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Very preliminary : comments welcome!

Abstract

In this paper, we look back at the XIX century France to shed light on effect of competition in the stock exchange industry. During the XIX century the Paris financial centre plays a central role in the French financial markets. Nevertheless, six organized regional exchanges do exist along all the second half of the century. A recent literature started to study the complex functioning of the Paris financial centre as well as the interaction between its two components, the official Paris Bourse and its OTC rival, the Coulisse. Nevertheless, a very small literature is devoted to the regional French exchanges.

By studying the interactions between Paris and Lyon, we find that, after the 1881-1882 boom and burst, the Lyon Stock Exchange has to struggle for surviving facing fierce competition from the Paris Bourse and main national banks particularly after the 1898 reorganisation of the Paris financial centre, while the strong activity of Coulisse before the 1895 gold mines crash had a positive effect on the Lyon one. After the 1898 reorganisation, the Lyon Stock Exchange survived thanks to a new listing policy favourable to SMEs and the development of second-tier market for both these unofficially traded SMEs and unlisted risky (mainly foreign) stocks. On the other side, the progressive homogenisation of the official market imposed by regulators to enhance their control over the French securities market acted as force driving trading to Paris: only the facilities the Lyon Exchange gave to the main banks of the financial centre maintained some activity.

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1 Introduction

The European Markets in Financial Instruments Directive (MiFID), which came into force in November 2007 and currently under review, made competition among trading platforms the principle governing the European stock exchange industry and achieved the creation of a "market for markets" in Europe[1]. This process started with the measures undertaken to foster integration among national financial systems. These measures lowered the barriers to competition among trading platforms in Europe.

Four years after the MiFID implementation, a simple observation of the European financial market shows that competition led to the fragmentation of European trading. The fast entry of many new players has reshaped the organisation of the industry. This has raised concerns about the oversight of the market: national watchdogs have underscored the issues they face in monitoring the market because of its high level of fragmentation. On the other hand, the new competitive framework pushed the incumbent stock exchanges to mergers and acquisitions as strategic move to defend their market shares, while some signs of a challengers' consolidation process appears: recently, the platform BATS has bought its competitor Chi-X. The mergers and acquisitions raised concerns from the European competition authorities because of the dominant position merged players could reach, as it has been the case for the merger between NYSE-Euronext and Deutsche Börse. Nevertheless, the European Commission does not oppose to the merger between NYSE-Euronext and ICE.

At the same time, competition focused the attention of trading venues on both the most liquid stocks and bigger (often high frequency) investors. According to many market participants and regulators, competition among stock exchanges harmed the financial markets' contribution to small and medium businesses (SMEs). SMEs play a crucial role in the European economies. The new European regulatory banking and insurance framework (Basel III; Solvency II) will likely reduce the funding SMEs get from financial intermediaries while financial turmoil already hit SMEs' financing. This is why private and public bodies across Europe are putting in place actions and policies to develop the support financial markets can give to SME's developments. Recently, the British Business Secretary, Vince Cable, proposed to re-open some regional stock exchanges to make it easier for firms to attract investment. In France, a new "Exchange for the Business (Bourse de l'Entreprise)" is to be created in Paris to list and trade the stocks of SMEs, while the Lyon financial center is planning the re-opening of a local exchange.

[1] We are grateful for helpful suggestions from participants at the LARHRA Seminar in Lyon, the "Doctorissimes" Conference in Paris, the Fifth European Stock Market History Conference in Antwerp, the VIII European Historical Economics Society Summer School in Madrid, the 16th Summer School in History of Economic Thought, Economic Philosophy and History of Economics in Ankara, the Second Conference on "Links between Finance and Industry" in Lyon, the Frontier Research in Economic and Social History Meeting in Florence. We have received valuable comments from Pierre-Cyrille Hautcoeur, Kim Oosterlinck, André Straus and Eugène White. We remain solely responsible for the errors and interpretations.

According to standard models, competition among trading platforms would lead to the emergence of a single market due to externalities of liquidity and the reduction in information asymmetries resulting from the consolidation of the price discovery process. Therefore, consolidation would be the natural and desirable output of competition. More recent literature in market microstructure show that well differentiated exchanges can co-exist if investors' and issuers' preferences are heterogeneous. The exchanges' various settings would match the preferences of all the potential participants and bring them into the markets. Nevertheless, the actual output of the competition among stock exchanges and its welfare implications are still an open empirical question. Does competition lead naturally to a single market? Is the "one-fits-all" model is desirable? Is there still scope for peripheral (national or local) exchanges? If yes, why? What are the relationships between core and peripheral venues? Does an increase in the central venue leads increases in the peripheral one? Is the opposite true? What are the implications of the stock exchanges' competitive framework for SMEs?

In this paper, we look back at the XIX century France to shed light on these questions. During the XIX century the Paris financial centre plays a central role in the French financial markets. Nevertheless, six organized regional exchanges do exist along all the second half of the century[2]. A recent literature started to study the complex functioning of the Paris financial centre as well as the interaction between its two components, the official Paris Bourse and its OTC rival, the Coulisse. Nevertheless, a very small literature is devoted to the regional French exchanges (see Riva (2012) for a review).

We find that, after the 1881-1882 boom and burst, the Lyon Stock Exchange has to struggle for surviving facing fierce competition from the Paris Bourse and main national banks particularly after the 1898 reorganisation of the Paris financial centre, while the strong activity of Coulisse before the 1895 gold mines crash had a positive effect on the Lyon one. After the 1898 reorganisation, the Lyon Stock Exchange survived thanks to a new listing policy favourable to SMEs and the development of second-tier market for both these unofficially traded SMEs and unlisted risky (mainly foreign) stocks. On the other side, the progressive homogenisation of the official market imposed by regulators to enhance their control over the French securities market acted as force driving trading to Paris: only the facilities the Lyon Exchange gave to the main banks of the financial centre maintained some activity.

The rest of the paper is organized as follows. In the section 2, we discuss the theoretical argument about the competition among stock exchanges. In the section 3, we show how the Lyon Stock Exchange comes into the boom and burst of 1881-1882. Section 4 describes the hard recovery of the 1880s, while section 5 shows how the Lyon Stock Exchange survives during the Belle Époque. Section 6 concludes.

[2]Lyon (founded in 1845), Bordeaux (1846), Marseille (1847), Toulouse (1852), Lille (1861) and Nantes (1868). An organized market was set up in 1881 in Nice and closed in 1887.

2 What does theory say about competition among exchanges?

The outcome of competition among exchanges can lead to two different equilibria: a single market or a set of differentiated exchanges. On the one hand, agglomerating forces like economies of scale and externalities work for the concentration of both investors and issuers in a single exchange; on the other hand competition among exchanges could act as "a deglomerative force" (Gehrig 1998), in presence of heterogeneous investors, barriers to information flows or even just complex information. If there is a consensus in the literature on the fact that the co-existence of similar exchanges in an informationally integrated space is a waste of resources, there are arguments to support the view that different exchanges could offer trading and listing venues for investors and issuers otherwise left out of the market because a single exchange would not satisfy their preferences.

Standard theory suggests that the outcome of competition among exchanges is the emergence of a unique exchange. On the one hand, positive network externalities – mainly liquidity – leads to concentration (Di Noia 2001, Glosten 1994, Pagano 1989). On the other, a single exchange maximizes economies of scale and scope (Gehrig 1998, Pirrong 1999, Stigler 1964), and allows fixed costs to be amortized on more transactions, leading to lower transactions costs. Concentration leads to higher liquidity, more efficient prices, less information asymmetries and more incentives for firms to list their shares, broadening the scope for portfolio diversification (Ramos & von Thadden 2008). These increasing returns suggest that a single exchange is the natural and optimal outcome of competition (Arthur 1989, Demsetz 1968, Di Noia 2001, Economides 1993, Glosten 1994, Hagel & Armstrong 1997, Pagano 1989, 1993, Stigler 1961, Telser 1981). From this point of view, competition would lead to homogenisation of stock exchanges' models. Exchanges would adopt the winning first-mover organisation lowering transaction costs. Nonetheless, at the equilibrium, only the exchange performing better the adopted organisation would survive, absorbing the activity of the others.

Nevertheless, a single exchange faces some dilemma difficult to cut given the joint endogeneity of the market microstructure components. The literature has emphasized that it is impossible to design a market satisfying the heterogeneous preferences of market participants who are sensible to different dimensions of market efficiency like liquidity, transparency, immediacy and security (Schwartz 1995). A major trade-off is between liquidity and transparency. Standard microstructure models (see Madhavan (2000), Biais et al. (2005) for reviews) introduce at least two types of investors: big informed traders such as financial institutions and small, uninformed traders like private investors. High levels of *ex ante* and *ex post* market transparency discourage informed traders by making their information available to all market participants. On the other hand, if the single exchange opts for opacity, it discourages uninformed traders from entering the market[3]. This could lead to the emergence of separate

[3] The rationale is that in a transparent market small investors could easily check if they obtain a fair price. The operational force behind this rationale is that the disclosure of trading information to a large set of market

markets for the two groups if informed traders are not willing to sacrifice part of their profits in order to attract the uninformed ones on a transparent market as the bonding hypothesis predicts (Coffee Jr 2002): according to this view, the informed traders are ready to trade into a transparent market because they need the liquidity of uninformed traders.

This issue is strongly related to the choice of the trading system: if traders realize a constant flow of operations using the services of market makers, the prices remain essentially private and the market quite opaque (at least before computers); on the other hand, if an auction market is adopted, all participants bringing the sell or buy orders to a single confrontation or fixing, a more representative price is obtained and the price discovery process is very transparent (so the preference of Walras for this organization). The choice of a continuous auction with starting fixing for specific (derivatives) operations could reduce the execution risk, almost non-existent in a dealer market, and enhance immediacy. As a consequence, the issues above are related to the informational value of market prices and then to informational efficiency of the market (Pagano & Röell 1996).

These choices are linked to the membership regime of the exchanges. All the organised exchanges set membership criteria according to the other microstructure options. Loose criteria imply a high number of market participants; high criteria lead to a small, if not fixed, number. At least before computers, a high number of participants cannot run a transparent market as well as a small (fixed) number does. Another important issue is investors' protection: if the stock exchange's access is very open, it is difficult to create common guarantee above the (relatively small) guarantee of each operator[4]. A central counterparty would be attractive to risk-averse investors but would likely create moral-hazard problems among brokers if they are not sufficiently controlled, something in contradiction with free entry and unlimited risk-taking. It is even more difficult in a loose-membership-criteria market to put in place operational structures reducing transaction costs, such as effective and rapid settlement and delivery procedures that require constant credit flows and then mutual guarantee and confidence among participants.

Finally, these choices are also related to the type of securities listed. Firstly, an opaque exchange attracting informed investors could provide high liquidity for large issues of quasi-money securities through sophisticated and risky derivatives / block operations. Nevertheless, such block trading seems to be sometimes facilitated by the cross-listing of the securities on a transparent market generating reference-prices (Gresse & Jacquillat 1998). Second, uninformed investors prefer trading in markets with strict listing criteria (imposing high levels of disclosure) when informed investors prefer lower-level ones. Exchanges must make a trade-off between these demands and the characteristics of issuable securities: firm insiders are not keen

professionals improves price discovery since small traders can obtain the best price.

[4]Theoretically, an almost free entry market draws its stability from the high dispersion of trading activity among the participants. A member's default would not have systemic consequences given its small size despite the eventual counterparties' and clients' uninsured losses.

to disclose information about their business because they hope exploiting it on the market. Financial intermediaries with better information on some securities (e.g. on geographically distant issuers) may prefer trading them on opaque market for the same reason. Nevertheless, firms may list on strict-listing-criteria exchange if the insiders' benefits from "bonding" (mainly liquidity) are higher than the gains from their private information (Coffee Jr 2002), a balance depending on their preference for liquidity[5]. High tech firms present specific problems: their short records, the uncertainty and the complexity inherent to innovation make risk assessment difficult. Then, high disclosure and transparent exchanges attracting uninformed investors are likely to be (very) prudent about the listing of new technologies. This confirms that not only the trading system transparency level but also the listing criteria create scope for fragmentation. In line with this argument, Foucault & Parlour (2004) analyse the competition between two stock exchanges for IPO. The exchanges compete on the basis of a combination of listing policy, trading system, and listing fees. Competition leads exchanges to differentiate themselves according to this combination and can co-exist because entrepreneurs with different preferences list on different exchanges.

Moreover, from a strictly organisational point of view, the goal of exchanges under mutual form is to maximize the rents members gain from the organization. To maximize their rents, members must limit entry of operators. This limitation prevents the exchange from trading all the stocks issued on the financial market. The organized exchange will trade the most liquid and safe securities, leaving the other outside. On the other side, uninformed traders tend to concentrate on high disclosure, transparent and restricted-access markets thanks to the guarantees they offer. It attracts large investors. Nevertheless, the small (fixed) number of traders affects the process of investors' orders. It diverts the order flows toward competitor exchanges. The coexistence of different market is often explained in terms of capacity constraints (White 2013). On the one hand, this hypothesis does not fully explain either the success or the microstructures of loose-organization markets. On the other, capacity constraints can be pushed back by the organization of the securities industry: first, orders can be collected by intermediaries with large networks (banks) for a commission and not only by the market members themselves; second, an increase in the number of traders is not strictly required to deal with an increase in the volume of trade: actually, the traders' cognitive limits and the socialization that trading at a pit creates can limit the effectiveness (Baker 1984); at the same increasing the number of pits on the floor also help to make elastic the constraint on the number of listed securities.

[5] After Jensen & Meckling (1976), several authors developed the "bonding hypothesis": the issuers listing on high-disclosure exchange send a quality signal to uninformed investors that will buy their securities creating liquidity; the exchange then attracts also the informed investors, thanks to the opportunity to sell large issues; in return, higher liquidity lowers the cost of capital for the issuers. This virtuous circle would lead to a single exchange.

3 The steep way to the boom (1866-1881)

In 1845, after long struggles against both the local merchant power represented by the *Chambre de Commerce et d'Industrie* in Lyon and the political power exercised by the Ministry of Finance, the Lyon Stock Exchange is finally allowed to set up an organized market (a *parquet*) within the stock exchange, that is a specific floor were the official stockbrokers, the *agents de change*, could trade[6]. Lyon is the first provincial financial center in France to obtain the right to establish a *parquet*. At that time, the number of stockbrokers, which is allowed to trade at the Lyon Stock Exchange, is fixed at thirty by a *numerus clausus*. The *parquet* is a negotiation space open under the scrutiny of the public. More precisely, with the establishment of the *parquet*, negotiations are now conducted, as at the Paris Bourse, under specific rules in a fixed time and thanks to an "outcry" auction process in order to ensure fair and transparent prices. These prices are thus said to be official and authentic, which are published in a specific newspaper: the official list. Indeed, before the setting up of the *parquet*, prices were the result of bilateral negotiations made directly in stockbrokers' private offices or in a room closed to the public (Genevet 1890). In a report sent to the Minister of Trade (*Ministre du commerce et des travaux publics*) in 1833, the stockbrokers insist particularly on the abuses caused by those bilateral negotiations, especially as far as forward operations are concerned. For example, they report cases where some investors managed to publish false prices for their own benefit (Compagnie des Agents de Change de Lyon 1833).

During the early years following the setting up of the *parquet*, the Lyon Stock Exchange grows up in the shadow of the Paris Bourse. Investors in Lyon were particularly dependent on information sent by the capital. Indeed, at that time, communication technologies are far from being very efficient. According to a contemporary author, the Lyon Stock Exchange is the "vassal" of the Paris Bourse, because prices produced in Lyon rely on information provided by Paris (Mériclet 1859, p. 12). At this stage, it is difficult to provide formal evidence on that issue. Nevertheless, it appears that the core securities of the Lyon Stock Exchange are also cross-listed on the Paris official market: Crédit Mobilier, Crédit Mobilier Espagnol, Austrian railroads, Ottoman and Italian public debt, etc.

Nevertheless, the Lyon Stock Exchange gradually grows up over the first few years. The year 1862 is important for two reasons: first, the Lyon Bourse leaves its small room in the Palais Saint-Pierre and moves into the newly built Palais du Commerce. Second, a decree by the Emperor Napoléon III confirms the role of provincial exchanges, which confirms the situation of Lyon stockbrokers.

1866 is a crucial point in the history of the Lyon Stock Exchange. This is why we start our narrative to the analysis of these events. Events, that happen this year, influence the next fifteen years in the history of the Lyon Stock Exchange. In 1866 alone, four stockbrokers are

[6]The very first official application by the *Compagnie des agents de change de Lyon* dates back to 1823.

forced to resign. These failures are the result of the extreme and unanticipated volatility on Italian public bonds in the summer of 1866[7]. In a tense international context, the Italian rente 5% drops in June, before rising sharply in early July. As a consequence, the stockbrokers who sold forward this security are in trouble. In Lyon, the four failures leave a debt of 880,829.73 francs[8] . This amount is so large that the stock exchange committee cannot apply the old rule against this kind of scenario. Indeed with the old practice, losses have to be born by the stockbrokers who conduct business with the failed *agent*. The problem with this practice is that the fall of the four stockbrokers would have led to fall of the others through a domino effect. In addition to the survival of the Lyon Stock Exchange and to the reduction of the systemic risk, the new principle is adopted in order to calm down public opinion and not to deteriorate more the reputation of the Lyon Stock Exchange[9]. A new principle is adopted: one decides to "support through the profit and loss account, the losses that result from *agents* who remained debtors to their fellow brokers". The idea is to introduce, only to some extent, solidarity among stockbrokers. The objective is that the common fund reaches 1.2 million of francs in 1868. Indeed the solidarity among *agents* is said to be "voluntary and limited". It is limited to the amount of the common fund. The *agents* strongly reject the idea that solidarity could be enshrined in internal rules. The stock exchange committee sells its French rentes and allocates all the funds available for the resolution of this crisis. To finance the deficit left by the four *agents*, it decides to increase the internal tax, which finances the organization of the exchange, on the turnover of some securities, such as Italian public bonds.

At the same time, it is decided that forward operations should be monitored more closely. The exchange committee wished to revise its own internal rules in this direction, but it was not possible since the forward operations are officially banned until 1885. The exchange adopts a standardized form for partnership agreements following the example of the Paris Stock Exchange. Finally, a register is created to track unfair debtors (registre des mauvais débiteurs).

While the Lyon Stock Exchange tries to recover from the disasters of 1866, two new failures occur in the course of the Franco-Prussian war of 1870. This time, the debt left by the *agents* reaches 731,585.60 francs. This new crisis reinforces the principle of the need of a "voluntary and limited solidarity". But again, the Lyon stockbrokers are really reluctant to follow this principle (and they will stay reluctant through the rest of the 19th and the 20th centuries).

Between 1866 and 1873, three seats are systematically vacant. The exchange committee worries about this situation. Indeed, it negatively influences seat prices, as supply exceeds demand, because the expected future revenues of brokers fall. Before the 1866 crisis, the

[7] In Marseille, two stockbrokers were forced to resign in the aftermath of the crisis. The stock exchange Committee exhausted its common funds and have to borrow to survive (Gontard 1982).

[8] This amount refers to the debt of the four stockbrokers against their fellow brokers.

[9] Voices have been regularly raised since 1845 especially in the municipality of Lyon to challenge the existence of the *parquet*.

median of the seat price is 245.000 francs, while in 1869 and 1871 it is only 110.000 francs (see figure 1). Partial data on seat prices before the establishment of the *parquet* provided by Genevet (1890) suggest that prices of 1865 cannot be considered as outliers. It also reflects how unattractive the profession of *agent de change* is in Lyon at that time.

The late 1870s is more favorable to the Lyon Stock Exchange. On the one hand, it is able to recover part of the debts left by failed *agents*. On the other hand, it managed to create a substantial common fund. The target of 1.2 million of francs decided in 1868 is reached in 1876. As a consequence, seat prices systematically increase from 1874 on. The median price in 1865 is exceeded in 1878 (figure 1). At this time, no seat is vacant. There are two forced resignations in 1877, but the exchange committee manages the situation without problem. It points out the exchange's good financial situation. On the other words, it collects enough revenues from the internal tax to finance its activity.

The late 1870s are characterized by a boom, both economic and financial. At the national level, the Freycinet Plan, an ambitious public works program launched in 1878, stimulates economic activity. At the same time, many banks and other caisses de reports (houses specialized in "repo" operations) are set up and grew up thanks to capital increases. A few years later, Léon Say estimates that all the securities issued in France only for the year 1882 represent 7 billions of francs (Say (1886) quoted by Bouvier (1960)).

The years 1881 and 1882 deeply mark the French financial history and especially the history of the city of Lyon. Indeed, the boom and the bust, which follows, were mainly concentrated on the shares of two companies thoroughly established in the Lyon region: the Banque de Lyon et de la Loire, founded by Charles Savary, and the Union Générale, led by Eugène Bontoux. Our goal here is not to give a detailed account of the events of those two years, but rather to provide a "view from the floor"[10] of them using primary sources and thus to complement the classical account of the Union Générale crash by Bouvier (1960).

Then 1881 is a year of intense speculation. The particular setting of the Lyon stock market amplifies this phenomenon. First, it is possible in Lyon to trade forward with lots of five securities, while at the Paris Bourse forward operations are only related to multiples of 25 securities. As a result, it was much easier for investors to trade forward in Lyon. In particular, these operations were not reserved only to wealthy investors. In addition, it was possible to trade in an informal way at settlement dates not written on the official list. Usually in French stock exchanges, in order to reduce counterparty risk, it is allowed to trade forward up to two months for the more liquid securities. But, at the Lyon Stock Exchange, as in the Coulisse, the investors could sign forward contracts with a settlement date for a term of several months, which in turn increases counterparty risk. As the forward operations represent nearly 90% of all transactions carried out by the *agents de change*, we guess the terrible consequences that risk taken in the forward operations could lead for the Lyon Stock Exchange. The local finan-

[10] To paraphrase White (2011).

cial press also stimulated the speculation with its emphasis on particular and very successful stories[11]. The Lyon *agents de change* seem to be blameworthy. Indeed they took a great part in the creation of the *caisses de report*[12] and engaged themselves excessively in repo operations. In addition, the stockbrokers take over the unofficial market set up at the beginning of the 1880s. Finally, we have to emphasis the role played by a new communication technology, that is the telegraph. The exchange committee began discussions with the executive authority in charge of the telegraph in November 1871 in order to establish a telegraph office directly in the Palais du commerce. After long discussions, two direct wires are laid between the Palais Brongniart (Paris) and the Palais du Commerce (Lyon) on December 1st, 1880. Fully aware of the impact of this facility has on its business, the exchange committee agreed to spend more than 130.000 francs for the establishment of the connection, which alone represents nearly 1.6 times the amount of all expenses for the year 1880. With these direct wires, "a few minutes [are needed] to receive and send orders from Paris"[13]. Undoubtedly, this new technology led to an increase in operations in the Lyon Stock Exchange. One thus understand the words of Edouard Aynard, a famous banker and politician in Lyon, according to which Lyon in 1881 was transformed into "a vast Quincampoix street" (Aynard 1889, p. 13).

Using the "commissions" as proxy for the volume of the transactions in a stock exchange, we find that 1881 corresponds to the Golden Age of the Lyon Stock Exchange (figure 3). The amount of the commissions is multiplied by 3 between 1879 and 1881. 1881 is the first (and only) time that the Lyon market share (compared to Paris) exceeds 10% (figures 2 and 4).

The crash starts in early January 1882, after that (bad) news on investments by the Banque de Lyon et de la Loire spread among investors. A few days after, some stockbrokers suffer from difficulties. After carrying out an informal inquiry, on January 12, 1882 the exchange committee calls Allizon and Jacquet, two *agents de change*, to carefully display their financial positions. The exchange committee asked them for "liquidating [their positions] in the two days that follow"[14]. Other *agents de change* decided, without the express consent of the stock exchange committee, to rescue their two fellows in the two days. In particular they guaranteed their operations on the repo market. On January 16, the stock exchange committee formally decides not to intervene because "the common interests of the exchange do not allow it to provide an effective support"[15]. Indeed, the reserves of the exchange are already well underway. On January 17, a judicial liquidator is appointed to lead the liquidation of the two failed stockbrokers. The day of January 19 is "decisive" (Bouvier 1960, p. 143): while

[11] In an article published in *Le Figaro* (23/01/1882) after the crash of the Union Générale, the journalist Pierre Giffard traces back this phenomenon and provides some examples: one wigmaker made 50.000 francs and stopped working; one bank clerk (commis de banque) won 800.000 francs and spent the rest of his life smoking cigars in front of the Mediterranean Sea; etc.

[12] This is for instance the case for the "Caisse Lyonnaise", a *caisse des reports* founded by Charles Savary and five stockbrokers (Bouvier 1960, p. 124–125).

[13] CAC Lyon, minutes, general assembly, 29/12/1880.

[14] CAC Lyon, minutes, committee meeting, 12/01/1882.

[15] CAC Lyon, minutes, committee meeting, 16/01/1882.

the settlement is in full swing, the 500 francs shares of the Union Générale starts at 2000 francs and ends at 1460 francs, that is a 27% decrease in a few hours[16]. The exchange cannot support payments: the stock exchange closes on 19 at night. After the crash, one estimates that the inter-brokers debt amounts to 63.7 millions of francs and the total debt caused by the financial crash reaches 191 millions of francs!

4 The hard recovery after the crash (1882-1898)

The crash of 1882 hit the Paris Bourse, the Lyon Stock Exchange and the Coulisse, but the fate of the three exchanges is different: the Paris Bourse is bailed out by the Bank of France and goes through the liquidity crisis, the Coulisse – actually a badly known story – leaves debts to its clients while the Lyon Stock Exchange collapses and is re-founded. Nevertheless, the Coulisse, as a financial phoenix, arises from its ashes and competes successfully during the 1880s with the Paris Bourse, which knows a deep institutional crisis. At the very beginning of the 1890s the Coulisse already handles two thirds of the Parisian trading volumes. The Lyon Stock Exchange profits from the Coulisse's activity and starts a hard recovery. New regulations passed between 1890 and 1892 harm the Paris Bourse vis-à-vis the Coulisse, but at the same time the Lyon Stock Exchange vis-à-vis the Paris Bourse: if the negative effect on Lyon is noticeable, the positive effect on the Paris Bourse is overwhelmed by the loss of some competitive hedges vis-à-vis the Coulisse. For this reason, the triumph of the Coulisse is not the triumph of the Lyon Stock Exchange: a new fiscal law in practice abolishes in 1893 the monopoly of the official stockbrokers on the officially listed securities. The activity in the Coulisse spikes between 1894 and 1895, without driving the activity of Lyon at the same pace. Nevertheless, the financial and regulatory blows that the Coulisse suffer between 1895 and 1900 drive down the activity in Lyon, more exposed to the competition from a renewed Paris Bourse.

After the closing on January 19 1882, the Lyon Stock Exchange re-opens on January 23 but only for spot operations on which the stockbrokers bear smaller risks. On February 18, a new committee is appointed. The exchange committee's priority is to avoid official bankruptcies of the stockbrokers and thereafter bankruptcy of the stock exchange itself. However, the stockbrokers played a waiting game: stockbrokers are indeed confident in future judicial verdicts and they are in no hurry to sign a composition (*concordat*) with their creditors. For instance, debtors hope that the last capital increase of the Union Générale will simply be cancelled because of irregularities. In this case, operations on these shares could be declared null and void. This attitude deeply annoys the Minister of Finance, Léon Say. He did not want the government to intervene because, according to him, the losses of the Lyon Stock Exchange were considered as purely private. However, facing the inaction of the *agents de*

[16] All these prices are spot prices at the Paris official Bourse.

change, Léon Say warns that the courts power could hit, even if it has been merciful for the moment. Léon Say also requires the exchange five resignations. On February 17, 1882, he sent an envoy to the Lyon Stock Exchange. It reminds stockbrokers who gathered in general assembly that the Minister has asked for 5 heads before February 18, and invited the stockbrokers to "think about the difference between a voluntary resignation and a brutal official dismissal"[17]. Fearing disastrous reputational effects on themselves and on the whole exchange of a dismissal, five *agents de change* resign: the former head of the committee (the *Syndic*), two of his assistants (the *adjoints au Syndic*), and the two stockbrokers that suspended their payments by mid-January. On 25 March 1882, a decree deletes three offices and reduces de jure *the numerus clausus*. As a result, the number of Lyon stockbrokers is 27 at the most.

Thus, the government decides not to intervene to rescue the Lyon Stock Exchange. The Parisian high-profile private bankers, the so-called *Haute Banque*, is no more cooperative with Lyon while the Paris Bourse receives two successive external loans. The *Haute Banque* of Lyon is also embroiled in severe difficulties, which prevented it from giving any support to the Lyon Stock Exchange. Moreover it seems that anyway the government has banned the Lyon Exchange from taking out an external loan, while it allowed Paris to do so. The Paris exchange received indeed two external loans: one from a consortium of banks led by the Bank of France (80 millions of francs) and another granted by the bank Rothschild (18 millions of francs). Thanks to the Parisian stockbrokers' personal wealth and the wealth of their social network, these two loans are rapidly paid back. The crisis in the Paris Bourse is thus more a liquidity crisis than a systemic crisis (White 2007). As for the Coulisse, the outside brokers, called the *coulissiers* leave debts to their clients.

How can we explain this difference in treatment between the two official exchanges? Several reasons have been put forward, but none has been fully convincing. A first explanation given by contemporaries is that Lyon, which is said to be run by conservative elites, was punished by the center-left government. Another and more economically-based hypothesis relies on excessive risks taken by Lyon stockbrokers. For instance, stockbrokers never require their clients to deposit cash or securities when involved in forward, especially repo, operations. Some stockbrokers, involved in the *caisse de report*, encouraged these repo operations (see above). In addition, the stockbrokers carried out activities outside their monopoly. Lyon official stockbrokers have the control of the Lyon OTC market where a fierce speculation takes place on securities issued by companies run by Eugène Bontoux. Thus the government's decision would be a way to send to clear signal and reduce moral hazard in the future.

Restoring fully the Lyon Stock Exchange requires two conditions. The reorganization of the brokerage houses is the first: the 25 *agents de change*, who have not resigned, face two options. The first is to sell the office. This solution has been chosen by seven stockbrokers. The selling prices of the office are then between 50,000 and 75,000 francs, while the last price

[17] CAC Lyon, minutes, general assembly, 17/02/1882.

of 1881 had reached 425,000 francs, which means a depreciation of at least 80% (figure 1)! The recapitalization of the brokerage houses is the second option: the *agents de change* could call their partners for more money, or they could find new partners. Eighteen *agents* have chosen this second option. When enough *agents* are ready, the forward market re-opens (15/05/1882).

The next priority is to deal with the huge debt left by the crash of January 1882, the stock exchange committee decides to issue bonds, called "Bons de délégation de la Caisse Syndicale", which bear a nominal value of 500 francs and no interest. These bonds are spread among all the *agents* according to their net position vis-à-vis their fellow brokers. In turn each *agent* has to spread the bonds among his clients. In total, in May 1882, 101,547 bonds were issued for a total of 50,773,500 francs[18]. Each quarter, an amout is dedicated to the reimbursement of these bonds. These funds come mainly from a special tax on the trading (30%). Reimbursement is made according to an auction process. Each quarter, each bearer submits bids in one sealed envelope for the reimbursement of his bonds. The winners are those who proposed the lowest price. If there is no offer at less than 500 francs or if part of the amount dedicated to the bonds reimbursement is left, then bonds are redeemed at par through a drawing of lots.

The figure 6 describes the evolution of bonds reimbursement during the period 1883-1910[19]. Several results can be drawn from the observation of the curve. First, it reflects the strong pessimism that prevails just after the crash. Indeed, in July 1883, one agrees to receive 135 francs for a debt worth 500 francs that is only 27% of the nominal value. Nevertheless, the average reimbursement price follows a bullish trend. This suggests the greater optimism of *agents* while the debt is extinguished. It also reflects the general position of the stock exchange. When it gets better, the average reimbursement price is steadily increasing, as it is the case between 1885 and 1893. However, prices fall as difficulties rise, as after 1893. The extinction of the debt happens in 1910, that is 28 years after the crash of the Union Générale. Nevertheless we have to stress that in 1904 the situation does not seem to worry the stock exchange committee, since it wonders whether to anticipate the final reimbursement could be a good policy or not. This manifests itself in an average price of reimbursement at par and the low volumes that can be seen after 1905. Moreover it is clear from the figure 1 that the rise in the seat price after 1883 goes hand in hand with the decrease in the debt burden. In other words, the expected future profits of each *agent de change* increases as debt service falls.

The 1880s sees the rise of the Coulisse. After 1882, the Paris Stock Exchange loses its competitive hedge vis-à-vis the Coulisse because of a combination of internal decisions and new regulations. First, after the hard blow of 1882, the Paris official stockbrokers are no

[18]This is less than the inter-brokers (63.7 millions of francs), because the Caisse syndicale received cash from some of its debtors in the meantime.

[19]Although decided in May 1882, the first reimbursement took place in July 1883.

more ready to accept the moral hazard that the common solidarity among them could generate neither the subsequent payments for the debt of their fellow brokers. The Paris Bourse's committee imposes losses to the clients of two defaulting brokers, respectively in 1886 and 1888. The decision to renounce to the common solidarity makes the Paris Bourse more similar to the Coulisse. Second, the 1882 crash shows the systemic dangers of the forward operations' illegality. Illegality of forward operations creates juridical risks because brokers were not sure to suit successfully clients unwilling to pay: even if jurisprudence tried to harmonize practices and law, the free appreciation of each judge does not allow courts to be a sufficient threat over unwilling clients. As a consequence, investors could be tempted to speculate without paying their debts (Lagneau-Ymonet & Riva 2011).

After the blow, the government passes a law legalizing them in 1885. This law is more beneficial for the Coulisse than for the Paris Bourse because the latter was benefiting from a more favorable jurisprudence that the former in front of the courts (Lagneau-Ymonet & Riva 2011). Third, a judgment of the higher French Civil Court of 1885 limits the monopoly of the official stockbrokers to the officially listed securities, against a constant jurisprudence from the very beginning of the XIX century. This decision makes the trades of the *coulissiers* on unlisted securities legal, reducing therefore the juridical risk of their operations: clients of the Coulisse could be tempted to refuse to pay their debts because the trade with the *coulissiers* did not respect the law on the brokers' monopoly (Hautcoeur & Riva 2012).

The rise of the Coulisse drives the Lyon Stock Exchange's activity. "The Coulisse... [is] our best client", said the head of the Lyon Stock Exchange. The organization of the trading sessions at the Lyon Stock Exchange has been built to be the ideal complement of Paris Bourse. The *coulissiers* largely used Lyon as counterparty for their operations of arbitrage on highly liquid securities like the mines (and not just gold) as well as the main international publics bonds. The Lyon Stock Exchange opens at 11:00 and closes at 12:30, when the Paris Bourse starts the trading. The overlap between the Lyon Stock Exchange morning session and the opening of the Coulisse allows the latter to send orders to Lyon and receive the confirmation of the execution before the beginning the Paris Bourse. This arrangement gives the *coulissiers* opportunities to shunt cross-listed securities and, at least according the Parisian official stockbrokers, to affect the opening prices of the Paris Bourse via Lyon: the Lyon closing prices for securities officially cross-listed between Lyon and the Paris Bourse are indeed "official" and reported on the Lyon official lists.

This arbitrage was facilitated by several factors. The first one is the listing policy of Lyon: all the securities officially listed at the Paris Bourse are tradable at the Lyon Stock Exchange, even if only a limited number finds place on the Lyon official lists: among them, all the main international bonds that are the object of a fierce competition between the Coulisse and the Paris Bourse. Second, the Lyon Stock Exchange takes the control in 1881 over the OTC market in Lyon to avoid the setting up of a Coulisse in the financial center. From then onwards, this OTC market run by the official stockbrokers is an important source of business for them thanks to the trading of securities only quoted at the Coulisse, mainly mines stocks. Third, the improvement of the information technologies linking Paris and Lyon: the success of Lyon is so important in the late 1880s that often the transmissions of telegrams through the two wires the Stock Exchange financed in 1880 were delayed because of overcrowding. For this reason, the Lyon Stock Exchange asks the government for a third direct wire unless being able to finance it because of its 1882 debts. It obtains in 1889 that all the free resources of the telegraphic network will be devoted to the stock exchange during the trading session. In the same year, the need of more effective communications between Paris and Lyon pushes the Lyon Stock Exchange to ask for and attain the installation of a telephone in the exchange building. Fifth, the *coulissiers* not only are in touch with the operators in Lyon thanks to the IT, but they have appointed correspondents in the financial center.

Moreover, in order to profit from the closing prices of the Paris Bourse and trading on the basis of its prices with the *coulissiers*, the Lyon Stock Exchange organizes from the early 1880s an evening session at 5 pm that is so successful that Lyon brokers in 1888 ask for and attain a one-hour extension in order to execute all the orders they receive. This session allows traders to take positions to be hedged in the Coulisse's evening session. From the late 1870s, the Coulisse organizes its evening sessions, previously held on the street, in the hall of the Crédit Lyonnais. The Crédit Lyonnais provides the trading room and other facilities for free to the Coulisse thanks to the information for its proprietary trading it gets from the close observation of the trading flows. This evening session is so important that has effects at international levels: the Genoa Stock Exchange for instance organizes an evening session opening when the telegram with the prices of this market reaches the financial center; it raises the envy of the Milan Stock Exchange that does not benefit from a post office open up to midnight as Genoa does. After the blow of 1882, this evening session recovers very soon its importance: in 1885, the Paris Bourse sees it as a major competitive hedge of the Coulisse.

Nevertheless, a regulatory change at the very beginning the 1890s reduces the positive influence that the Coulisse's activity has on the Lyon Stock Exchange. After the legalization of the forward operations in 1885, the government passes the decree regulating the securities trading in 1890, promised by the Commercial Code of 1807. The regulations of 1890 have an ambiguous effect on the on the competitive position of the Paris Bourse. The Paris Bourse lobbied hard the government to obtain the decree: it was the guarantee that the rules of the exchange would be binding not only for official stockbrokers but also for their clients. The decree recognizes extensively the previous rules of the offcial market and gives to the stock exchanges' activity an official seal. However, the government imposes to the exchanges heavier regulatory burdens than the previous self-regulations, making them more rigid and homogeneous in their organization. As a consequence, the Coulisse takes even more advantages from its flexibility, increasing its competitive hedge vis-à-vis the Paris Bourse (Lagneau-Ymonet &

Riva 2012). On the contrary, the increasing homogeneity of the exchanges allows the Paris Bourse to attract the activity of the Lyon Stock Exchange: the Lyon market share stops to increase and the commissions in absolute terms spikes in 1890 (see figures 2, 3 and 4).

The homogenization of the French stock exchanges progresses remarkably thanks to the prescriptive work of the Ministry of Finance between 1890 and 1892. The stock exchanges have to adapt their internal rules to a new national ones and must submit them to the ratification of the Ministry of Finance. After a hard and long negotiation between the Ministry of Finance and the Paris Bourse for the internal rules of the latter, the former imposes to the regional exchanges to model their own rules on the Paris ones. Higher is the homogeneity among the French official markets, higher is the attractiveness of the Paris one thanks to the externality of its liquidity, even if it is losing market shares vis-à-vis the Coulisse and the Coulisse supplies activity to the Lyon Stock Exchange.

In order to contrast the Coulisse, the Paris Bourse in 1892 on the one hand anticipates its opening at 12:00 and, on the other hand, makes pressures over the regulators to attain the closing of the evening session in the Crédit Lyonnais building, at that time a very well-organized and liquid market. The Paris Bourse opens its doors at the noon to capture the orders' flow on international bonds the Coulisse trades with the help of Lyon. The Lyon Stock Exchange tries to react to this challenge. It anticipates its opening to 10:45 and maintains the closing at 12:30 pm to benefit from the orders of foreign clients reaching the market around the noon: by this way, the Lyon clients still have the time to get the confirmation of the orders' execution before the opening of the Paris Bourse.

At the same time, the Lyon brokers ask for the reopening of the evening session, closed because of the Parisian pressures and the 1890 regulations: even if the regulation does not explicitly forbid after-hours sessions, it makes an evening session run by official stockbrokers difficult to defend in front of the regulators because opposite to the rationale of the rules. In spite of the opposition of the head of the exchange who resigns at this occasion, the Lyon Stock Exchange reopens the session with the authorization of the local authorities. Neverthless, the Lyon Stock Exchange cannot take the most of it because very soon the Paris Bourse attains the closing of the evening session of the Coulisse in the hall of the Crédit Lyonnais after a long and intensive fight against the bank and a hard lobbying. From 1889, the Paris Bourse starts its campaign against the evening session of the Coulisse, but it cannot convince the Ministry of Finance given the role of this market in the Paris financial center and the power of the Crédit Lyonnais. The Bourse cannot win the opposition of the bank even when it declares it as an "enemy" of the Bourse and forbids the brokers to grant any rebates to it. At that point, the Paris Bourse starts the procedure to suit the Crédit Lyonnais and the *coulissiers* in front of the courts. To avoid a juridical litigation, the government imposes the closing of the Crédit Lyonnais' doors, but tolerates the transfer of the market on the street. It is reasonable to assume that without the organization the Crédit Lyonnais provides the trading volumes of this market decrease.

This is why the triumph of the Coulisse does not correspond to the triumph of the Lyon Stock Exchange. A new fiscal law in practice abolishes in 1893 the monopoly of the Paris ones. This fiscal law establishes a financial transaction tax: it allows the *coulissiers* to pay the tax over the transactions on officially listed securities and legalize them, reducing the juridical risk over most of the transactions of these operators. Up to 1893, the *coulissiers* were not entitled to suit the clients unwilling to pay in front of the courts if officially listed securities were the object of the contract.

The new law is passed in the context of huge financial scandals (the Comptoir d'Escompte goes bankrupt in 1889 and the Panama scandal burst in 1892) leading the government to find a way to monitor the market: the financial transaction tax would have been a kind of "registration tax" to enhance to transparency of the market and mainly of its darker side, the Coulisse, while long lasting debates led by free-market economists from the 1882 crash onwards over the organization of the Paris financial market pointed out the virtues of a level playing field in the Paris financial center. The institutional weakness of the Paris Bourse, due to harming internal decisions and external regulations, prevent the official stockbrokers from an effective lobbying.

The banks play an important role in the regulatory debate: they support the Coulisse because of the important services it offers to them and the change in the solidarity regime decided by the Paris Bourse. First, the Coulisse is an opaque trading venue where the banks can exploit their superior information; second, on the primary market, the *coulissiers* are entitled to buy important blocks of newly issued securities and sell them progressively on the market, fuelling the underwriting activity of banks and bankers. Third, the dual capacity of the *coulissiers* confers immediacy to their market. Least but not last, the end of the common solidarity among official stockbrokers weakens the safety of the Paris Bourse for the investors. The regulatory change paves the way to a speculative boom in the Coulisse – the gold mines mania – and its activity spikes between 1894 and 1895, when the volumes traded in Lyon are already decreasing (Hautcoeur et al. 2010).

5 The (not so) "Belle Époque" for Lyon (1895-1913)

The Belle Époque is not as beautiful for the Lyon Stock Exchange. First, the Lyon Stock Exchange is experiencing the setbacks of his "best customer", the Coulisse, hit by the crisis of gold mines and mainly by the reorganization of the market in 1898. Then, the position of regulator of the national market the reform of 1898 has awarded the Paris Bourse encourages other exchanges to align their microstructures to that of the capital. This alignment in turn promotes the externalities and the centralization of the activity in the most liquid market: Paris. Finally, the Lyon Bourse is exposed, like other French exchanges, to the increasing competition of banks on the primary market. On the other hand, banks centralize in the Paris Bourse their trading activity to benefit from externalities, reinforced by the specific benefits Paris stockbrokers granted them in 1898. The Lyon Exchange can survive by developing a niche away from its rival: it develops an unofficial market, a kind of special settlement, devoted to local stocks. Moreover, it is able to maintain the OTC market it controls from the beginning of the 1880s, managed directly by the official brokers.

The Lyon Exchange suffered the repercussions of his "best customer"'s setbacks, the Coulisse, hit by the crisis of gold mines and mainly by the reorganization of the market in 1898. The boom in gold mining marks the apogee of the Coulisse. The gold mining companies established in England issue, between 1894 and 1895, an impressive flow of securities that the operators of the Coulisse channel to Paris: authorized to purchase on their own account, the *coulissiers* absorb important blocks of securities and sell them progressively on their market. It is a source of activity the regulations indirectly reserve to them: the securities of English gold mines do not meet the legal criteria for listing of foreign securities top the Paris Bourse.

Speculation knows its climax and at the liquidation of October 1895, many *coulissiers* are declared insolvent due to a sudden reversal of the gold mines' market. The price drop is amplified due to failure and sudden withdrawal of support that banks were giving to *coulissiers*. Many observers considered the *coulissiers* had developed the market on gold mines shares very speculatively: most of the shares did not comply with French regulations, the market was opaque and the information on the firms was very limited. Despite these limitations, and thanks to a huge media campaign, hundreds of millions worth of securities had been sold to the general public, whose losses were enormous. As the figure 4 shows, the decline in the Lyon activity started at the time of the gold mines crisis.

This crisis facilitated a campaign by the Parquet of Paris against foreign brokers and their unsecure markets[20], which fell well in a period of populist and xenophobic attacks against the Jews and their international (worse: German) connections making them insufficiently loyal to the country[21]. The 1895 crisis was not the only argument of the Paris Bourse pushing toward the restoration of the monopoly. First, the Paris Bourse restored the collective guarantee between 1895 and 1896 at the occasion of the failure of three official brokers, re-establishing an important competitive edge vis-à-vis Lyon and the Coulisse as well as its raison d'être vis-à-vis the French regulators. Second, the government ascertained the *coulissiers*' fiscal evasion of the financial transaction tax established in 1893. Third, the Paris Bourse offered to the banks important facilities to break the Coulisse-banks alliance surrounding the 1893 regulation. These factors led the Government to restore and protect the monopoly of the

[20]The Parquet had already used similar arguments in 1893, when it helped the publication of the list of the members of the Coulisse mentioning their nationality and that of their backers or partners: many were Germans. See *La Réforme Economique*, supplément, March 23rd, 1893.

[21]The famous "J'accuse" article by Emile Zola in *L'Aurore* was published on January 13th, 1898, marking the height of the Dreyfus affair.

Paris Bourse in 1898 by changing the financial transactions tax. From then onwards, only the official stockbrokers were entitled to pay the tax on the transactions on officially listed securities (Hautcoeur et al. 2010).

As a compensation, the Parquet was supposed to improve its services: delivery delays were reduced, new negotiation groups were created (which would allow hiring some former *coulissiers*), new kind of (derivatives) trades were introduced to attract the sophisticate investors previously clients of the Coulisse, and the Paris Stock Exchange committee was to support the Association nationale des porteurs français de valeurs mobilières (an investors' lobby negotiating mostly with bankrupt foreign governments). The maximum commissions were slashed and the minimum ones suppressed for small orders; the reduction in the commissions was to limit rents Parisian official stockbrokers gained from the monopoly, but it created a competitive advantage for Paris vis-à-vis Lyon; the new Parisian commissions were well lower than the Lyon one and the brokers in Lyon pointed out many times the Parisian attractiveness for their (potential) clients; nevertheless the brokers in Lyon were unable to lower the commissions because of the debts cumulated in 1882.

Even more important, in Paris, ten new *agents de change* were created; solidarity among the *agents* was made legal; from 1901, the price of *agents de change* offices was fixed by the government – and maintained constant until World War One again to limit the rents of the restored monopoly; moreover, important rebates were granted from the Parisian brokers to all the players of the financial industry (*coulissiers*, official stockbrokers from provincial exchanges, bankers and banks) to buy the consensus by sharing the rents of the restored monopoly. Nevertheless, for the Coulisse, these rebates were not enough to compensate the loss of business.

At the same time, the Coulisse was obliged through moral suasion by the government to reorganize in two organizations (*syndicats*), respectively for spot and forward operations (the second one being by far the most important). The government imposed them organizational structures much more formalized than previously: membership criteria, listing requirements and price discovery rules were set. The formalization of the Coulisse is likely to have left out of its doors some securities that found a harbour in Lyon thanks to its new listing policy.

However, it was not until 1901 that the reform of 1898 comes fully into force. In fact, the first reaction of *coulissiers* was a proud refusal: many of them had acquired Belgian statutes and continued to negotiate in Paris sheltered from French regulations, when some were actually located in Brussels. In 1901, most of dissident *coulissiers* returned to the ranks after a modus vivendi was signed between the Coulisse and the Paris Bourse. Under this modus vivendi, the *coulissiers* were allowed to negotiate a set of highly liquid public and foreign securities object of international arbitrage. The effect of the reform on the competition between the Coulisse and the Paris Bourse is clear in the figure 5. The reform switched the trading volumes of the Paris financial centre from the Coulisse to the Paris Bourse who benefited from 1898 onwards from the externalities of the liquidity previously favouring the Coulisse (Hautcoeur et al. 2010). The Paris Bourse recovers an additional competitive advantage vis-à-vis Lyon. The Coulisse did not recover from this regulatory choc.

Reform of 1898 crowns the Paris Bourse as regulating the domestic market. It thus brings the other exchanges to further align their microstructures to the official market of the capital by pursuing the path initiated in 1892 after the government decree. The case of settlement and delivery organization is emblematic: not only the Lyon Exchange layers the calendar of its settlement and delivery system on that of Paris in 1903 but it uses directly the clearing price made in Paris for the cross-listed securities. Admittedly, the Lyon Exchange imports from Paris also important innovations that may improve its competitiveness, such as the creation of a group where the clerks traded the officially admitted securities in 1899 and central clearing of cash transactions in 1900. However, the homogenization of microstructures facilitates the centralization of business in Paris: the most liquid market attracts the activity thanks to externalities that heterogeneity is no more limiting. If this homogenization improves the competitive position of the Paris Bourse, it also satisfies regulators that can, with the centralization of activity, exercise better control over the financial market.

The effects of the 1898 reform on the Lyon Stock Exchange Committee appear clearly on the figures 3, 4 and 5. Not only from 1898 onwards the commissions cashed by the Lyon brokers and their market share are experiencing a downward trend, but also the composition of the trading volumes changes with an adverse effect on the profitability of operators Lyon. Volumes on derivatives transactions in 1879 represented 90% of the volumes traded by the Exchange of Lyon, when in 1899 they accounted for only 73% and known a further decrease thereafter. In fact, the reorganization of the Paris Stock Exchange was designed especially to get business from forward operators. The head of the Lyon Stock Exchange repeatedly underscored increasing cash volumes, but a forward market languishing: under this perspective, it compares the Lyon Stock Exchange to the Brussels' one[22]. However, a stockbroker gets a higher profit from forward operation than, from cash ones due to higher back-office-related costs of the latter type of transaction. "We are the victims of the 1898 reform", the head of the Lyon Stock Exchange said[23].

Then, the survival of the Lyon Stock Exchange is threatened by the actions of banks. They enhance competition vis-à-vis all French Exchanges on the primary market and centralize trading activity in Paris. On the primary market, credit institutions are increasingly placing newly issued securities directly to their customers, without a public issue, as they did much more often before, or a real IPO, as it is the rule in London. Following a private issue, admission to the exchange is requested once the securities have already been placed in the portfolios of retail investors. French Exchanges lose all activity, mainly the forward one, accompanying public issues or IPOs (Hautcoeur & Riva 2012). From 1910, this banks' action

[22]CAC Lyon, minutes, general assembly, 20/12/1906.
[23]CAC Lyon, minutes, general assembly, 19/12/1908.

infringe less on the Paris Bourse than the Lyon Stock Exchange. After years of conflict, the Paris Bourse enters into an agreement with the banks to participate fully in the syndicates of large issues, including foreign government securities, and obtain the corresponding commissions.

On the secondary market, the new organization of the Paris Bourse pushes banks to centralize trading activity on it at the expense of other French exchanges. Banks are attracted not only by the Paris liquidity but also by the specific benefits the Paris Stock Exchange has granted them. In addition to the rebates the banks obtained in 1898 also the so-called "par contre". Beyond the proprietary trading, the banks throughout their expanding branches' networks were collecting important orders' flows from their clients. They were centralizing the orders in Paris, where the back-offices of the headquarters were handling the orders to optimize them. This handling was allowing banks for sending to the Bourse matched orders. The "par contre" is a rebate allowing to the bank to pay the commission only on the higher side (buy or sell side) of a matched order. Given the organization of the banks, it was an important source of savings on the commissions.

Nevertheless, the effect of the externalities of the Paris Bourse seems to be stronger that the lower level of commissions. First, when the Lyon brokers were to pay back all the debts cumulated in 1882, they offered to the banks to execute for free the orders collected in the region; according the Lyon brokers the execution of these orders in Lyon would have brought a cascade of orders thanks to forward arbitrage. The positive externalities should have been so strong in Paris that the banks refused the offer. Second, when the "par contre" was suppressed at the occasion of the agreement between Parisian brokers and banks in 1910, the trading activity of the Lyon Stock Exchange did not know a significant change in magnitude, even if a regain of activity is clear in 1912. Certainly, the Lyon Stock Exchange tries to attract the trading of banks by other means decreasing their transactions costs. The main move in this field is the direct inclusion of the main banks and bankers of the financial centre in the settlement and delivery system of the Bourse: banks and bankers participate in on the same grounds of the stockbrokers from 1900 onwards.

The Lyon Exchange, however, does survive by developing a niche it can operate away from its Parisian rival. It develops a listing policy allowing it to list several local stocks, mainly to the "Deuxième partie de la cote" ("second part of the official list"), a kind of special settlement. This move allows Lyon to assert itself as the national market for local stocks. On the other hand, the operators of the official stock exchange of Lyon are capable to maintain an unofficial market where they trade French and foreign more speculative securities as mines. Organizational specificities of these two markets and the kind of securities traded give to the Lyon Stock Exchange a niche the Paris Bourse is not interested in.

We will explain how the stock exchange committee worked for admission to the list (especially to the second part) of a lot of local securities. To do so, it implemented the innovative views of Abel Waldmann, an *agent de change* with a PhD in law. It is the head of the committee himself, that announced, during the general assembly in late 1910, "the introduction to our official list side of the pleiad of securities, known as local, feeds our transactions and allow us to resist the constantly growing absorption of the Paris Bourse"[24]. Several reasons can be advanced to explain the benefits that the Lyon Bourse derived from these local securities. First, they are not subject to competition from Paris. The Lyon Stock Exchange is, to some extent, a monopoly for the trading of this kind of securities. Because of the distance, it is tough for Paris investors to get information on them. In addition, these securities are often too small to interest the Paris official market. Second, some local securities may become very successful. By admitting them early to the official list, the stock exchange committee contributes to the spread of these securities especially among local investors, although most local securities were illiquid and disappeared quickly from the official list. Once established, these securities, although few in number, could then provide additional trading opportunities for the Lyon Stock Exchange. This *Compagnie des produits chimiques d'Alais et de Camargue*, which will be well known then as "Pechiney", provides a typical example. Shares and bonds of this company are listed at the Lyon Stock Exchange from at least 1898, whereas it will be possible to trade these securities in Paris only after 1914. In 1938, R. Dubost confirms that the securities of the company have preserved strong local roots and that they are also traded in Lyon (Dubost 1938). At the same time, Pechiney is among the 40 highest capitalizations in France (Le Bris & Hautcoeur 2010). Nevertheless, the bulk of the trading on some successful securities moves to Paris after cross-listing with the Paris Bourse. Finally, to a more marginal extent, companies which apply for listing have to pay an admission fee, while in the Paris official market listing is for free. This practice deserves the Lyon Stock Exchange reprimands from the Ministry of Finance[25].

The listing policy allowing the admission of this pleiad of local securities has greatly benefited from the views of Abel Waldmann. Abel Waldmann was appointed *agent de change* on October 9, 1895. Emile Waldmann, *agent de change* between 1859 and 1881 and then between 1882 and 1886[26], is his grandfather. The thesis by Abel Waldmann, devoted to the "profession of the agent de change", is published for the first time in 1888 (Waldmann 1888). He elaborates a particular vision of the role of the *agent de change* in the admission of securities to the official list. His analysis is based on a personal interpretation of the Article 76 of the Code du Commerce. According to A. Waldmann, to admit a security to the official list or not is the prerogative of the *agent de change* as an individual. It is mistankenly, that the stock exchange committees of Lyon and Paris had taken over in their internal rules the right to allow or not the trading of a given security. A. Waldmann repeatedly acts to impose his

[24] CAC Lyon, minutes, general assembly, 21/12/1910.

[25] CAC Lyon, minutes, committee meeting, 08/11/1897.

[26] In 1881, Emile Waldmann sells his office to his eldest son, Maurice. Emile's son cannot resist the crash of 1882 and has to sell it back to his father.

views to the Lyon Stock Exchange committee. He thus sends a letter, dated May 31, 1897 to protest against the cancellation of a price he has written on the official list[27]. After addressing several refusals to A. Waldmann and facing his insistence, the head of the Lyon Exchange submits the issue to his Parisian fellow[28]. The Paris committee remains firm and ask for the enforcement of the exchanges' internal rules. A major event occurs in 1899: Abel Waldmann is elected at the stock exchange committee[29]. With this election, the Lyon stockbrokers provide support to Abel's thoughts and more importantly give him the possibility to implement this new listing policy. Thus, after 1899, the stock exchange committee facilitates the admission process to the official list, notably as far as small and local securities are concerned through the development of the second part of the list. The *agents de change* can list any security, as long as the company that had issues it is regularly constituted.

The *agents de change* then mutate into real "business touts": they have the possibility of finding securities to be admitted in the second part of the official list. Alfred Bonzon will be one of the most talented in this practice. He is, indeed, at the origin of a successful yearbook whose geographic scale far exceeds the securities officially listed. On the occasion of the presentation of his successor, the head of the stock exchange declares that A. Bonzon "by his constant initiative, our market has welcomed a lot of new securities that, without him, would not have been known in our financial place"[30]. Thus, the Lyon market truly becomes a national market for local securities. The change in the editorial content of the Bourse Lyonnaise, the only financial newspaper of Lyon, in the mid-1890s shows the inclination towards the local securities taken by the Lyon Stock Exchange (*Bourse Lyonnaise (La)* 1879–1907). While the first issues of this weekly address major economic and financial issues, the newspaper focuses more and more local securities, notably by devoting long articles to introduce them. From 1898, we can consider that the information distilled in this newspaper mostly covers the Lyon region.

We try in the next paragraphs to evaluate the role played by local securities in the Lyon Stock Exchange. We collected all admissions to the Lyon Stock Exchange between 1898 and 1909 from the inquiry by a parliamentary commission led by Jean Jaurès[31]. It contains both introductions and capital increases, but excludes securities already admitted to the Paris official list. The final statement contains the name of the securities, the nature of the securities (stock or bond), the year of admission to listing, the nominal amount of a security, and aver-

[27] CAC Lyon, minutes, committee meeting, 05/06/1897.

[28] CAC Lyon, minutes, committee meeting, 12/05/1898.

[29] CAC Lyon, minutes, committee meeting, 29/12/1899.

[30] CAC Lyon, minutes, general assembly, 24/03/1902.

[31] Henri Rochette is at the center of a major financial scandal. He is the founder of Credit Minier, a bank which handled issues for around 120 millions of francs. Yet almost all of its balance sheets were falsified and Rochette began a Ponzi scheme: fabulous dividends were paid only thanks to money raised in new issues. Suspicions raised about participation of some politicians in Rochette's frauds. That's why a parliamentary committee of 33 members is formed on July 11, 1910, in order to investigate "the circumstances which prepared, preceded, accompanied or followed the arrest of financial Rochette". See Jeanneney (1981).

age prices for the period 1898-1909 (one price per year) (Ducros 2011).

We define the securities found in the statement of the Jaurès commission as "local". In other words, these are securities admitted to a regional exchange and are not firstly listed on the Paris official market. They are most often "small" securities in the sense that the capital of companies that issue them are not very high.

The results displayed by figures 7 and 8 confirm that Lyon is, according to these measures, the biggest regional exchange in France. Over the period 1898-1909, 684 securities were admitted to the Lyon official list, which is nearly 60% of all admissions to provincial exchanges. Lyon dominance in this area becomes overwhelming after 1900. In terms of the nominal amount of admissions, Lyon hegemony is less pronounced (figure 8), although figure 9 shows that Lyon is often, in terms of number of admissions, as important as all the other regional exchanges together. The peak in terms in admissions in 1901 is related to the formalization of the Coulisse.

In a second step, we seek to evaluate the securities of the Lyon region among all local securities admitted to the Lyon Stock Exchange during the period 1898-1914. As such, the statement of the Jaurès commission does not provide any clue about the business location. We find this information in yearbooks devoted to the Lyon Stock Exchange[32].

We have to deal with one issue before looking at the empirical evidence: how should we define a *regional* security among all the *local* ones? In yearbooks devoted to the Lyon Stock Exchange, three kinds of information could help us to characterize which securities were regional and which were not. First, it is possible to collect the location of the notary that certifies the regular establishment of the company. However, this information is most often time-invariant and can therefore be largely outdated when the securities are admitted to the list. In addition, the location of firms can be inferred from the description of the purpose of the corporation. Nevertheless, in many cases it is not possible to derive an operational place for each company. We chose to consider a security as "regional" if the headquarters of the company that issued is, according to the yearbooks, in the nowadays Rhône-Alpes region where innovative industries are located, such as the movies and car industries in the Rhône department, the hydroelectric industries in the Grenoble area, as well as old but still active securities as the mines in the Loire department. We are aware that the method is imperfect[33], but it is easily implementable.

It is then possible to assess the role played by regional securities in the admissions of local securities. The results are shown in figure 10. On average, two thirds of the securities admit-

[32] For the period we are interested in, two yearbooks dedicated to the Lyon Stock Exchange were published: the first by Alfred Bonzon, an *agent de change*, the *Manuel des sociétés par actions de la région lyonnaise* (Bonzon five editions between 1893 and 1901), and the second, edited by the *Compagnie des Agents de Change de Lyon*, *Annales des sociétés par actions de la région lyonnaise* (Compagnie des Agents de Change de Lyon five editions between 1903 and 1914).

[33] For instance, the Crédit Lyonnais has its headquarters in Lyon, but "the company is run from Paris" (Bouvier 1960, p. 108).

ted to Lyon Stock Exchange are from the Rhône-Alpes region. One third of the admissions are thus are related to local (but not regional) securities. To the extent that the Lyon Stock Exchange admits a significant share of local securities to its list, it can be considered to some extent as a national market for local securities.

At the same time, the operators of the official stock exchange of Lyon continue to maintain an unofficial market where they trade more speculative French and foreign securities as mines. This unofficial segment is the most dynamic source of forward business, while the forward volumes on officially listed securities are decreasing. Despite the desire to maintain market flexibility, the Lyon Stock Exchange is obliged by regulators to increase regulation of the unofficial market. If market access was free until 1897, from 1898 it is limited to one clerk per broker. At the same time, the Exchange sets up regulations to prevent price manipulation to be published on a specific list: the prices of this list are published under the responsibility of the trading clerks. The Ministry of Finance also requires a stronger regulation of the mining market in 1905, which led the Exchange to create a "Small parquet" where clerks can trade these securities.

6 Conclusions

In this paper, we look back at the XIX century France to shed light on effects of competition in the stock exchange industry. During the XIX century the Paris financial centre plays a central role in the French financial markets. Nevertheless, six organized regional exchanges do exist along all the second half of the century. By studying the interactions between Paris and Lyon, we find that, after the 1881-1882 boom and burst, the Lyon Stock Exchange has to struggle for surviving facing fierce competition from the Paris Bourse and main national banks particularly after the 1898 reorganisation of the Paris financial centre. On the contrary, the strong activity of Coulisse before the 1895 gold mines crash had a positive effect on the Lyon one. After the 1898 reorganisation, the Lyon Stock Exchange survived thanks to a new listing policy favourable to SMEs and the development of second-tier market for both these unofficially traded SMEs and unlisted risky (mainly foreign) stocks. On the other side, the progressive homogenisation of the official market imposed by regulators to enhance their control over the French securities market acted as force driving trading to Paris: only the facilities the Lyon Exchange gave to the main banks of the financial centre maintained some activity.

The analysis of this natural experiment shows that without a pronounced heterogeneity stock trading consolidate because of externalities. Nevertheless, the central exchange does not get all the market because stock exchange members' rent-maximization behaviour creates capacity constraints. These capacity constraints create scope for peripheral exchanges if the peripheral exchanges find niche away from the central exchange's interests. Within this framework, (small) size and (distant) localization of the issuers from the centre can create barriers to information flows that lock up the niche. On the other side, heterogeneity between market microstructure can explain the co-existence of competing exchanges. Within this context, the effect of the main exchanges' activity over the peripheral ones is ambiguous: peripheral exchanges can profit from the activity of the one and lose from the activity of the other, according to the relative competitive hedges.

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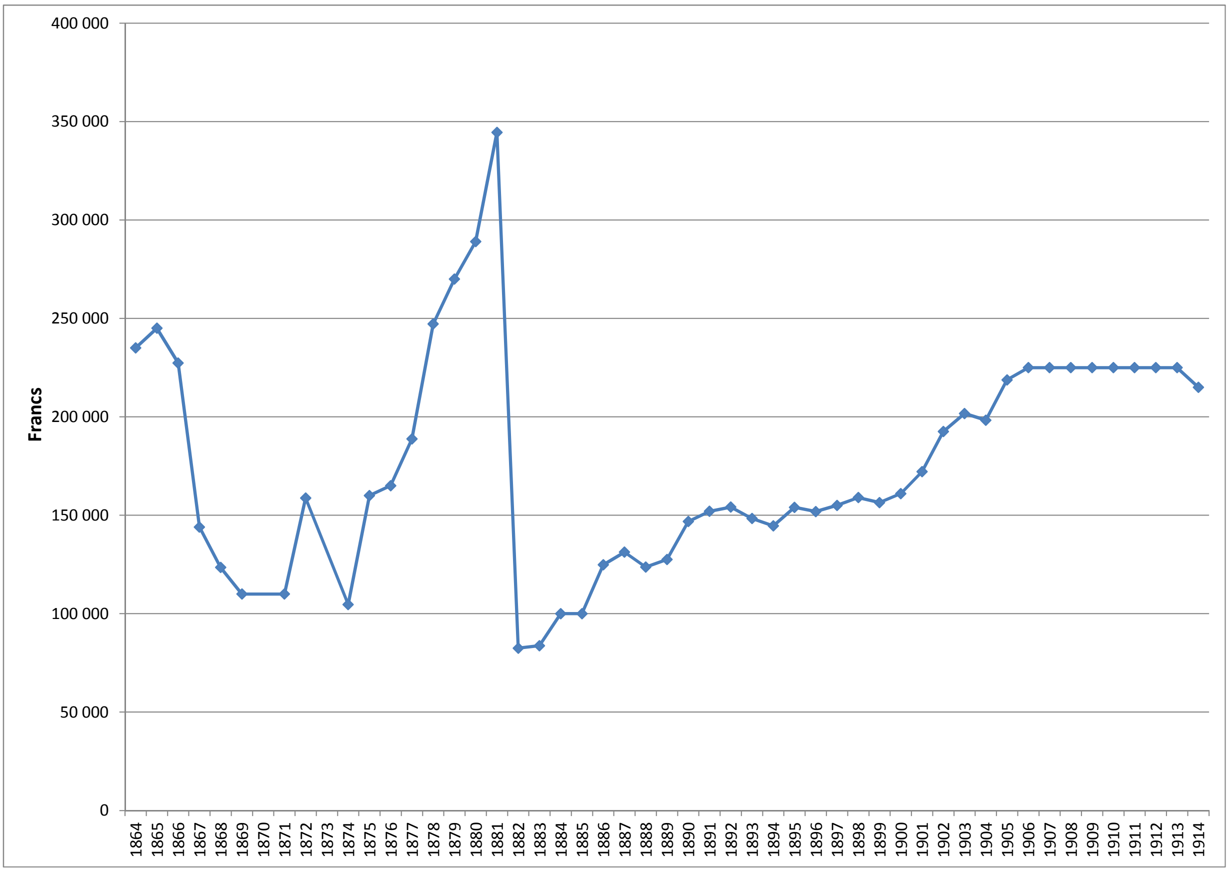
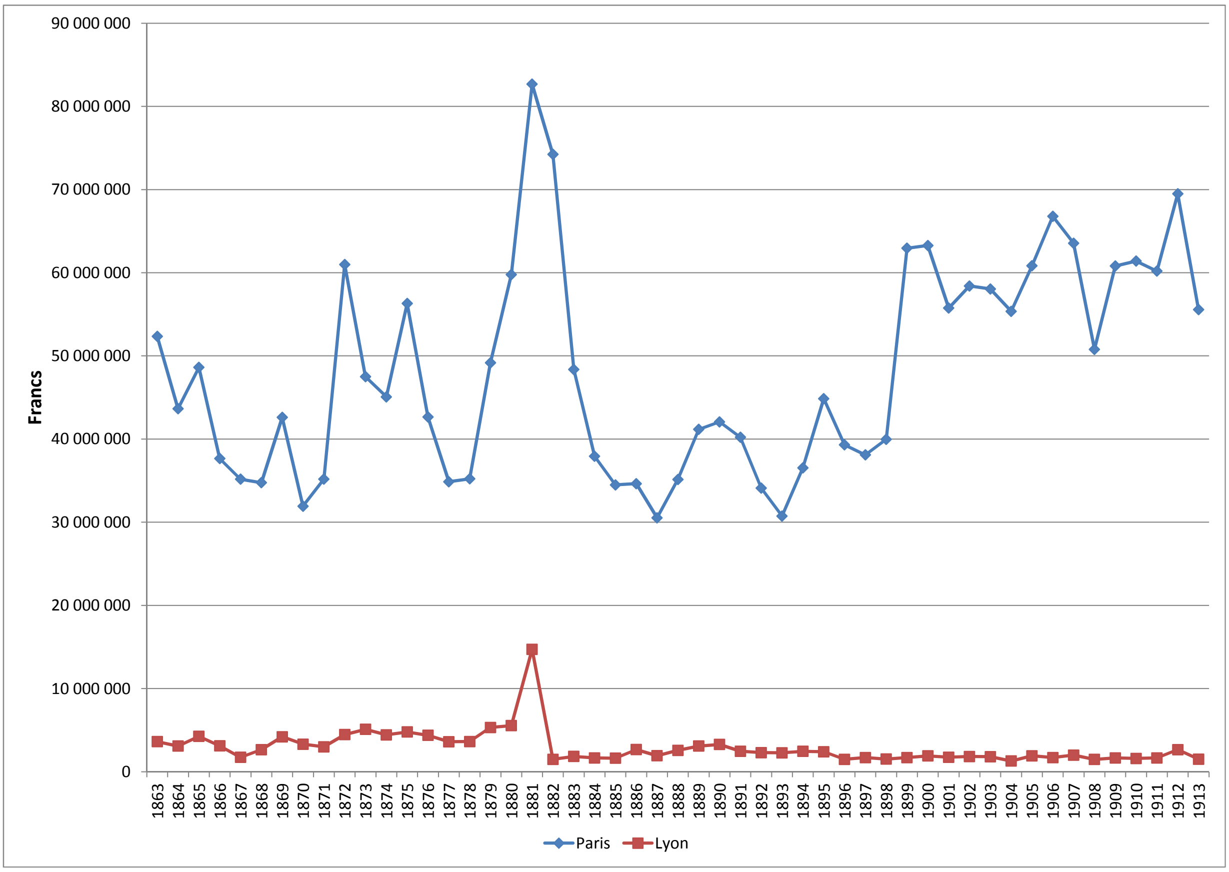
Figures

Figure 1: Lyon Stock Exchange Median Seat Prices, 1864-1914



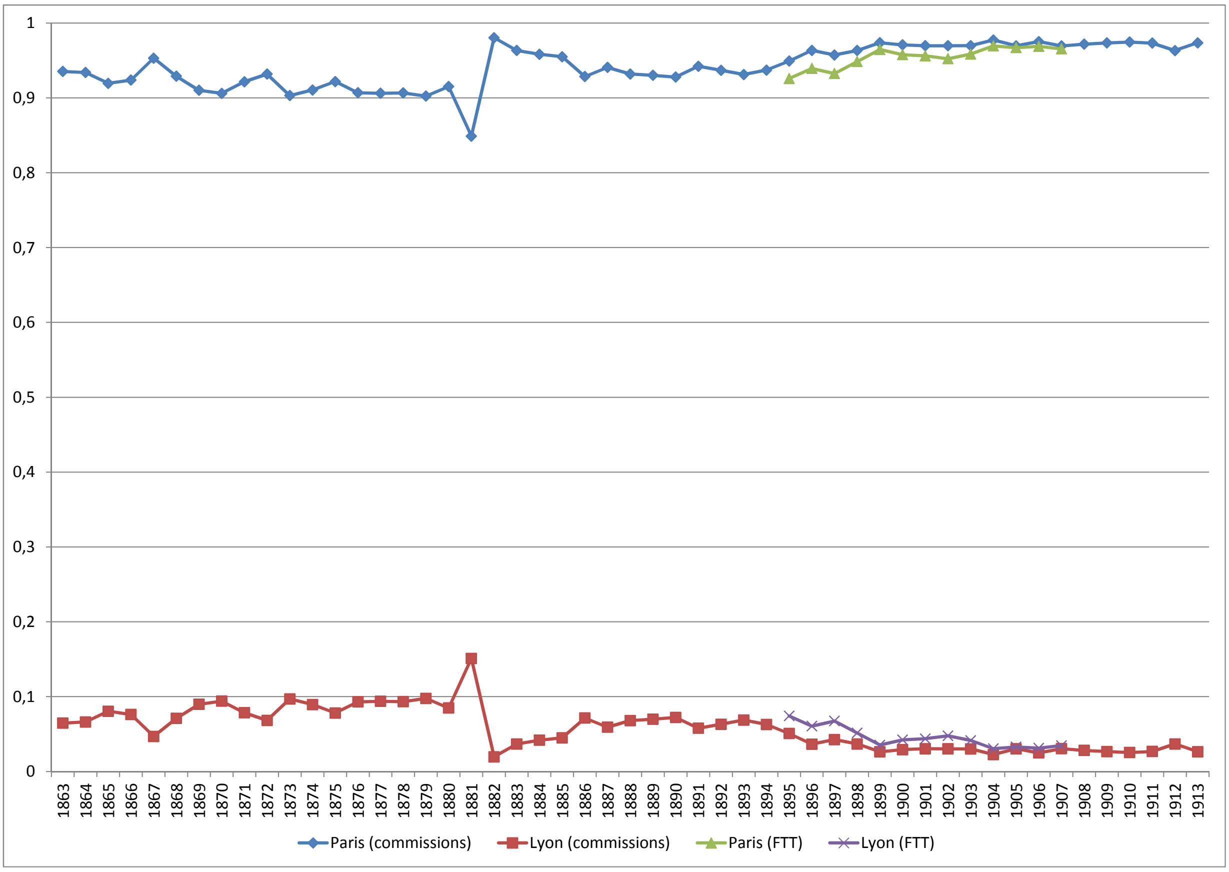
Note: The median seat price is computed using both sales and estimates by the stock exchange committee (for instance, in the case where a broker has to renew his partnership agreement). No price is available for 1870 and 1873.
Source: CAC Lyon, minutes, committee meeting.

Figure 2: Lyon and Paris Stock Exchanges “Commissions”, 1863-1913



<u>Sources:</u> Authors’ computations from data disclosed in annual reports (Lyon: CAC Lyon, minutes, general assembly) and from data kindly provided by Patrick Verley (Paris).

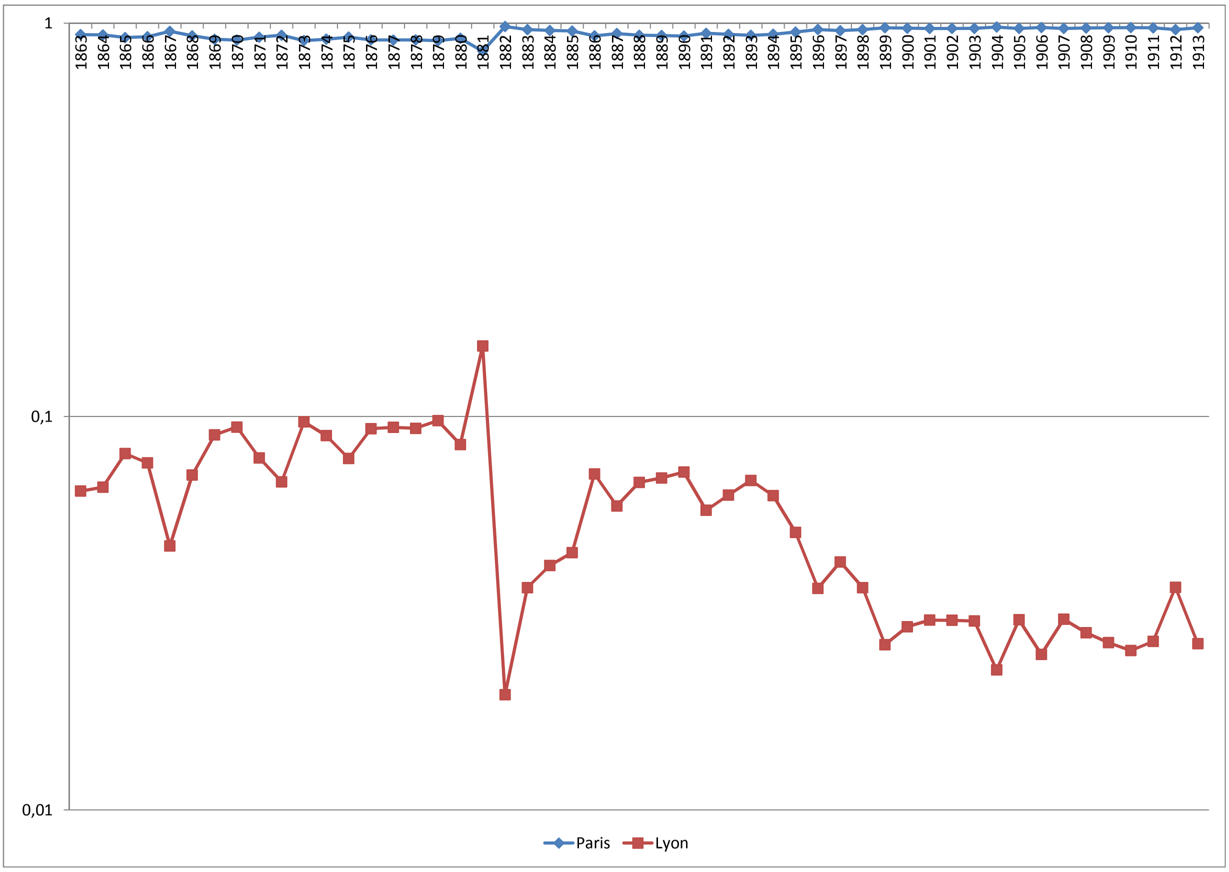
Figure 3: Lyon Stock Exchange's market share compared to Paris



Note: Paris is the official market only. "com" stands for "commissions" and "FTT" refers to "financial transaction tax". For the history of this financial transaction tax, see Hautcoeur et al. (2010).

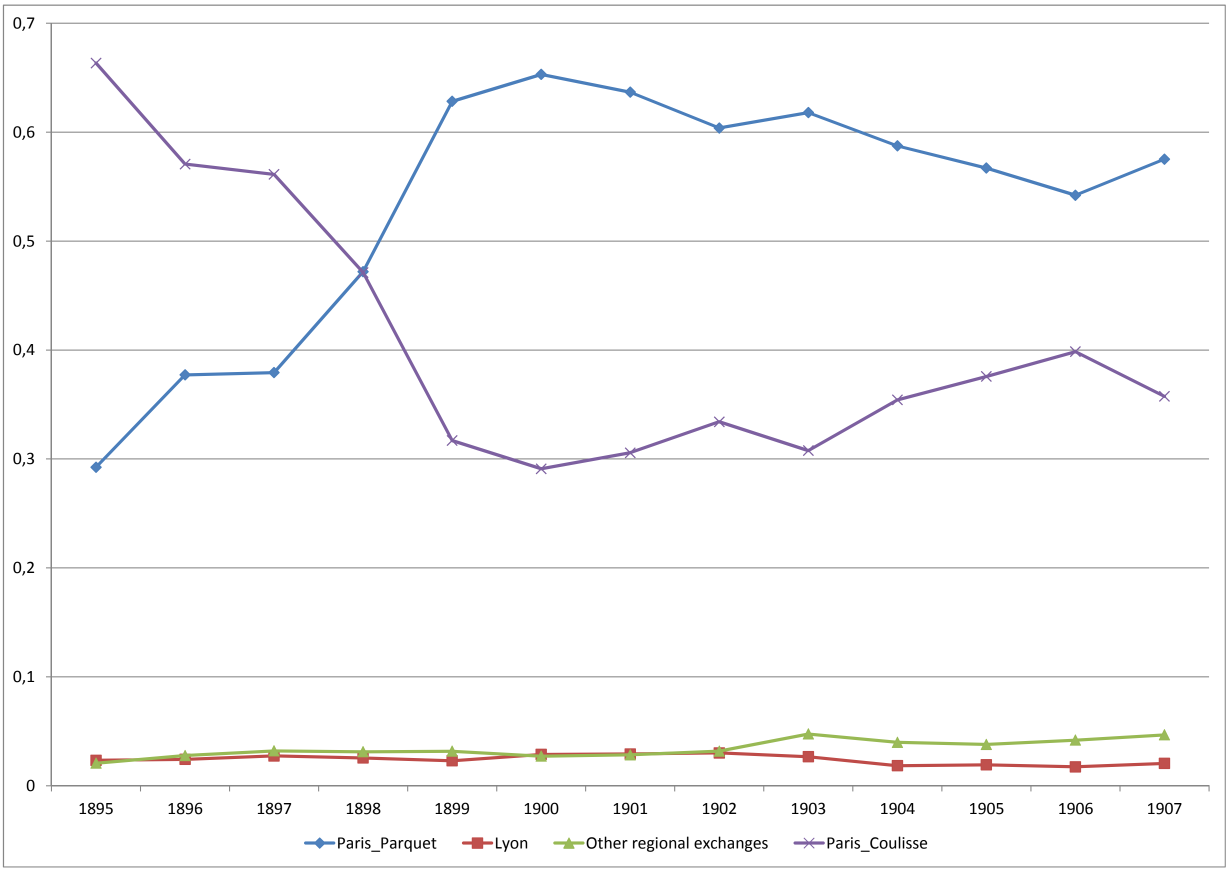
Sources: See figure 2 (commissions) and *Bulletin de statistique et de législation comparées* (FTT).

Figure 4: Lyon Stock Exchange's market share compared to Paris (log scale)



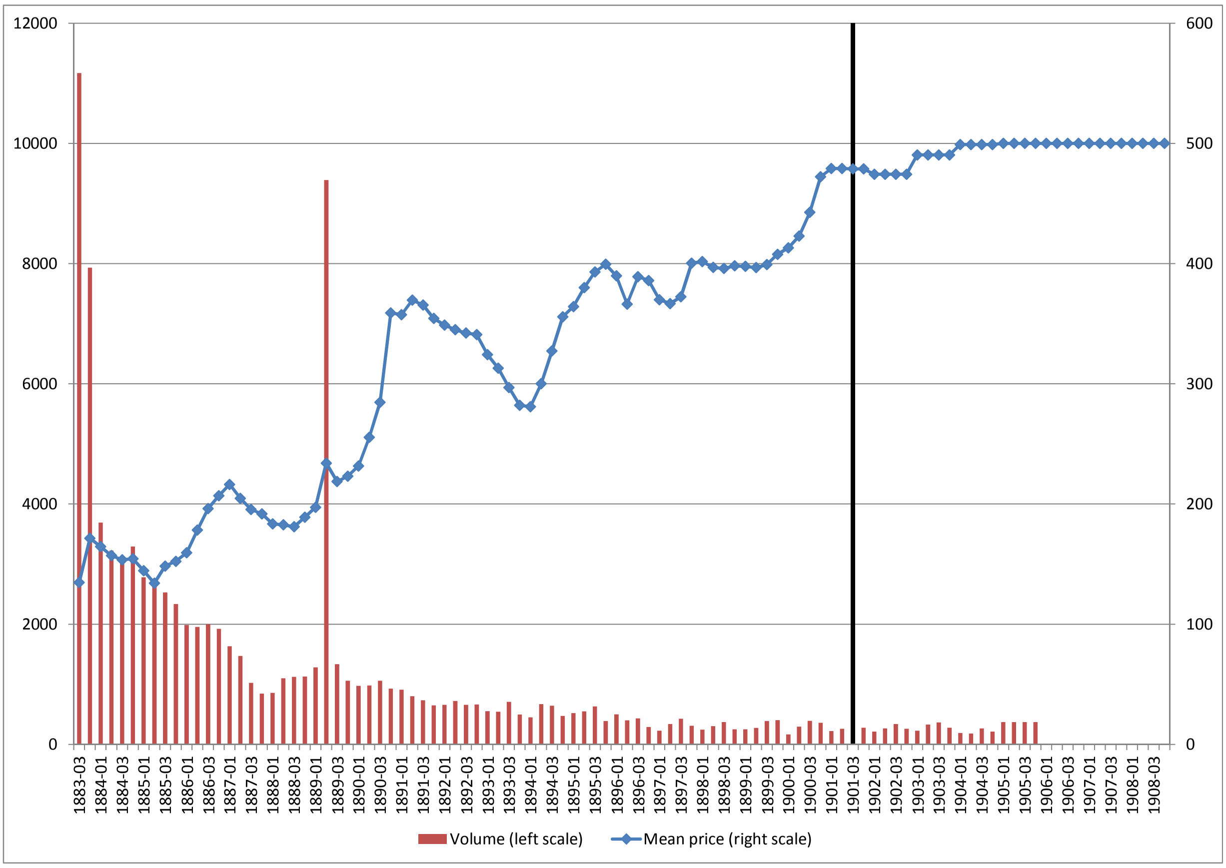
<u>Note:</u> Paris is the official market only. The market shares are based on "commissions" (see figure 2).
<u>Source:</u> See figure 2.

Figure 5: Market shares based on the FTT



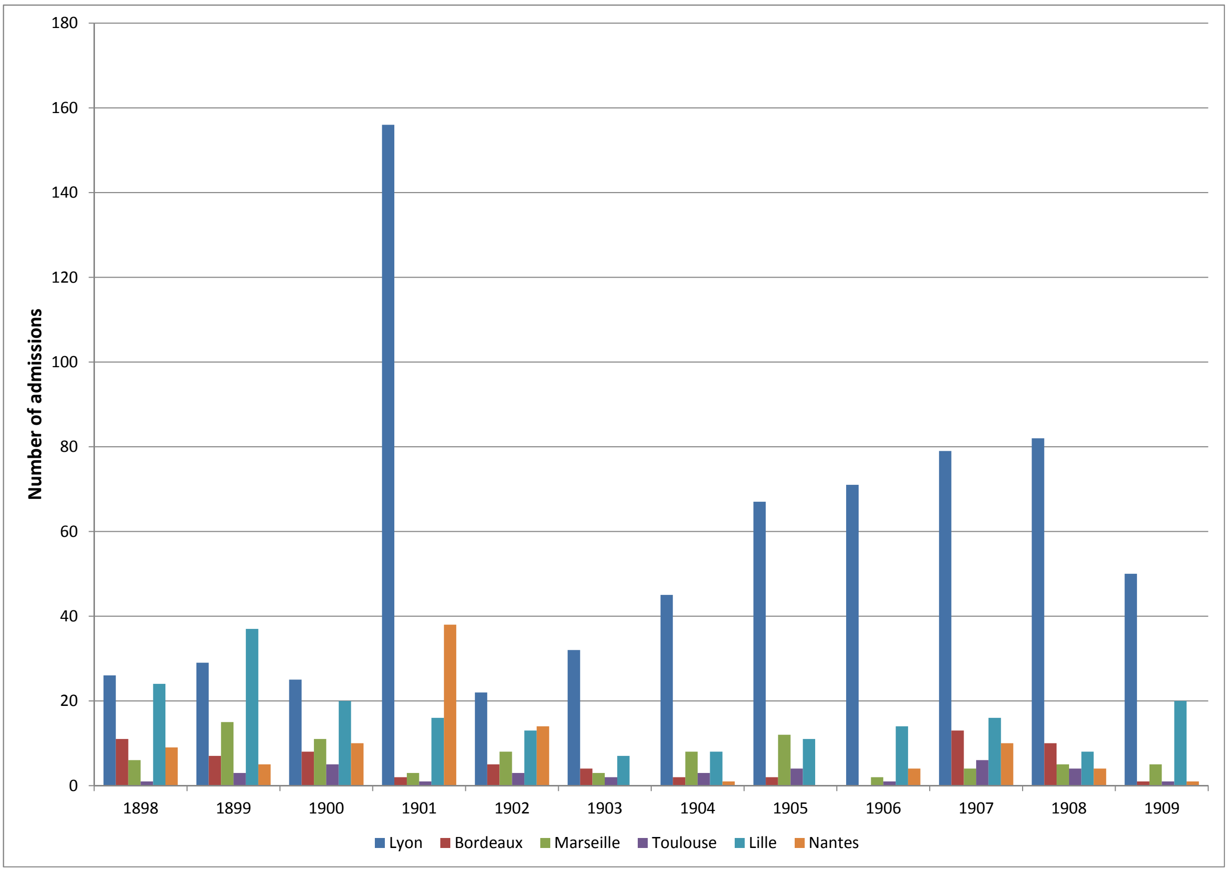
Note: "Other regional exchanges" refers the tax paid by Bordeaux, Lille, Marseille, Nantes and Toulouse.
Source: *Bulletin de statistique et de législation comparées.*

Figure 6: *Bons de délégation* reimbursement, 1883-1910



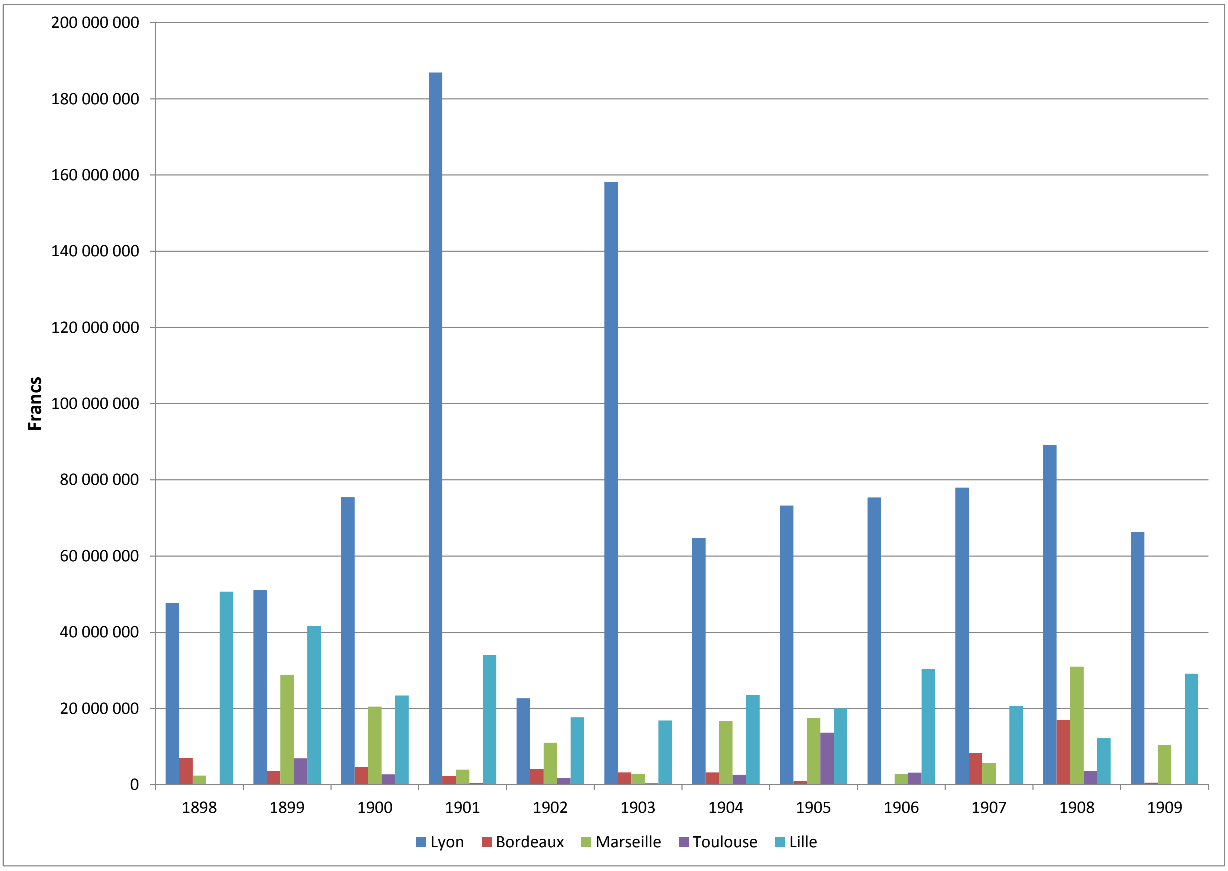
Sources: Bonzon (five editions between 1893 and 1901) for 1883-1901 (data on a quarterly basis) and CAC Lyon archives for 1901-1910 (data on a yearly basis).

Figure 7: Count of admissions at the regional stock exchanges, 1898-1909



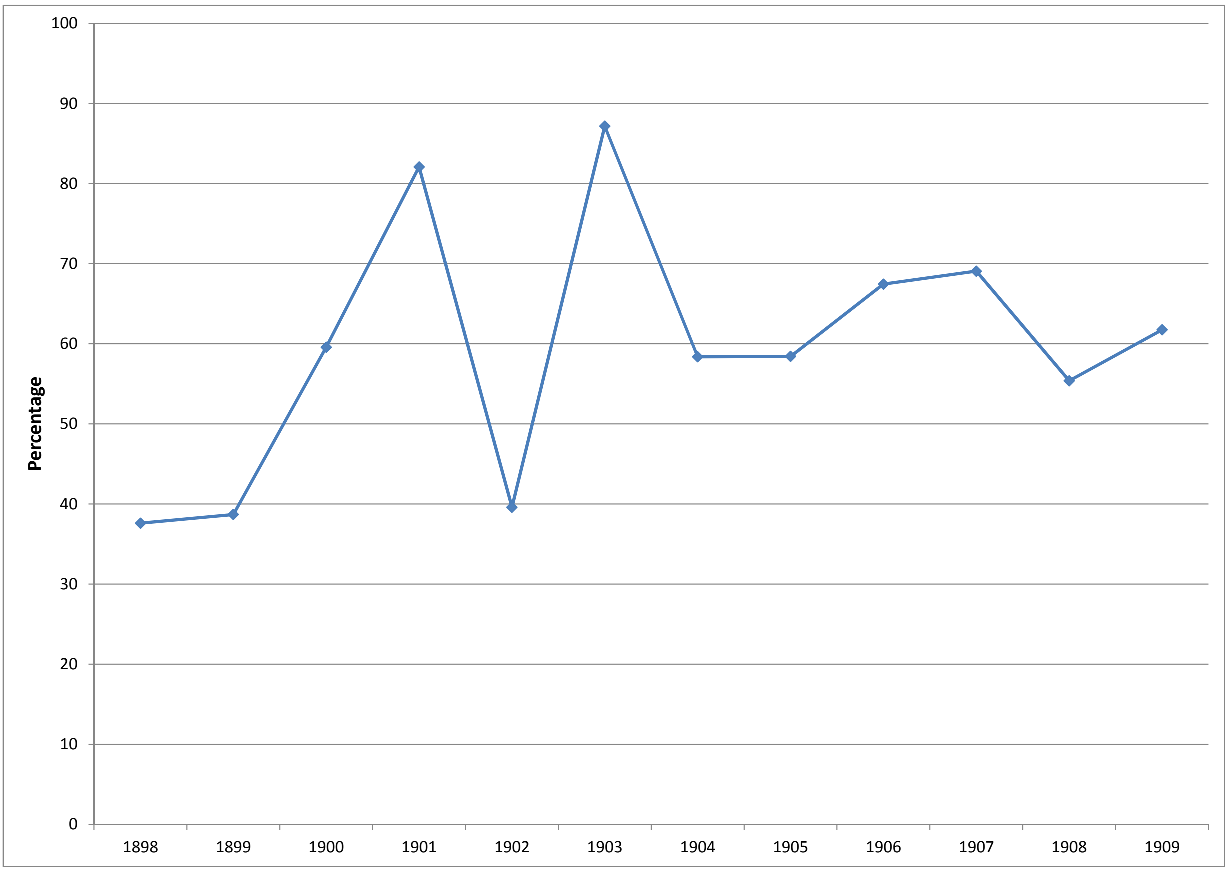
Note: Count only. Securities already listed to the Paris official market are not taken into account there.
Source: Ministry of Finance archives, Fonds Trésor, Relevé des valeurs admises aux Bourses de province.

Figure 8: Total amount of admissions at the regional stock exchanges, 1898-1909



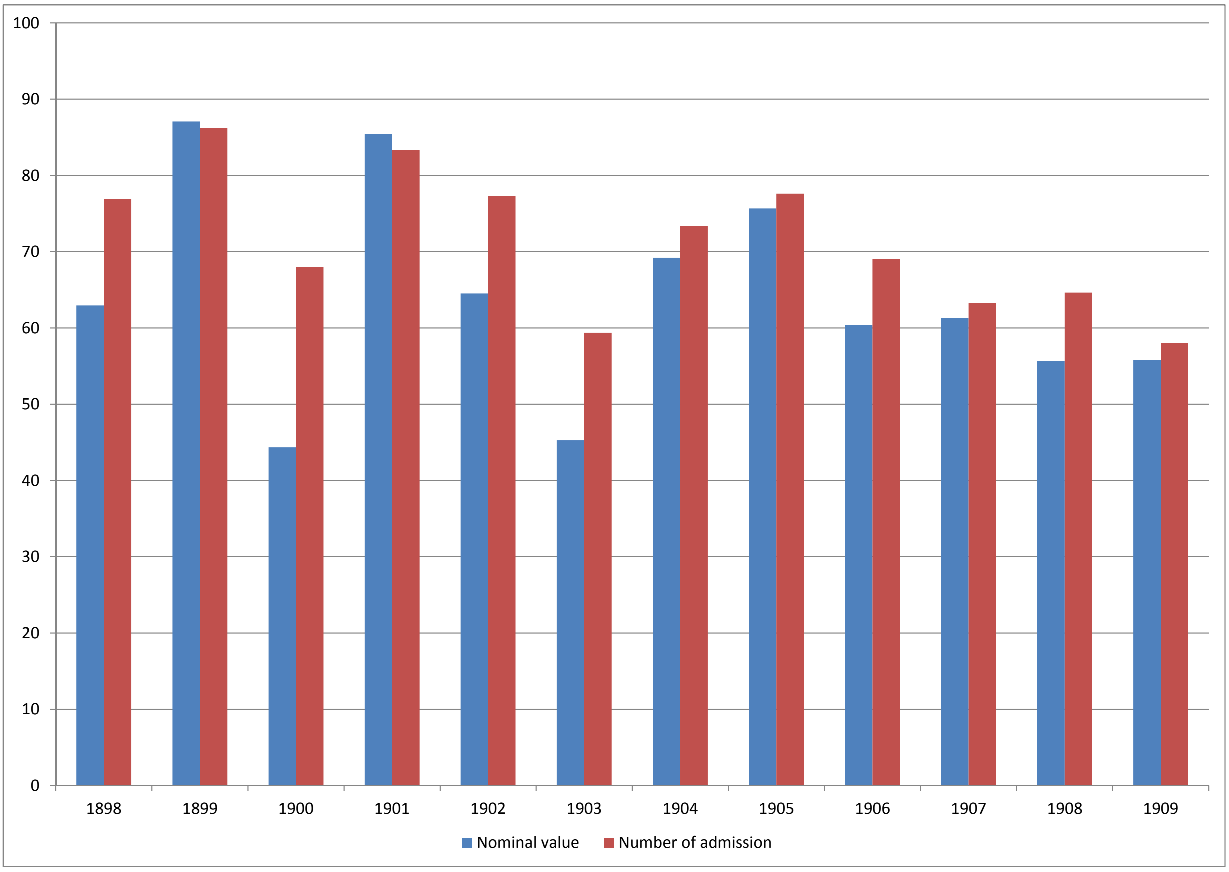
Note: We build this figure by adding for each year all the nominal values of securities admitted to a regional exchange. Securities already listed to the Paris official market are not taken into account there. Securities without any nominal value such as the *parts de fondateur* are excluded. Data for the Nantes Stock Exchange are missing: the committee did not report the nominal value of the admissions.
Source: Ministry of Finance archives, Fonds Trésor, Relevé des valeurs admises aux Bourses de province.

Figure 9: Market share for the admissions of Lyon, 1898-1909



Note: Admissions expressed in nominal values. Securities already listed to the Paris official market are not taken into account there.
Source: Ministry of Finance archives, Fonds Trésor, Relevé des valeurs admises aux Bourses de province.

Figure 10: Proportion of “regional” securities admitted at the Lyon Stock Exchange (in percentage), 1898-1909



Note: A security is said to be “regional” if the headquarters of the company (or the town or the department) that issued it is in the nowadays Rhône–Alpes region.
Source: Ministry of Finance archives, Fonds Trésor, Relevé des valeurs admises aux Bourses de province ; Bonzon (five editions between 1893 and 1901) et Compagnie des Agents de Change de Lyon (five editions between 1903 and 1914) .