally founded much earlier, as reported by Goetzmann and Jorion (1999). Incidentally, it is not clear in every case how exactly to interpret the concept of “foundation”—whether it refers generically to
the opening of a trading floor, or to the institutionalization of the stock exchange via incorporation or legislation. We should aim at clarifying this issue in our future research.

Table 1: European stock exchanges

<table>
<thead>
<tr>
<th>Market</th>
<th>Founded (acc. to G&amp;J 1999)</th>
<th>Notes (ownership, institutionalization, regulation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria (Vienna)</td>
<td>1771</td>
<td>Until 1918, part of Austro-Hungarian Empire. Equity trading reported only since 1818. With the Stock Exchange Act of 1875, Vienna Stock Exchange was established as an autonomous (?) institution.</td>
</tr>
<tr>
<td>Hungary (Budapest)</td>
<td>1864</td>
<td>Until 1918, part of Austro-Hungarian Empire. The 1875 Austrian Stock Exchange Act applied?</td>
</tr>
<tr>
<td>Czechoslovakia (Prague)</td>
<td>1871</td>
<td>Until 1918, part of Austro-Hungarian Empire. The 1875 Austrian Stock Exchange Act applied?</td>
</tr>
<tr>
<td>Denmark (Copenhagen)</td>
<td>1808</td>
<td>Ordinance of Broking 1808. New Statute of Broking 1919</td>
</tr>
<tr>
<td>Norway (Oslo)</td>
<td>1881</td>
<td>Trading reported since 1819, mainly as foreign exchange market</td>
</tr>
<tr>
<td>Sweden (Stockholm)</td>
<td>1901</td>
<td>Trading reported since 1863. Official creation of stock exchange in 1901. Statutes in 1906</td>
</tr>
<tr>
<td>Greece (Athens)</td>
<td>1892</td>
<td>1876 stock exchange established as self-regulated organization. 1918 transformed into a state-owned organization</td>
</tr>
<tr>
<td>Portugal (Lisbon)</td>
<td>1901</td>
<td>Official histories report foundation in 1769.</td>
</tr>
<tr>
<td>Ottoman Empire (Istanbul)</td>
<td>1866 (“Dersaadet Securities Exchange”)</td>
<td>Stock Market Law 1929</td>
</tr>
<tr>
<td>Poland (Warsaw)</td>
<td>1871</td>
<td>Until 1918, did not exist as sovereign entity. Warsaw was under Russian rule.</td>
</tr>
<tr>
<td>Finland (Helsinki)</td>
<td>1912</td>
<td>Until 1918, did not exist as sovereign entity; the Grand Duchy of Finland was part of the Russian Empire.</td>
</tr>
<tr>
<td>Serbia, later Yugoslavia (Belgrade)</td>
<td>1894</td>
<td>Independent from Ottoman rule since 1817 (officially since 1878)</td>
</tr>
<tr>
<td>NOT REPORTED BY G&amp;J 1999: Romania (Bukarest)</td>
<td>1881</td>
<td>Independent from Ottoman rule since 1859 (officially since 1878)</td>
</tr>
<tr>
<td>NOT REPORTED BY G&amp;J 1999: Bulgaria (Sofia)</td>
<td>1914</td>
<td>Independent from Ottoman rule since 1878</td>
</tr>
<tr>
<td>NOT REPORTED BY</td>
<td>1865</td>
<td>See: Project at Yale School of Management-International Centre</td>
</tr>
</tbody>
</table>
An often neglected but nevertheless critical issue is that the conventional practice of measuring stock market development of a given economy only on the base of its main market is largely inappropriate in our historical setting. In fact, the flourishing of multiple stock exchanges located at the core of regional industrial and trade clusters was a feature common to many Continental countries from the mid 19th century until the interwar period, although competition and economies of scale enhanced consolidation and concentration of trading in mayor national equity markets over time. As it is well known, in France, trading floors outside Paris were active since the 1850s-60s in Bordeaux, Lille, Marseille, Rouen, Toulouse. A similar picture emerged in Germany, where regional stock exchanges operated outside Berlin in Frankfurt, Stuttgart, Hamburg, Bremen, Hanover, and Munich. As far as peripheral economies are concerned, in Italy, Genoa was the prominent stock exchange until early in the 20th century, complemented by regional exchanges in Milan (acquiring national relevance around WW1), Turin, and Rome. In Spain, Madrid was the oldest exchange but active regional markets emerged late in the 19th century in Barcelona and Bilbao and were complemented by a number of other local trading floors (“bolsines”). In Portugal, Lisbon was compounded by a regional exchange operating in Porto since 1891. Within the borders of the Austro-Hungarian Empire until 1918, stock exchanges traded in Vienna, Budapest and Prague. Similarly, within the borders of the Russian Empire, stock exchanges were based in St Petersburg, Warsaw and Helsinki.

As it turns out, the “emergence” of a stock market is conceptually elusive and empirically not easy to identify. Intuitively, it is related to a market’s ability to reach a critical threshold of activity relative to the overall size of the economy. But what is that threshold which would discriminate between a sub-merged and an emerged market? A rise in stock market capitalization is a combination of an increase in prices and an expansion of the equity base. Is a substantial increase in stock prices *per se* sufficient to identify “emergence”?
1.3 Case studies to highlight some of the issues

In the light of the above considerations and to exemplify how complex the task of defining “emergence” as a measurable fact could prove, we use Spain as a pilot case. The Madrid Stock Exchange, opened in 1831, traded almost exclusively in government debt until early in the 20th century: private equities and bonds represented less than 5 per cent of total annual traded volumes until 1905, then jumping to 50 per cent by 1911-13. Thus, the first real boom of stock and bond trading did not materialize until the first decade of the 20th century. However, the General Market Index (estimated as a monthly unweighted price index based on the average values of an unknown number of stocks) showed a significant increase until the early 1880s (from 100 in January 1875 to 334 in December 1881), and a new upward trend during the 1890s, reaching in April 1900 a peak of 627. Listed companies remained around 30 until 1880, doubled to 60 by 1890, and doubled again during the first decade of the 20th century, reaching a peak of 116 in 1913 (Madrid Stock Exchange 1994). [For simple comparison, in Milan (Italy), listed companies were 29 in 1890, 52 in 1900 and 147 in 1910].

As shown in figure 3, the phases of index increases and listing expansions are largely coincident. Normalized by population (around 20 million), the value for listed companies in Madrid in 1913, 5.8, was only slightly lower than in Milan (6.2) and much higher than in St. Petersburg (2), although significantly lower than in Paris (13.3) and Berlin (28), as reported by Rajan and Zingales (2003). Although the corresponding value of stock market capitalization is not available for comparison, the parallel dynamics of prices and listed companies suggests that it must have been on an upward move consistently since the 1880s.
The availability of annual trade volumes in Madrid, disaggregated by government bonds (since 1875) and corporate bonds and stock (only available since 1902), makes it possible to compute the value traded ratio (shown in Figure 4), a conventional measure of stock market liquidity. Excluding trade in government bonds, which recorded a dramatic surge during the two decades 1885-1905, the value traded ratio of corporate bonds and equities reached in the years 1909-1913 a mean value of 3 per cent. Since information on trade volumes is usually missing in historical sources, we are not able to provide a comparison with corresponding values for other European markets in the same period. As a simple reference, the value traded ratio of the same Madrid stock exchange over the period 1976-1993 was 4.5 per cent (Levine 1997, 711).4

Note. Data from Madrid Stock Exchange (1994). The General Index is a Dow Jones-style, unweighted price index (excluding dividends). The source does not specify either the number of stocks included or their sectoral distribution.

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4 For the same period 1976-93, values for “emerging markets” are: Argentina 1.3; Brazil 4.1; Chile 2.1; Mexico 4.4; Turkey 2.6. In Europe comparable values are Italy 2.8; Portugal 1.4.
However, by considering only Madrid, we would also certainly underestimate the level of stock market development achieved in the Spanish economy. By how much? Houpt and Rojo (2010) report that corporate bonds and stocks traded in the Bilbao Stock Exchange in 1916 (the first year available) equaled 175 mln Ptas compared to 160 mln Ptas in Madrid (a ratio of 1.1); values in 1920 were 306 and 530 mln respectively (a ratio of 0.7). Extrapolating these two values to the period 1909-1913 would obtain a joint value traded ratio for Madrid and Bilbao in the range of 5.1 and 6.3 per cent. Including Barcelona would increase the estimates further.

Based on this evidence, 1) the Madrid stock exchange had certainly “emerged” by 1913, and probably by 1900; 2) the emerging process started in the early 1880s and covered approximately two decades; 3) by 1913 liquidity (as measured by the value traded ratio) had reached values comparable to those exhibited by emerging markets in the 1980s-90s; 4) overall stock market development and liquidity for the Spanish economy as a whole (including other regional stock exchanges such as Bilbao and Barcelona) were probably twice as large as estimated on the base of the Madrid exchange only.

We will add some observations taken from the South-East European stock exchanges. By 1914, the following stock exchanges had emerged in the region: Vienna (1771), Budapest (1864), Istanbul (1866), Athens (1876), Bukarest (1881), Belgrade (1886), Sofia (1914), Zagreb (1918). It remains unclear to what extent there were also stock exchanges in Salonica and Smyrna/Izmir. Given their importance as trading hubs in the late Ottoman Empire this seems likely but further research is needed.
listed firms is available for some of the exchanges but some measure of stock market capitalization has been calculated only for Istanbul by Tuncer.

The basic picture which emerges is somewhat similar to Madrid: Initially, stock exchanges emerged connected to the government’s financial needs and trading in stocks was small to the point of non-existent. By World War I, however, transactions in joint-stock company shares constituted the majority of transactions.

The Vienna stock exchange – the oldest in SEE – is a good case in point. It was founded in 1771 but for the first decades the main purpose was to organise the market for government debt; no stocks were listed and even trade in currencies was limited. The first joint stock company on the stock exchange (listed for the first time in 1818) was the Austrian National Bank (i.e., the precursor of today’s central bank), i.e. an enterprise again linked to the government’s financial needs. As late as 1848, we find only eight joint stock companies listed on the daily stock exchange list. Due to the heavy government influence the period 1771 to 1854 is often referred to as “staatliche Zwangsboerse” (forced stock exchange). Government influence proved pernicious which is why legislation passed in 1854 paved the way for a liberal stock market model more in line with West European standards. With industrialisation spreading to the European mainland, new economic opportunities arose many of which were financed on the Vienna stock exchange. By 1873, we find 378 joint stock companies listed on the Vienna stock exchange, outnumbering bonds by two to one. The infamous 1873 Vienna stock market crash led to a new wave of stock market legislation but the most serious consequence was that henceforth financing enterprise and industry was largely shifted from the stock market to the large Austrian banks (i.e., the German model of corporate finance); the “stock” exchange reverted to being, by and large, a “bond” exchange. It is only in the interwar period when there are again more stocks than bonds being traded.

The second most important stock exchange of the region was located in Istanbul. In 1854, the Ottoman government began tapping West European capital markets, which apparently gave rise to some unregulated trading activity for Ottoman bonds within Istanbul itself. The foundation of the Istanbul stock exchange in 1866 was apparently an attempt to regulate such activity, as well as to take advantage of the new commercial code of 1861 which had permitted the foundation of joint-stock companies. Still, all indications are that initially most of the transactions related to
government debt. This however had changed fundamentally on the eve of World War I. We show the distribution of registered capital and number of securities for 1914 (Figure 5).

Figure 5: The Istanbul Stock Market

The Bukarest stock exchange follows roughly the same pattern. When founded in 1881, only government bonds and railway companies (many of which were probably under some form of government control) were traded and it takes until the early 1900s that commercial banks and industrial companies start being listed.

The one case that appears different relates to Greece: The Athens stock exchange was founded in 1876 but regular trading started only in 1880. Government debt, commercial banks, other joint stock companies as well as foreign exchange were traded from the beginning (as evidenced by the stock exchange list). As most government debt was held externally and as there
were only few joint stock companies other than commercial banks, the Athens stock exchange was, from its beginning, largely a market in which stocks of the major commercial banks were traded (a pattern which only changed after WW II due to industrialization of the Greek economy).

2. Which factors may have slowed down or constrained stock market development in historical emerging markets?

2.1 Theoretical models on stock market emergence

Figure 2 above shows that, by 1913 and for the limited sample of countries whose data are available, levels of stock market development, measured either by the capitalization ratio or the normalized number of listed companies (and leaving aside for the moment the precise quality of such indicators), was clearly correlated to levels of income per capita. As such, it is not surprising to observe in the eve of WW1 lower levels of stock market development in relatively poor peripheries of the European economy. However, the figure also shows a significant dispersion of stock market development at similar levels of income per capita, suggesting that other determinants should be investigated. Moreover, the direction of causality may run in both directions, as demonstrated by the stream of research on the impact of various dimensions of financial development (including stock market development: see Levine and Zervos 1998) on growth (Levine 2004). Thus any empirical assessment of the historical determinants of stock market development requires a more comprehensive approach, as the existing literature points to a much wider set of potentially relevant factor.

(a) GDP per capita and market liquidity

Calderon-Rossell (1991) proposes a partial equilibrium model in which stock market development is a positive function of income per capita and market liquidity (measured by the turnover ratio). He also finds empirical evidence in support of his model for a sample of 42 countries in the 1980s. Similar results are obtained by Garcia and Liu (1999) who also emphasize the positive role played by the savings rate as well as by the development of the banking system, suggesting that these two dimensions of financial development may be complementary (as suggested by Demirguc-Kunt & Levine 1996).
(b) Corporate ownership I: “law and finance” school

The “law and finance” literature suggests that differences in the nature of financial systems are basically determined by differences in legal rules that protect investors against expropriation by insiders as well as to differences in the effectiveness of their enforcement. External finance creates agency problems between investors and entrepreneurs (managers) – that is, corporate governance issues such as moral hazard and adverse selection. The rights attached to securities – such as shareholders’ right to vote out directors, or creditors’ right to repossess collateral – depend on the legal system of the jurisdiction in which they are issued, and the level of protection investors receive determines the latter’s willingness to finance firms. Therefore, legal systems that give substantial rights to security holders and guarantee their credible enforcement are bound to promote larger and deeper capital markets. The seminal contributions by La Porta, Silanes and Shleifer (LSS, 1997 and 1998) contend that European legal traditions from which commercial laws originated differ widely as to protection of investors and enforcement of their rights. They find that, as a general matter, company and bankruptcy laws rooted into the civil law tradition – originated in Roman law and subsequently branching out in French, German and Scandinavian families – give investors weaker legal rights than the Anglo-saxon common law tradition. Although the allocation of countries to different “legal families”, as well as the very concept of legal family is seriously questioned (by instance, by scholars of comparative law: see Siems 2006) and recent studies failed to find empirical evidence in support of the legal origin hypothesis of stock market development (see Armour et al. 2008), the LSS evidence is at least suggestive that cross-country differences in the development of capital markets can be traced back to differences in the legal and institutional set-up. In turn, legal tradition may affect the level of ownership concentration, as poor shareholders’ protection can translate into either low demand for corporate shares by minority investors or higher demand by large or dominant shareholders (who need to own more capital in order to exercise their control rights), or both – that is, ownership protection can become a substitute for legal protection. In a later study focusing specifically on securities laws (La Porta et al. 2006), they find no evidence that public enforcement – typically emphasized by Civil Law legal traditions – is important for investors’ protection, whereas they find strong evidence that laws mandating disclosure and facilitating private enforcement through liability rules – as in the Common Law tradition which emphasize private monitoring and contracting – benefit stock markets. They trace back the superiority of Common Law relative to Civil Law and the
pervasiveness and resilience of its influence to the “dispute resolving” orientation of the former, compared to the “policy implementing” characteristics of the latter (La Porta et al. 2008). However, recent empirical studies

(c) Corporate ownership II: shareholders versus managers
The issue of corporate ownership is emphasized also by a different strand of literature. Roe (1994) and Bebchuck and Roe (1999) argue that the existence of controlling shareholders and the traditional weakness of managers prevented European countries from adopting the US model of corporate governance based on regulation restraining the power of large shareholders. Ownership structures, in turn, generate path dependency, since the original balance of power tends to entrench interest groups within the existing legal system. In fact, there exists ample evidence that historically ownership and voting power concentration was significantly higher in Continental Europe (see also Becht and Röell 1999). In addition to this specifically European business feature, historical research on the structure of markets for corporate controls in Europe shows that since the late 19th century a number of institutional innovations emerged which enhanced dominant shareholders’ ability to build up large voting stakes without concentrating ownership (cash flow) rights. Classical examples of such institutional arrangements were pyramidal groups (commons in Italy, France and Belgium, and probably in many other countries), or voting pacts and caps widely used in Italy and Germany, usually compounded by extensive interlocking directorates (Barca and Becht 1999).

(d) Multiple equilibria – path dependence models
A different strand of theoretical literature suggests that differences in equity market size may reflect multiple equilibria arising from “thick market externalities” among market participants (Pagano 1993a). As participation affects the riskiness of securities and their sensitivity to order flow, a market in which actual and potential participants expect low participation, riskier assets and poor liquidity, can be trapped into self-validating persistent stagnation (Pagano 1989a and 1989b). In a similar vein, the number of listed companies enhances risk sharing opportunities and the ability by investors to diversify their equity portfolio. As the demand for shares depends on the magnitude and variety of shares supplied, a market where few issues are expected to be listed will
generate expectations of low demand, thus making entrepreneurs reluctant to go public and pay the related private costs (loss of private benefits of control, takeover risk). Again, a market suffering such “contagion mechanism” can be trapped into a low-level equilibrium, irrespectively of potential participants (Pagano 1993b).

(e) **Stock market development and globalisation**

Rajan and Zingales (2003b) propose an interest group theory, according to which financial development – and more specifically, the development of securities markets – goes hand in hand with globalization. In a closed economy, incumbents (both in finance and industry) are against the development of capital markets, since the latter have little respect for the value of incumbency, lower entry barriers and tend to enhance competition, thus eroding their dominant position. However, opening the economy to international trade and capital flows can mute incumbents’ opposition to financial development, since facing external competition may require enhanced access to finance. Their story converges to a certain extent with the “law and finance” view, in that it suggests that in Civil Law countries it is easier for small interest groups to influence the policy-making process and capture the legal system. Their empirical tests suggest that, after controlling for the level of economic development, financial development is in fact positively correlated with trade and capital openness, with the “Great Reversal” of capital market development running parallel to the interwar deglobalization.

(f) **Political risk**

Finally, the recent literature suggests that another element which may negatively affect stock market development is political risk (Diamonte et al. 1996; Erb et al. 1996; Perotti and Van Eijen 2001). The concept of political risk includes not only political instability, but a wider set of variables such as external conflict (war); corruption in government; military in politics; law and order tradition; racial and national tensions; political terrorism (political violence); civil war risk; quality of bureaucracy. More specifically, legal and political uncertainty about future intervention of political forces in the governance of economic activity, by instance through nationalizations and expropriations of private investment, is likely to depress trading in the stock markets. Conversely, credible privatizations, by signaling a government’s commitment to market-oriented reforms, may contribute to reduce political risk and favor a stock market take-off. Political risk is generally
embedded into a wider “country risk”, which may include also macroeconomic and financial risk: inflation, fiscal imbalances, volatility of exchange rate, risk of contract (debt) repudiation by the government.

2.2 A preliminary historical analysis
Having outlined the six different schools of thought on stock market development, we want to provide the reader with a preliminary historical analysis as to which of the models we hold to be particularly relevant in our context.

GDP per capita (as one of the determinants highlighted in theory (a)) is correlated to stock market development, as shown in figure 2.

It is difficult to make even a preliminary statement on the two models centred around concepts of corporate ownership (b&c) in our context. In the “law and finance” models of LSSV, countries of the European periphery would all fall (with the possible exception of Ireland) in the German, French, or Scandinavian tradition. While the Iberian countries are relatively safely classified as “French” in the LSSV scheme, the South-East European countries stand probably somewhere in between the “German” and the “French” model.

More can be said at this stage of our research on theory (d) which suggests multiple equilibria in stock market development, or, in the parlance of economic history, suggests that path dependence plays an important role. The theory claims that a market in which actual and potential participants expect low participation and low liquidity, can be trapped in self-fulfilling persistent stagnation.

From the limited evidence we have, this is what seems to have happened in several South-East European countries. The Sofia stock exchange, for instance, reports monthly prices for the “Bulgarian Insurance Company” – which was probably the largest joint-stock company in Bulgaria in the interwar period – only for every forth month. Similar evidence of low liquidity is available for many other listed companies as well (in fact often even more pronounced).
While we do not know about any secondary listing of Bulgarian companies abroad, we have some evidence that foreign financial markets were often more liquid for domestic assets than domestic markets themselves. Greek government debt, for instance, was traded both at the Athens stock exchange as well as in Paris, London, Berlin, Brussels and probably some other West European stock exchanges. Interestingly enough, the yearbook of the Athens stock exchange draws on the average monthly course of the Paris stock exchange rather than the Athens data itself. While no reason for this reporting practice is given, it seems that liquidity in Athens was so low that the Paris price data was seen as more representative and less influenced by thin trading. Similarly, there is some evidence in the Austrian case that Austrian residents trying to invest their savings in Austrian financial assets did not do so via the Vienna stock exchange but indirectly via Frankfurt and Amsterdam based bankers. These bankers would then carry out all relevant transactions in the more liquid stock exchanges of the West European core countries.\(^6\)

The possible existence of multiple equilibria might also have been a reason why some peripheral countries tried to create stock exchanges by government decision, i.e. as a way of moving away from a sub-optimal equilibrium and creating a more liquid stock exchange in the home country. The Belgrade stock exchange (founded in 1886) was, at least partly, created because of an overly strong dependence on the Vienna and Budapest stock exchanges (where several Serbian companies were apparently listed), something which was deemed inappropriate with the recently gained political independence.

Turning to theory (e) – which suggests that stock market development is more likely in an environment of globalization –, it is worth keeping in mind that the emergence of stock markets in the European periphery neatly coincides with what is often called the “first age of globalization”, i.e. the period from the 1870s to the outbreak of World War I.

Last but not least, theory (f) – which highlights the importance of “political risk” (broadly defined) – also appears to have some bearing on our case studies. A comparison of the Iberian countries with the South-East European countries might be instructive here: while they all played roughly on the same level in terms of GDP per capita (though Spain was more developed than the rest), stock

\(^6\) It should be added that these off-shore holdings (and transactions) of financial assets by residents of peripheral countries might also have been motivated by tax evasion.
market development in Spain and Portugal came earlier and it is tempting to argue that the “political risk” present in South-East European countries (political independence occurring late, threat – and actual incidence - of wars until WWI, corruption, clientelistic political systems etc.) – explains some of this time lag.

2.3 Data requirements for a historical cross-country analysis

This literature offers a number of dimensions which should be explored by our historical analysis:

- **economic determinants**: income per capita, savings rate (data? see reconstruction of historical national accounts at Groningen GGDC), banking system development (data? should be generally available from national historical statistics)

- **stock market liquidity**: value traded ratio (value of traded securities(GDP) or turnover ratio (value of traded securities/market capitalization) -- this is one objective of this research project); the main problem here is that trade volumes are usually not reported, apart from exceptional cases – such as Spain. Therefore it is most likely that we’ll have to retrieve alternative, more indirect measures of liquidity – such as the incidence of daily zero returns, as suggested by Bekaert et al (2007).

- **legal and institutional set-up**: our task should be not only to allocate European peripheral countries to legal families (mainly French, German, Scandinavian belonging to the Civil Law tradition), but also to achieve a clearer identification of differences within same family, or similarities across different families: mutual influences, legal convergence, comparative commercial codes. We should identify a limited set of relevant legal norms and rules which could be compared across different countries. Related to this is the issue of **regulation and supervision of trading activity, norms and rules of broking, participation by banking intermediaries**, all aspects which may enhance or depress equity trading and market development. The Italian case provide an interesting example of “capture” of the regulatory process, and of the stock market, by large universal banks (Baia Curioni 1995). ).

In general, restrictive arrangements (entry barriers, price cartels) and high transaction
costs reduce the incentives to trade, thus producing thin markets (Green et al. 2000). In order to investigate this aspect, we may want to obtain some measure of pecuniary costs of trading (market-makers’ spread, brokers’ fees, transaction taxes e.g. stamp duties). Indirect transaction costs (the cost of acquiring and processing information) are virtually impossible to measure, however we may retrieve some indications by using the liquidity measure mentioned above (incidence of daily zero returns) on the assumption than intermittent trading – typical of many stocks in historical emerging equity markets – increases transaction costs.

- **Ownership, corporate governance and market for corporate control**: we should peruse country-specific historical literature, if available.

- **Political risk**: we should reconstruct indicators of political fragmentation and instability; see Polity data set? Specific attention to state intervention for expropriation of private investment (nationalization): focus should be on public utilities, and primarily on the railway sector – a major component of early stock market portfolios, and a widely intervened sector (concessions, subsidies, proposed and/or implemented nationalizations – e.g. Italy 1905). Nationalizations, and their implementation (e.g. indemnities) may signal increased risk of expropriation; they may have a negative impact on trading liquidity, market risk-sharing, investment opportunities for investors

- **Country risk (mix of political, financial and macroeconomic risk)**: see historical statistics for inflation, exchange rate variability, debt, banking and currency crises.
3. Did European emerging markets yield higher returns?

Empirical studies (Bekaert & Harvey 1995, 1997; Bekaert et al. 1998) have uncovered the existence of special characteristics of stock market returns in emerging economies of the 1980s-90s, compared to stock markets of industrial developed countries: higher average returns; higher volatility; non-normality of returns (higher and time-varying skewness and kurtosis); higher predictability and exposure to local rather than global information; segmentation (i.e. low correlation with developed markets). Those characteristics have important implications – e.g. high volatility and segmentation tend to increase cost of capital for local firms, thus reducing growth – and deserve historical investigation.

In this section we focus on average returns; in the next one, we will explore the other issues. In both sections, we briefly survey the theoretical insights and empirical methods proposed by the literature in order to explain these specific features. We then ask ourselves whether we should expect to find similar results in historical emerging markets and provide some preliminary empirical evidence.

There are two competing views to explain the fact that emerging markets’ equities yield higher returns. Harvey (1995) and Bekaert & Harvey (1995) focus on financial market integration and explain excess returns as a “free lunch” for foreign investors within a global CAPM framework. With perfectly integrated global markets, assets with the same risk in terms of exposure to a common world factor, would have the same expected return irrespectively of the market and the variance of country returns would not be priced by investors—i.e. the covariance with the world portfolio would represent the risk and determine the cross section of returns. If however markets are segmented, covariance with global factors may fail to explain its expected return; moreover, sources of risk, and thus rewards to risk, may be different. Excess returns would be explained therefore by “the pricing of local factors preceding full emergence and integration into global markets”, that is, the fact that poorly-diversified investors in segmented emerging markets demand higher returns. As capital market integration increases due to information technologies and liberalization, excess returns should gradually disappear. On the other side, Goetzmann & Jorion (1999) contend that excess returns are simply the result of survivorship bias and conditioning data analysis on recent emergence. They would disappear when the analysis is
extended backward to periods during which “emerging” markets remained “sub-merged”. Moreover, some series were backfilled for the period 1975-1981 using firms included in each index in 1981, therefore results for the first period could be affected by a look-back bias (due to the exclusion of firms that existed in 1975 and disappeared before 1981).

Historical stock markets could help shed light on this controversy. Unlike “re-emerging” markets of the late 20th century, historical stock markets were truly emerging for the first time. Assuming that we will be able to reconstruct equity indices for all markets, both successful and unsuccessful, our sample will not be affected by any survivorship bias. Moreover, our markets “emerged” in a historical context of free capital flows, with little or no de jure restrictions on investors’ ability to allocate their capital across different countries, and with fast-changing information technologies which accelerated the international transmission of information (Kaukiainen 2001). We would be interested in testing a global CAPM model, allowing with time-varying correlation with global factors, in this historical setting. Of course, even in the absence of legal restrictions on cross-country trading and formally open markets to foreign investors, de facto segmentation could be caused by implicit barriers, such as political risk, liquidity risk, weak corporate governance, lack of transparency (Bekaert et al. 2011)

But, in first place, did historical emerging markets yield on average higher returns than mature markets in industrial economies?

Historical research on British capital exports has already demonstrated that, in a CAPM framework, a portfolio of overseas securities quoted in the London stock exchange yielded a higher real risk-adjusted rate of return than a domestic investment portfolio (Edelstein 1982). In fact by 1913 overseas (both imperial and foreign) stocks and shares quoted in London, largely concentrated in railways and public utilities, accounted for 60 per cent of the value of all quoted securities. Using portfolio theory and applying mean-variance analysis to Edelstein’s data, Goetzmann and Ukhov (2005) demonstrate that diversification towards overseas assets provided British investors with valuable opportunities to maximize expected return, and that the actual share of foreign securities listed in London was consistent with the weights of foreign securities included in their estimated optimal portfolio. Assuming that stocks of foreign firms incorporated in
overseas “emerging” countries and listed in London were representative of stocks primarily listed in their home equity market, we should expect an index of “emerging” stock markets to yield a higher return.

One limitation of British data is that securities from “emerging” European markets were a marginal share of listed foreign securities, given the strong preference of British investors for assets from the Empire, USA and to a lesser extent Latin America. Secondary listing of stocks from European emerging economies in Berlin and Paris would be almost certainly more relevant for our research purpose (Daudin O’Rourke and Morys 2010 who compare the destinations of English, French and German foreign investment between 1870 and 1913). A recent analysis of German capital exports by Esteves (2008) confirms earlier research based on less systematic data (inter alia Feis 1930) that German capital exports revealed a strong preference for European markets, which accounted for two thirds of total German capital exports before 1913. French investors apparently showed a similar preference for European securities until the 1890s, although a shift seems to have occurred at the turn of the century in favour of North Africa and later on of Latin America and the USA (Esteves 2011). However, at present we are not in a position to assess whether European emerging stocks trading in Paris and Berlin commanded a similar excess return over portfolios of domestic securities.

As a preliminary collection of evidence on European emerging markets’ returns, we resort to data on real total equity returns (dividends and capital gains), expressed in US dollars, provided by Dimson et al. (2005) and subsequent updates (Credit Suisse Investment Returns Sourcebook 2009) for the decade 1900-1910. We construct three weighted portfolios: one of mature stock markets (London, Paris, Berlin, Amsterdam, Brussels, Zurich); one for European emerging markets (Milan, Madrid, Stockholm, Dublin, Oslo); and another one for emerging overseas markets in Western offshoots (USA, Australia, South Africa). For each portfolio, the weight of each market is based on the share of its GDP over the total portfolio GDP in 1913 (data from Maddison). Unfortunately, no data are available for emerging stock markets in Latin America, which could provide an interesting benchmark for comparison) We then calculate the real equity total return (dividends and capital gains) and the real equity capital gain for each portfolio. What excess return would have obtained in 1910 an investor who in 1900 diversified his/her portfolio to include emerging stock markets, compared to the total return yielded by an only-mature market portfolio
over the same time horizon? Table 2 suggests that the realized returns from the European emerging portfolio outperformed the industrial portfolio, but not the overseas emerging market.

Table 2: Realized total returns and capital gains: 1900-1910

<table>
<thead>
<tr>
<th></th>
<th>Real equity total returns</th>
<th>Real equity capital gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>3.08</td>
<td>-1.45</td>
</tr>
<tr>
<td>European emerging</td>
<td>6.01</td>
<td>1.72</td>
</tr>
<tr>
<td>Overseas emerging</td>
<td>9.41</td>
<td>4.70</td>
</tr>
<tr>
<td>London</td>
<td>1.8</td>
<td>-2.5</td>
</tr>
<tr>
<td>Paris</td>
<td>4.3</td>
<td>-0.1</td>
</tr>
<tr>
<td>Brussels</td>
<td>-0.6</td>
<td>-3.3</td>
</tr>
<tr>
<td>Amsterdam</td>
<td>4.8</td>
<td>-0.2</td>
</tr>
<tr>
<td>Berlin</td>
<td>3.8</td>
<td>-1.3</td>
</tr>
<tr>
<td>Zurich</td>
<td>3.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Dublin</td>
<td>0.9</td>
<td>-2.9</td>
</tr>
<tr>
<td>Milan</td>
<td>4.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Oslo</td>
<td>6.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Madrid</td>
<td>6.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Stockholm</td>
<td>17.5</td>
<td>12.2</td>
</tr>
<tr>
<td>New York</td>
<td>9.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Australia</td>
<td>11.7</td>
<td>5.2</td>
</tr>
<tr>
<td>South Africa</td>
<td>9.2</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Note. Data from Dimson et al. (2005) and subsequently updated.

4. Were emerging markets different?

4.1 Volatility, non-normality, predictability of returns: theory and empirical tests

We now turn to the issues of volatility, persistence and non-normality of returns; all these different dimensions are generally related to the degree of segmentation of local from global markets. Schwert (1989a), Harvey (1991), Bekaert & Harvey (1997) test four sets of instruments for volatility. First, they consider asset concentration, proxied by the number of stocks included in the indices; they also control for the existence of dominant stocks (representing a large share of market capitalization), assuming that diversified markets should have low concentration ratios. They expect that volatility should be inversely related to concentration. The second set of elements is related to market development (market capitalization) and economic integration (openness to trade and capital flows), all factors expected to decrease volatility. An additional element is the sectoral diversification of the economy—particularly relevant for our historical period, characterized by the emergence of new sectors typical of the second industrial revolution,
making their way through stock markets. As the covariance of stocks should decrease and their cross-sectional variance increase, at index level market volatility should decrease.

A third set of instruments is related to market microstructure. Returns’ volatility is affected by liquidity and by heterogeneity of traders’ information, as “price movements are caused primarily by the arrival of new information and the process that incorporates this information into market prices. Theory suggests that variables such as the trading volume, the number of transactions, the bid-ask spread or the market liquidity are related to the return volatility process”. Empirically, “a strong positive contemporaneous correlation between daily trading volume and return volatility” has been documented. Finally, underlying macroeconomics forces may affect equity returns (Schwert 1989a and 1989b)—e.g. high inflation (or high variance of changes of nominal exchange rate, in case inflation data are not available or are of dubious quality) is expected to increase return volatility. Macroeconomic factors may also be related to changes in country level’s political risk: political stability and better institutions are therefore expected to reduce returns’ volatility ceteris paribus.

To summarize, Bekaert et al (1997) formulate the following working hypotheses: “a poorly developed stock market in a relatively closed country … is likely to be characterized by high stock market volatility, a low cross-sectional standard deviation, a high concentration ratio, and a low ratio of market capitalization to GDP. There may be political risk reflected in low credit rating, an unstable macroeconomic policies translating into high foreign exchange volatility”. In turn, openness and financial liberalization should lead to a fall in volatility; however, they also find that the proportion of variance attributable to world factors is generally small. In support of this findings, Aggarwal et al (1999) identify shifts (structural breaks) in volatility of emerging markets’ returns, then examine events that took place around that time period (social, political, economic) and find that they were mostly local.

Integration is also related in the theory to non-normality of returns—e.g. skewness and kurtosis, two other characteristics observed in emerging stock markets. Bekaert and Harvey (1996, 1997) suggest the existence of a critical state of transition from segmentation to integration during which there might be drastic changes in the sources of risk as well as in the characteristics of asset
returns. By instance, increased integration due to a financial liberalization may cause price hikes in the short run, translating into temporary positive skewness and kurtosis; however, in the long run, with stock market deepening and wider diversification of the stock market, skewness and kurtosis should decrease.

Finally, the persistence (or predictability) of returns often observed in emerging markets is generally associated to market imperfections, determined by infrequent trading. Asset concentration is also believed to be able to explain part of the cross-section of autocorrelation. Harvey (1995) suggests an empirical test of predictability, based on a regression of returns on lagged local equity return, conditioning to a set of variables including global information (lagged return on global index and excess returns –over a risk-free asset – from bonds, bills and dividend yield) as well as local information (change in nominal exchange rate, dividend yield, local risk-free interest rate).

4.2 What should we expect in the pre-1913 historical setting?

Using the described set of hypotheses as a starting point, in our pre-1913 historical setting we would expect to observe a downward volatility trend in European emerging markets. Given the increasing degree of openness of peripheral economies, the absence of formal restrictions on foreign investors and the significant number of cross-listing (firms incorporated and primarily listed in peripheral markets with secondary listing in core, developed markets, such as London, Paris, Berlin and Brussels), global factors should have become more relevant than local factors over time. In emerging markets, market capitalization was generally upward and the sectoral composition of listings increasingly diversified, which should have translated into lower volatility at index level. For similar reasons, non-normality of returns (skewness and kurtosis) and returns' persistence should also decrease over time.

From a macroeconomic perspective, the Gold Standard guaranteed a stable global environment, although occasional global shocks, such as the 1890 episode (Baring crisis) and the 1907 stock market slump, certainly caused short-run shifts in volatility. However, many emerging markets certainly showed less favourable conditions. Some countries suffered from higher macroeconomic instability and went on and off the Gold Standard, thus bearing higher exchange rate risk –
although foreign investors could protect themselves by using gold clauses. Table 3 shows the volatility, cumulative and max/min appreciation/depreciation of a sample of European currencies vis-à-vis the British pound in 1875-1890 and 1891-1913. Whereas exchange rates of core industrial economies exhibited lower volatilities over time, “emerging” countries such as Russia, Italy, Spain, Portugal, Greece, showed very high volatilities, especially after 1890, and in some case a clear trend towards depreciation.

Possibly more relevant than the adherence to Gold Standard, investors’ perception of country risk were driven by governments’ fiscal policy and debt accumulation (Flandreau and Zumer 2004). Some countries were also affected more than others by political instability and involvement in local or overseas wars. Some were occasionally hit by local financial and banking crises. And, as already mentioned above, de facto openness could be limited by implicit barriers, which would magnify the relevance of local risk factors for equity returns.

Table 3: Volatility of nominal exchange rates vis-à-vis the British Pound, 1875-1913

<table>
<thead>
<tr>
<th>Year</th>
<th>S.D.</th>
<th>Cumulative Appreciation</th>
<th>Max Depreciation</th>
<th>Max Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1875-1890</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>8,06</td>
<td>24.01</td>
<td>18.24</td>
<td>-12.66</td>
</tr>
<tr>
<td>Italy</td>
<td>2.77</td>
<td>-6.35</td>
<td>6.25</td>
<td>-7.12</td>
</tr>
<tr>
<td>Spain</td>
<td>1.32</td>
<td>5.85</td>
<td>3.01</td>
<td>-1.76</td>
</tr>
<tr>
<td>France</td>
<td>0.97</td>
<td>0.55</td>
<td>2.42</td>
<td>-2.34</td>
</tr>
<tr>
<td>Belgium</td>
<td>0.96</td>
<td>0.48</td>
<td>2.33</td>
<td>-2.31</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.93</td>
<td>2.28</td>
<td>2.33</td>
<td>-1.31</td>
</tr>
<tr>
<td>Portugal</td>
<td>0.87</td>
<td>1.39</td>
<td>1.72</td>
<td>-1.55</td>
</tr>
<tr>
<td>Ottoman Empire</td>
<td>0.81</td>
<td>-1.13</td>
<td>1.49</td>
<td>-2.15</td>
</tr>
<tr>
<td>Norway</td>
<td>0.65</td>
<td>0.57</td>
<td>1.83</td>
<td>-1.29</td>
</tr>
<tr>
<td>USA</td>
<td>0.58</td>
<td>-0.81</td>
<td>0.64</td>
<td>-1.11</td>
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<tr>
<td>Switzerland</td>
<td>0.53</td>
<td>0.70</td>
<td>0.77</td>
<td>-0.78</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.50</td>
<td>-0.27</td>
<td>0.99</td>
<td>-1.28</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.43</td>
<td>-0.69</td>
<td>0.46</td>
<td>-1.13</td>
</tr>
<tr>
<td>Germany</td>
<td>0.34</td>
<td>0.31</td>
<td>0.52</td>
<td>-0.85</td>
</tr>
</tbody>
</table>

No data are available for Greece’s drachma until 1902.

<table>
<thead>
<tr>
<th>Year</th>
<th>S.D.</th>
<th>Cumulative Appreciation</th>
<th>Max Depreciation</th>
<th>Max Appreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1891-1913</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>8.56</td>
<td>26.75</td>
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<tr>
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<td>2.82</td>
<td>8.92</td>
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</tr>
<tr>
<td>Russia</td>
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<td>7.60</td>
<td>18.05</td>
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<td>Italy</td>
<td>3.57</td>
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<td>Ottoman Empire</td>
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<td>0.68</td>
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<td>USA</td>
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<td>0.89</td>
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<td>-0.90</td>
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<tr>
<td>Germany</td>
<td>0.39</td>
<td>0.05</td>
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</tr>
<tr>
<td>Belgium</td>
<td>0.39</td>
<td>0.81</td>
<td>0.64</td>
<td>-1.12</td>
</tr>
<tr>
<td>Switzerland</td>
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<td>0.09</td>
<td>0.64</td>
<td>-1.00</td>
</tr>
<tr>
<td>Norway</td>
<td>0.37</td>
<td>0.13</td>
<td>0.89</td>
<td>-0.78</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.37</td>
<td>0.13</td>
<td>0.89</td>
<td>-0.78</td>
</tr>
</tbody>
</table>

Note. Annual changes of nominal exchange rate with British Pound, expressed as units of national currencies per Pound. Positive (negative) sign denotes depreciation (appreciation). Data are from GFD (Global Financial Data). Countries are ranked according to the standard deviation of the changes in their nominal exchange rates.
A comprehensive investigation of cross-country volatility, non-normality and persistence of returns in historical emerging markets is of course impossible at the current state of research. As anecdotal evidence, however, we may want to use the Madrid General Index 1875-1913 to carry out a preliminary exploration of those issues. In order to have a comparable benchmark for the same period, we use the all-share historical index of the London stock exchange provided by Global Financial Data. Nominal returns, expressed in local currency, are adjusted for inflation by using a CPI annual series, also provided by GFD, converted to monthly frequency.

Descriptive statistics of real annualized returns (Figure 6) reveal that non-normality (kurtosis) of returns is a common characteristic of the two indices. However, the Madrid index exhibits higher mean and median return (4% compared to 0.6/0.1%), and higher unconditional volatility (28.9% compared to 19.2).

Figure 6: Real annualized returns: Madrid vs London, 1875-1913

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7 In the GFD database, the index is denominated FTSE all-share index, available at monthly frequency from 1693. The FTSE is a market-capitalization weighted index, however it is not explicitly stated in the database whether the historical reconstruction consistently maintained this characteristic.
To explore further the dynamics of volatility in the two markets, we model returns as a standard GARCH process composed of a mean and a variance equation:

\[ R_{i,t} = \alpha_0 + \alpha_1 R_{i,t-1} + \epsilon_{i,t} \]  
\[ h_{i,t} = \beta_0 + \beta_1 \epsilon_{i,t-1}^2 + \beta_2 h_{i,t-1} \]

where \( R_i \) is the monthly real annualized return, and \( \epsilon_i \sim N(0, h_i) \) represents the unpredictable component of the returns. Equation (1) allows for autoregression in the mean of return to capture predictability. Equation (2) models the variance of the unexpected returns as a GARCH process depending on ‘price news’ (\( \epsilon_{i,t-1}^2 \), the ARCH term capturing information about volatility observed in the previous period and measured as the lagged squared residual from the mean equation), and past expectations (the GARCH term capturing information about forecasted variance from the last period). The parameters \( \beta_1 \) and \( \beta_2 \) are the weights assigned respectively to the determinants of volatility. If \( \beta_1 \) and \( \beta_2 \) are positive, shocks to volatility (risk) persist, and the magnitude of the two parameters determine the degree of persistence; usually their sum should be lower than 1 in order to prevent an explosive process.

Table 4 shows the results. Again, persistence emerges as a common feature of the two indices. However, conditional volatility, plotted in Figure 7, confirms that returns in Madrid were much more volatile than in London during the 1880s and the 1890s. As the turn of the century approaches, however, volatility in the Madrid stock exchange seems to converge to London’s low levels. The high volatility episode in the Spanish market around 1898-1900 is in fact exogenous, related to the shock of the Spanish-American war, in which Spain lost Cuba and the Philippines, and the ensuing massive inflow of capital from the former colonies. Overall, the dynamics of decreasing volatility exhibited by returns on the Madrid Index seems consistent with the initial hypothesis, although many other factors might be at work here. Their evaluation requires a much more rigorous and comprehensive approach, which will be developed in the future.
Table 4: GARCH specification

Madrid

\[
R_{i,t} = 0.00 + 0.140 R_{i,t-1} + 0.213 R_{i,t-6} + \varepsilon_{i,t} \\
(0.09) \ (2.58^{***}) \ (5.12^{***})
\]

\[
h_{i,t} = 0.014 + 0.259 \varepsilon_{i,t-1}^2 + 0.571 h_{i,t-1} \\
(0.18) \ (3.92^{***}) \ (4.13^{***})
\]

\[R^2 : 0.096\]

London

\[
R_{i,t} = 0.00 + 0.197 R_{i,t-1} + 0.101 R_{i,t-2} + \varepsilon_{i,t} \\
(0.08) \ (3.86^{***}) \ (1.92^{*})
\]

\[
h_{i,t} = 0.005 + 0.126 \varepsilon_{i,t-1}^2 + 0.734 h_{i,t-1} \\
(2.19^{**}) \ (1.76^{*}) \ (6.92^{*})
\]

\[R^2 : 0.055\]


Figure 7: Conditional variance: London vs Madrid
5. Concluding remarks: a research agenda

We are now in the position of detailing a research strategy based on sequential targets.

Target 1. Empirically, our first objective will be to measure stock market development in the cross-section of peripheral European countries. By doing so, we’ll be able to identify the historical threshold for the “emergence fact”. Estimating stock market capitalization and the number of listed firms for benchmark years between 1870 and 1913 is feasible in the short run for most exchanges existing on the European periphery. However, it will be essential to take into account the existence of multiple exchanges within each country in order to gauge a realistic measure of national market development.

Historically, we will be able to identify the existence of homogenous or divergent patterns of emergence. Some common features already emerged: the trading infrastructure was initially created to deal with government debt; initial listings were largely based on banks and railways. Only in some cases, however, at the end of the 19th century listings took off and diversified enough to allow the “emergence” of the stock market. In some cases, too few companies were listed. In other cases, the market specialized in bond trading.

Target 2. This leads to the question discussed in section 2: what determined the emergence (or non-emergence) of stock markets. Theory and empirical research point to a number of possible explanations. Intuitively, the strength of the industrialization process and the ensuing increase in income per capita is the most obvious candidate. However, given the apparent dispersion of stock market development at similar levels of economic development suggest that other elements played an important role. The combination of legal, institutional, political and economic factors (structure of the market for corporate control, path dependence, globalization)—some exogenous, others endogenous—may prove not easy to disentangle both historically and empirically, but the challenge is fascinating and promises to open original perspectives on financial history of a large, and often neglected part of Europe. Stage 1 of the research project will provide a more realistic dependent variable (national stock market development). In section 2 we have also identified the data requirements for carrying out a cross-country analysis of the determinants of market development: economic factors (income per capita, banking sector development, ownership structure of the corporate sector), market factors (liquidity), legal and institutional factors (comparative commercial codes, regulation of trading, state intervention, transparency, accountability), political factors (fragmentation, instability, risk of expropriation), macroeconomic
factors (inflation, exchange rate volatility, frequency and magnitude of banking and currency crises). Target 2 would then be to collect the relevant data for the explanatory variables (and construct proxies wherever a direct measure is not feasible) and then to explain cross-country differences econometrically.

Target 3. This part of the project will be more specifically focused on the reconstruction of sectoral and general indices for each stock markets in order to address the issues discussed in sections 3 and 4. Archival and published sources will have to be perused in order to collect price data at daily frequency, dividends paid, nominal and paid-out capital of listed companies, number, denomination and characteristics of stocks issued. Particular attention will be devoted to the structure and the magnitude of the phenomenon of cross-listing; our objective will be to reconstruct the “geography” of firms incorporated and listed in peripheral markets with secondary listing in core stock markets. This is especially relevant if we want to understand the channels of market integration (as well as shock transmission) that were operating in European international finance before WW1. Once reconstructed, sectoral and general indices will allow us to explore on the basis of advanced empirical methods the many issues dealt with by the recent literature on emerging markets (higher returns, volatility, persistence, non-normality), to shed new light on investors’ strategies, and to better measure the degree of integration/segmentation of markets.

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