The Paris Financial Market in the 19th Century: 
an Efficient Multi-Polar Organization?

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Abstract

The literature in financial history usually considers London as the only centre of the late 19th century’s financial globalization, and explains it at least in part by the efficient organization of the London Stock Exchange (LSE). The LSE is characterized as having been a softly regulated market, where entry was easy both for traders and issuers [Michie (1998), Neal (2004), White (2006)]. The LSE microstructure is also considered as the natural and optimal one by much of the theoretical literature on stock markets, which argues that free entry decreases transaction costs and increases both liquidity and diversification, resulting in economies of scale and externalities attracting traders, issuers and investors. Our paper tries to explain why the Paris Bourse was able to be so successful in spite of the supposedly inefficient monopoly and regulations that the State imposed it. We focus on the fact that the Paris market actually included several different market organizations: the Parquet (the official Bourse, organized by the agents de change), the Coulisse, the Marché libre, and inter-bank direct operations. We argue that this multi-polar organization, was efficient, relying on the specialization it allowed, and the complementarities it helped develop among markets. We incorporate in the discussion the recent theoretical literature that shows that no single market can satisfy the heterogeneous preferences of all issuers and investors, so that a multi-polar organization can be a superior solution.

We demonstrate our claim by looking not only at the rules but also at the actual functioning of the Parquet thanks to its archives which we recently classified. These archives also allow us to build new statistical series which permit evaluating the performances of the Parquet during the 19th century: volumes traded, seat prices, transaction costs, and operational risks. If one supposes that the Parquet was the least efficient segment of the Parisian market, this will provide us with a lower bound for the global efficiency of that market, which should be compared with other markets on similar concrete grounds.

JEL: G14, G18, G24, G28, N 13, N23, N43

Keywords: Paris Stock exchange, microstructure, monopoly, regulation

Résumé

L’histoire financière explique souvent le succès de Londres comme marché financier dominant au 19ème siècle par les microstructures efficaces de la Bourse de Londres (LSE). Le LSE se caractérise en particulier par une faible régulation, l’entrée libre des opérateurs, ce qui permettrait de réduire les coûts de transaction, d’accroître la liquidité et la diversification, attirant à la fois émetteurs et investisseurs. Nous montrons que les microstructures londoniennes ne sont pas nécessairement optimales et que des microstructures très différentes ont permis le succès de la Bourse de Paris, loin de l’idée reçue selon laquelle cette place aurait été victime d’un interventionnisme inefficace ou d’un monopole hostile à toute innovation. Nous étudions en détail l’organisation du Parquet parisien et ses complémentarités avec la Coulisse, le marché libre et les opérations des banques. Nous montrons qu’une telle organisation multi-polaire était efficace car elle permettait une spécialisation des agents (aussi bien intermédiaires qu’émetteurs et investisseurs) et des complémentarités qui permettaient au marché de joindre développement et stabilité. Grâce à l’usage des archives de la Bourse de Paris, nous pouvons construire des données sur les volumes échangés, les prix des charges, les coûts de transaction et les risques qui permettront à ce débat de prendre un tour plus empirique que jusqu’à présent.

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1. Introduction

A large body of recent literature argues that the microstructures of financial markets are key to understand their development, a development which itself is important for economic growth (Coffee, 2002a and 2002b; Pagano & Roell, 1990, 1996; Madhavan, Porter & Weaver, 2005; Rousseau, 2003; Rousseau & Sylla, 2001; Neal, 1990; Levine, 1991, 1999; Beck, Levine & Loayza, 2000). Since in the first era of globalisation, financial market development was similar to today (Rajan & Zingales 2001), it is tempting to study that hypothesis in retrospect. One important reason to do so is that London, New-York and Paris, the three major stock markets in the late 19th century, had very different organizations. Recent research has started improving our knowledge of microstructures’ history. Maybe because of their dominance nowadays, London and New-York have been studied in more detail. The London Stock Exchange (LSE) has been usually considered as the paradigmatic example of an open competitive market, and many argued that this model explains the success of London as a financial centre (e.g. Davis & Neal, 2006; Michie, 1988, 1999; Neal, 2005, Cassis 2005). The

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tremendous expansion of New-York was more difficult to understand because of the monopolistic dimension of the NYSE, a private institution restricting entry but which was nevertheless discovered to have been under competitive pressure from others (Mulherin & alii, 1991, Brown & alii, 2006, Davis & alii, 2003, White 2008). Paris, although a major international market under the gold standard (Rajan & Zingales, 2001)^2, received less attention (White 2003, Romey 2007 Lagneau & Riva, 2008), and mostly from the perspective of the London market to which it was unfavourably compared (Davis & Neal, 2005, Davis & alii 2003).^3.

With few (recent) exceptions, the historical literature mentioned above suffers two serious limitations. First, it relies on frequently flawed sources. Legal or institutional rules are well known and easy to access but, as we will show, were not always enforced. Accounts by contemporaries are also easily accessible, but they were frequently published within a specific context by interested insiders trying to win a debate by writing their own version of history, of standard practices or of traditions in the trade. Since many of these accounts were, in the French case, produced around 1900 but argued that the market organization did not change since the Bourse foundation, they also imposed, as we will also show, a wrong image of the Paris stock exchange as one of permanent organization and lack of innovation (e.g. Aupetit & alii, 1912; Boissière, 1908; Boudon, 1898; Gilson, 1889; Neymarck 1884; Robert-Milles, 1912; Vidal, 1904, 1910). On the other hand, most of the existing literature makes little use of the stock-exchanges’ archives, even when they exist and would be very helpful in order to understand the actual behaviours and motivations of these agents. Because published data mostly include securities prices and issues, quantitative information that can be found in the archives is also neglected, making much of the literature on historical microstructures excessively qualitative^4.

The second major flaw of most of the existing literature is that it does not integrate the evolution in the theoretical appraisal of market microstructures. To some extent, it suffers from a simplistic view of stock exchanges as being the equivalent to the financial market as a whole not as an organization offering intermediation services. It also suffers what Leslie

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^3 Other markets have been mostly overlooked, at least in the English-language literature. See nevertheless on the Italian markets Riva (2005, 2007), Baia Curioni (1995, 2000); on the Spanish ones, Houpt and Rojo Cigales (2009), Houpt and Battilossi (2009).

^4 A recent paper by E. White (2007) goes one step beyond by integrating statistical data to a theory of the microstructures of the Parisian market in the late 19th century, dealing with the 1882 crash. We will argue below that it still did not go in sufficient detail in the organization of the market.
Hannah (2007) calls “whig bias” by supposing implicitly that the only possible efficient organization was the London one, although it was not the natural outcome of market forces, but the consequences of both a court judgement and the property rights setting of the LSE (Stringham, 2002). This literature doesn’t discuss the paradox of the Paris market, belittled an inefficient monopoly but becoming and remaining during all the century the second most important international stock exchange in the world, despite being located in a country widely considered as less modern and much less endowed in large corporations than Germany or the US (Michie, 1988).

To a large extent, the literature discussing the Paris market mentions the coexistence of the official market (the Parquet) and the unofficial market (the Coulisse), but only in passing, explaining it only by the legal monopoly of the former and without focusing on the subtle interactions between the two. This literature is based on a simple model of the optimal organization of a financial exchange, and neglects that the coexistence of various exchanges in the same financial centre may enhance its efficiency. Recent theory, aiming at explaining the network externalities puzzle suggests just that.

Traditional theory only focuses on the gains from a unique exchange organization, on the model of the 19th century London Stock Exchange. More recent theory emphasizes *two levels of competition*: one among brokers in an exchange, and one among exchanges. Competition among exchanges could act as “a degglomerative force” (Gehrig 1998), in presence of heterogeneous investors and complex information. If there is a consensus on the fact that the existence of similar exchanges in an informationally integrated space is a waste of resources, different exchanges could offer trading and listing venues for investors otherwise left out of the market because the single exchange does not satisfy their preferences. Our purpose is to evaluate this hypothesis in the case of the 19th century Paris financial centre.

Theory suggests that an organization with a unique exchange maximizes economies of scale and scope (Stigler 1964; Gehrig 1998, Pirrong 1999), and externalities in liquidity (Pagano 1989, Glosten 1994), and allows fixed costs to be amortized on more transactions, leading to lower transactions costs, better prices and more incentives for firms to list their shares. A unique exchange broadens the scope for portfolio diversification (Ramos & Von Thadden, 2004) and allows for positive network externalities (Di Noia 2001). These increasing returns suggest that a single exchange is the natural and optimal outcome of competition (Arthur, 1989; Economides, 1993; Pagano, 1989, 1993; Hagel & Armstrong, 1997; Stigler, 1961; Demsetz, 1968; Telser, 1981; Glosten, 1994; Di Noia, 2001).
Nevertheless, a single exchange faces some dilemma given the joint endogeneity of the market microstructures components. The literature has emphasized that it is impossible to design a market satisfying the heterogeneous preferences of market participants which are sensible to different dimensions of market efficiency like liquidity, transparency and immediacy (Schawartz, 1995). A major trade-off is between liquidity and transparency. Standard microstructure models (see Madhavan 2000; Biais, Glosten & Spatt 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 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. This could lead to the emergence of separate markets for the two groups if informed traders were not willing to sacrifice part of their profits in order to attract the uninformed. On the other hand, this may also explain why some financial centres (like London) end up with a single exchange and an intermediary level of transparency when others (like Paris) have two markets with different trading systems.

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 (jobbers in London), 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 as on the Paris Parquet could reduce the execution risk, almost non-existent in a dealer market, and enhance immediacy, typically high in LSE-fashion markets. As a consequence, the issues above are related to the informational value of market prices and then to informational efficiency of the market (Pagano-Roell, 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’

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

6 “The risk of finding few or no counterparties to trade” (Pagano-Roell, 1996, p. 85)
protection: if the stock exchange’s access is very open (as in the LSE case), it is difficult to create common guarantee above the (relatively small) guarantee of each operator. 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.

Loose membership (as in London and the Coulisse) is consistent with large numbers of operators, producing an opaque market in which prices can emerge only thanks to operators with dual capacity as intermediary and market makers. Strict membership rules (as in the Parquet) lead to small numbers of operators easily coordinated in a transparent market despite their single capacity of pure intermediaries.

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 and Jacquillat 1998). Similar situations may have arisen in Paris in the 19th century.

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 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 foreign issuers) may prefer trading them on opaque market for the same reason. This argument can explain market fragmentation. 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, 2000], a balance depending on their preference for liquidity.

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7 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.

8 After Jensen and 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
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.

The coexistence of different market is often explained in terms of capacity constraint (White 2008). Following this hypothesis, uninformed traders tend to concentrate on high disclosure, transparent and restricted-access markets thanks to the guarantees they offer. It attracts large investors and issuers. Nevertheless, the small (fixed) number of traders affects the process of investors’ orders. It diverts the order flows toward competitor exchanges and makes the exchange more prudent than desirable in listing decisions, offering to competitors good quality securities.

This hypothesis does not fully explain either the success or the microstructures of loose-organization markets. It does not either take into account the overall organization of the securities industry: orders can be collected by intermediaries with large networks (banks) for a commission and not only by the market members themselves. Then an increase in the number of traders is not 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 make such an increase ineffective (Backer 1984). Increasing the number of pits on the floor or other exchange-level organizational innovations (such as the introduction of peculiar trading rules for less liquid securities) also help to make elastic the constraint on the number of listed securities.

Moreover, the rent that the high disclosure, transparent, restricted-access exchange’s members can extract from their position could be limited by the competition at the margin among the financial centre’s exchanges, and compensated by externalities such as organizational innovations and investors’ financial education. In order to work as it intends, a high disclosure, transparent and restricted-access market must actually impose to its members, operators and issuers more stringent rules, which precisely make it an integrated, more hierarchical organization.

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issues; in return, higher liquidity lowers the cost of capital for the issuers. This virtuous circle would lead to a single exchange.

In the terms of organizational economics, the stock exchanges of XIX century are “hybrid organizations”, more or less integrated, then more or less similar to firms or to markets (Riva 2005). These two solutions (market versus hierarchy) for the organization of a stock exchange permit understanding why the difference between a financial centre and a stock exchange is not always clear if the exchange adopts an organization close to the market option.
In such a model, various market places’ structures can be efficient, each one having its main advantages and being more adapted to a specific context. Their comparison is an empirical open question, which must focus on measures of the various services that a stock exchange proposes: price quality, transparency, liquidity, transactions’ security, stability, adaptability to shocks or innovations.

In this paper, we propose a history of the development of the Paris financial market based on such a framework, which leads to consider the Parquet as only one (important) element in the Paris securities market, and to understand the behaviour of the Compagnie des agents de change (CAC) (the corporation or “guild” of stock brokers which sets up the Parquet) in a broader framework than the legal monopoly one. In such a framework in particular, a complete monopoly is not only inefficient but almost impossible; actually, monopoly provisions are only one – likely changing – element shaping the structure of the financial centre. One advantage of that framework is that it helps explaining the existence of some degree of monopoly without the unsatisfactory hypothesis that a (captured) government imposes for long periods an inefficient organization, an hypothesis that seems in contradiction with an otherwise open economy, with the succession of very different governments (and even political regimes) which all tolerated and often protected the Coulisse (the Paris free and illegal market), and with the domination of laissez-faire-minded economists.

We consider a historical presentation is relevant because of the interdependence between the various dimensions of the market microstructures, an interdependence that we focused on above and that was emphasized per se in Pirrong (1999, 2000). We use detailed archival records of the Compagnie des agents de change (CAC) (Lagneau & Riva, 2007) in order to understand both the various episodes of microstructure transformation and to construct the new statistics that allow a measure of the impact of these changes. In section 2, we present the history of the Paris Bourse as a multi-polar organization. In section 3, we provide various new measures allowing a quantitative evaluation of that organization’s success, focusing on transaction costs, the security of transactions and the growth of transactions. Unfortunately, these data are only available for the official exchange. Nevertheless, since that exchange is usually considered by the critics of the Paris organization as the least efficient of the Paris markets, we can consider that they provide an upper bound of their costs.

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10 One can even not exclude in our framework the possibility that an exchange appearing only for rent-seeking purpose under privileged status becomes part of an efficient market structure.
2. Institutional changes at the Paris official stock exchange

The usual description of the Paris stock market in the 19th century considers it as the scene of a permanent conflict between a monopoly granted by the State to the conservative Compagnie des Agents de Change (CAC) and the free and innovative Coulisse. Actually, this dual structure was not so persistent, since the structure of the two exchanges evolved over time, and the relationships between the Parquet and the Coulisse were as much of cooperation as of competition. We focus here on the main changes affecting the organization of the Parquet and their effect on the services it provided to firms and investors. We mention three categories of organisational changes to explain the coopetitive relations between the two exchanges (Brandenburger-Nalebuff, 1996): those concerning the way operations were handled (trading systems, settlement and payment, price list publication); those affecting the guarantees investors benefited; and those related to the listing policies. These changes were not independent from each other: the birth of the Parquet resulted very much from a legal monopoly imposing some obligations concerning pricing methods, price publication and investors’ guarantees (although it is possible for such a high end exchange to surge without legal imposition as was the case in Milano or New-York in the late 19th century, see Riva, 2005 and 2007); its development as a small homogeneous and closed group was a consequence of both the collective guarantees and the quality of the pricing. All these changes were very much related to the economic context, and suffered strong path dependency. This justifies a chronological exposition.

a. 1801-1830: foundations

From the reopening of the Bourse in 1801 to 1832, most of the markets activity concentrated on the State rentes, the public debt consolidated in 1797 in a single 5% perpetual fund after the States’ “two thirds default”. The liberal order of the Revolution (as it appeared in the first version of the Code de Commerce) was more or less respected: guilds had been abolished by the Le Chapelier law, so that any cooperation among brokers was illegal. The 71 agents de change nominated by the government in July 1801 benefited from somefavours, but their nomination could still look as a standard competence examination. But the First Consul and later Emperor Napoleon did not like “the government policy to be priced in a market”, and he took advantage of the first crisis (1805) to change the spirit of the Bourse. He re-established the monopoly of officially authorized agents de change on securities operations and created a Compagnie des agents de change (CAC) under government supervision. The government also
intervened in the markets through the network of Treasury agents and the Bank of France (Locré, 1827; Khang, 2007).

Despite this apparently authoritarian rule, the market didn’t suffer much. The monopoly wasn’t respected. The CAC had no actual control on the agents. Partly because of political uncertainty and partly because of a lack of organization, the market fluctuated heavily. During that first stage, the difference between official agents de change and outside brokers (later called coulissiers) was limited. Both groups cooperated daily to form a more or less single market. First, no transfer of rentes (which were all nominative securities) was possible without the intermediation of the agents, despite the forward market being dominated by the coulissiers. The Parquet’s end of month settlement, created in 1805, served then for the entire market. Second, the coulissiers also acted as dealers (as they would do during all the century), and the official brokers necessitated them in order to absorb the substantial proportion of orders that could not be settled in a still relatively tight market. Third, the high turnover among the agents de change made them appear no less risky than the coulissiers: from 1801 to 1814, 115 agents were nominated, among whom 65 left the profession before 1815, 46 because of bankruptcy.

The invasion of France in 1815, the Restauration and mostly the war indemnity required by the Allies imposed a change: contrary to previous governments, the new one had to issue a huge amount of debt on the market (total debt increased by almost one third of GDP) in order to make the foreign troops leave (White, 2001). Part of that debt was issued successfully in London and Amsterdam, but the government also reformed the parisian market in order to be able to issue around half of the total in France (Gille, 1959). After the revolutionary turmoil, French investors required security even more than the high yields they were proposed. Liquidity would come later as a result of the mere size of the market.

The priority given to security led first to maintain the centralized and public quotation process. Since 1801, the market had kept the French tradition of the “cri”, by which the market for the leading securities – and especially the rentes – was centralized and public, guaranteeing the price sincerity and then the security of the public, and probably also facilitating the government’s control. The role of the opening fixing was to provide a guarantee to small investors. It was also an investment in reputation, both towards investors, the general public and the political sphere. In order to allow for the increase in liquidity, the

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11 PV CS, 20/6/1814
fixing was followed every day by continuous auction, which allowed for intra-day speculation by market makers. Nevertheless, the main characteristic of a centralized price-setting mechanism was never modified.

Another rule aiming at protecting the public was the direct management of the listing policy by the government (the Minister of Interior up to 1816, the Minister of Finance later on). The law prescribed that only French regularly issued securities could be admitted to the official list. The Chambre syndicale (the governing body of the Compagnie des agents de change) transmitted each candidature to the supervisory Ministry, who decided. These restrictions led to the appearance of other lists developed by unofficial brokers, and to the development of the Coulisse as a “second class” market. As soon as 1814, some agents de change protested against these “courtiers illégaux”\textsuperscript{12}, and asked being authorized to list foreign bonds. The official request of the Spanish government, the rise of transactions on some foreign (mostly Neapolitan and Spanish) government bonds, and the crisis they suffered because of unregulated speculation in 1823, led the government in November 1823 to accept considering their listing on the official market\textsuperscript{13}. Three other solutions were discussed in order to reinforce the security of transactions and the stability of the market: restrictions to the entry of new agents de change; better selection of the agents; mutual guarantee among them.

The numerus clausus of agents de change had been suppressed in 1791. Under the first years of the re-established monopoly, the number of agents increased without clear limit. The numerus clausus was imposed in 1816 (at 60) because of the number of failures in the previous years, under the argument that mutual knowledge and control was a condition for solvability control and risky behaviours’ limitation. It has been argued frequently that the numerus clausus and the property-rights of the agents on their offices had been created for budgetary reasons, but the offices were never sold out, and the cautionnement – the guarantee deposited at the Treasury – was only fixed in 1818 (décret of January 9, 1818); and actually it paid an interest to the agent. In 1816, the number of offices was considered too high for the agents to make a decent living on their trade, and some charges remained vacant\textsuperscript{14}.

The strict selection of candidates to the position of agent de change was also considered as necessary to limit moral hazard problems in a group which reputation depended on the behaviour of all its members. It had first been organized by the government (helped in

\textsuperscript{12} PV CS, 20/6/1814

\textsuperscript{13} By exception, Neapolitan bonds had been listed earlier.

\textsuperscript{14} Actually, the existing agents de change wanted their number to be reduced to 50, and opposed strongly the following nominations (PV CS 22/9/1817 and 22/10/1817).
principle by the Paris Chamber of commerce). The failure of that solution was recognized in 1816 because of the high rate of bankruptcies among the agents during the Empire. The selection was transferred to each individual agent in 1816 when the property of their charges was guaranteed, but after a conflict between the Finance Minister Corvetto and the Chambre syndicale, the selection was transferred in 1818 to the later, under ultimate approval by the Minister, even if each agent could still propose candidates for his own charge. The selection bettered from then, but remained restricted to the nomination of the agents, little control being possible afterwards. Nevertheless, a mutual social control was to develop all over the century (e.g. AG CAC 29/11/1841 mentions that the Chambre syndicale must watch over the private life of the agents).

The 1818 change was crucial since it transferred crucial powers to the CAC and especially to the Chambre syndicale, which became responsible for conciliating liquidity and security. The Comité (the body preceding the Chambre syndicale) had been for years asking unsuccessfully more power on the selection of agents, the definition of the internal rules of the Bourse, the police of the operations\textsuperscript{15}, as well as a confirmation of the monopoly and of the property rights of the agents on their charges. It obtained these guarantees and powers in 1816 by convincing the government that it could monitor the agents. It argued that the exclusion by the CAC of an agent (Dufresne) in december 1815, and its success in limiting the propagation of the crisis were satisfactory proofs of that efficiency. The new powers of the Chambre syndicale would actually be exerted against agent Pillot on May 7, 1817.

The principle of mutual guarantee was discussed very early as a solution to the interdependence of the risks supported by the agents and as supporting the reputation of the market as a whole. It was rejected by most agents during that period on moral hazards grounds (see e.g. discussions at the CAC meetings in 1817 on the Pillot bankruptcy). In 1818, when a grave crisis provoked three bankruptcies among the agents and serious problems for many of their colleagues-creditors, the CAC obtained a 5 millions loan from the Bank of France under a joint guarantee of all the agents\textsuperscript{16}. A group of bankers also accepted to buy rentes on the market (then limiting the bear pressures) only on the promise, guaranteed by all the agents’ wealth, that none of them would go bankrupt\textsuperscript{17}. This crisis proved important since this was the first case of collective guarantee (even if a short term one), and because a Caisse d’amortissement (sinking fund) was created in order to reimburse the amounts advanced to

\textsuperscript{15} That police was under the control of the Interior Ministry, something that led the agents to fear interventions based on public order considerations.

\textsuperscript{16} Only the Treasury accepted to lend without collective guarantee on that occasion.

\textsuperscript{17} On that episode, see PV CS 18/11/1818 and 23/11/1818; AG CAC 4/12/1822.
the failed colleagues; that fund was financed thanks to the payment of a timbre (a stamp duty) on the operations of all agents. In 1822, under the pressure of a bill mandating it, the CAC chose to make this fund permanent under the name Fonds commun. The Fonds received the product of a timbre of 10% of brokerage commissions up to a total of three millions francs (above which it paid an equal dividend to all the agents) The Fonds provided for the expenses of the Chambre syndicale and gave it leverage on institutional development. It was later used to manage the systemic risk by providing loans to agents suffering short term liquidity problems. If this was a change towards a more integrated organization of the CAC, it still took a while before that change became substantial: during the 1823 crisis, three agents filed for bankruptcy without receiving any help, since the CAC was not in danger and it considered their behaviour had been excessively risky. The Fonds was used for the first time during the 1830-31 crisis, as we will discuss below.

During that first period, the Chambre syndicale was then not able to organize the CAC in order to take advantage of the monopoly or to increase the security of the transactions. Actually, the agents continued cooperating with the coulissiers, made illegal operations (either operating for themselves or on the forward market), and even contested some decisions of the Chambre syndicale in court. The Chambre syndicale was also unable to lobby the government efficiently enough to maximize monopoly profits or simply rule out hostile decisions: for example it could not impede the decision by the Royal Court of Paris in 1823, in a solemn hearing presided by the Justice Minister, to reject the previous jurisprudence that considered forward operations as legal and then imposed the investors to pay their debts in case of losses. The Court confirmed the “exception de jeu” which allowed a debtor not to pay if it invoked the fact he had been incited to “gamble”. In doing so, it created an enormous uncertainty in the forward market. Another jurisprudence disfavouring the agents was the refusal by commercial courts to consider the Fonds commun as pertaining to the CAC: when an agent failed, his share in the Fonds was considered by the courts as part of his assets, when at the same time the court refused to incorporate his debts vis-à-vis other agents in his liabilities (see e.g. the Cléret bankruptcy in 1824). That decision increased the systemic risk of a default. This confirms that the CAC was still unable to impose its own rules to the stock market.

b. 1830-1860: organizational reforms and separation of the markets

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18 To strengthen and make more rapid the control over defaulted broker, the Chambre imposed a common accounting to the Agents de change in the aftermath of the 1823 crack CS 14/11/1823
Major institutional changes around 1830 justify considering the markets entered a new era. Some of these changes were responses to the demand for financial services that came from firms. This was especially the case for the 1832 judiciary confirmation of the tradability of shares in sociétés en commandites par actions (the typical manufacturing firms’ organization, see Lamoreaux & Rosenthal, 2004). This was also the case for the 1831 creation of bearer rentes certificates, which the government aimed at developing the market for its debt. Nevertheless, no substantial demand for a new set of financial market services emerged before the development of the railroads in the 1840s. We can then consider the major institutional changes of the early 1830s as mostly exogenous, and as a supply-side institutional innovation brought from the CAC and/or the government in order to improve the market efficiency. These changes affected in particular, the guarantees provided to investors, the listing policy and the organization of the transactions on the stock-exchange.

The first important change on the eve of the period concerns the forward market. In 1832, civilian courts began to made forward contracts enforceable by recognizing their validity even without previous money deposit by the forward buyers (but a forward seller had to deposit the securities when he transmitted an order). The publication in 1832 of the internal rules of the CAC helped courts to take that decision by providing a collective guarantee of the CAC to forward operations. The fact the Finance Ministry refused to approve these rules made them compulsory for the agents de change but not for their clients; then, only the courts’ new and uncertain jurisprudence protected the agents, often imperfectly. Forward operations became increasingly important, not only for the rentes, but also for new issues of railroads shares and bonds. This justified their publication on the official listing from 1844. A last jurisprudential move in 1848 reinforced the agents de change’ protection by distinguishing “serious” from “fictitious” forward operations (a distinction originating from the CAC own rules): serious operations were those by regular forward market operators with a wealth proportional to the positions they took; they could not ask for “exception de jeu”. In the following years, the Parquet was able to develop forward markets without important restriction or loss of reputation.

The second major transformation at the beginning of the 1830s was the development of the collective guarantee of the CAC during the 1830-31 crisis. In that episode, the Fonds commun was used for the first time under the sole authority of the Chambre syndicale in order to save several agents from bankruptcy. From that date, the Chambre syndicale was allowed to use part of the Fonds commun (an amount equal to the cautionnement plus the share of the agent in the Fonds – 50,000 and later 100,000 francs – collateralised by the office value) without
asking the general meeting of the CAC, and the majority required in the general meeting for more substantial helps was reduced from almost unanimity to two thirds. Both changes reinforced the integrated organization of the CAC. This position was strengthened in 1835 when the Paris court recognized to the Fonds commun the status of a civil society, giving priority to the claims of the CAC members on those of other creditors and allowing the Chambre syndicale to use it to deal with crises.

Later on, other efforts aimed at reinforcing the security of operations for investors. They were also exclusively undertaken by the Parquet and not by the Coulisse, and focused on limiting excessive risk-taking during bull periods. Above this, a regular inspection of all the agents accounting books was started in 1846, and the Fonds commun was doubled to 6 millions in 1852, also improving transaction security. These efforts didn’t suppress bull or bear markets, but they reinforced the legitimacy and reputation of the Parquet. Especially important was the fact that, thanks to the Fonds commun and the integrated organization under the Chambre syndicale, and in spite of a number of crises, only one agent de change filed for bankruptcy from 1831 to 1859: losses for the general public were very limited and negotiated.

In order to secure the market, the Chambre syndicale developed from the late 1830s a listing policy which became increasingly autonomous from the Ministry of Finance. The main reason was the then rapid multiplication of sociétés en commandite par actions, a legal form which allowed creating shares for firms not subject to government authorization (in contrast with sociétés anonymes – corporations – which were subject to authorization until 1867 and implicitly admitted to the official listing then). The government was reluctant both to approve their listing, fearing investors would consider it an implicit guarantee on the quality of the firms, and to give guidelines to the Chambre syndicale. It nevertheless recommended the latter to be “prudent” in its decisions. When the boom of sociétés en commandites started in the mid-1830s, the Chambre syndicale forbid the agents de change to trade their shares without its explicit approval and developed a jurisprudence of formal and economic listing.

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19 In 1834 for example, 42 agents asked for increased guarantee deposits to be made in the Caisse commune by those undertaking forward operations on the Spanish rente, the main speculative security on the market (AG CAC 6/10/1834). The Chambre syndicale asked for similar protections during the canals’ and the sociétés en commandites’ shares’ bubbles in the following years, signalling its efforts to the government. In 1844, the Chambre syndicale switched from a monthly to a bi-monthly settlement in order to decrease the risks from forward operations at each settlement date. In 1851-52, it cooperated with the Bank of France against the bull market and imposed to the agents de change a guarantee deposit of 150 francs by share (around one third of their price) for forward operations, a decision it was soon proud of (AG CAC 15/12/1852).

20 Nevertheless, debates at the CAC general meeting on that bankruptcy show that there was still no unanimity within the CAC on a collective guarantee (e.g. AG CAC 18./11/1845).

21 [letter of the Ministry of Finance Laplagne to the head of the Bourse on October 17, 1837, quoted in CS minutes 23/10/1837]
requirements. In 1840, it adopted a definitive procedure for these shares. Moreover, it refused to list the *promesses d'actions* (shares' promises) that the railways companies had issued before having obtained the concessions they had asked for. That “prudence” combined with legal prescriptions created scope for an alternative market of the *commandites’* and railways’ securities on the *Coulisse*. From the late 1830s, the *Coulisse* enlarged the range of securities it traded without the systematic cooperation of the *Parquet*, previously limited to the *rentes*. Nevertheless, the *agents de change* also operated on unlisted securities in cooperation with *coulissiers*, and the opposite was still true as well (cf PV CS 6/12/1841). However, the *Parquet* organized in 1844 a second tier market (the *Rez-de-chaussée de la cote*) to contain the *Coulisse*’s competitive pressures and list riskier securities.

During the 1850s, a similar problem affects the listing of private foreign securities. Some were listed on the *Parquet* after the approval of the Chambre syndicale and the Minister of Finance. When in 1857 these securities became subject to the taxes as the French ones and the government asked the *Parquet* not to list foreign securities which had not paid the tax, many of these securities were listed on the *Coulisse*. Progressively, the *Parquet* was increasingly controlling the listing decision.

A last change was more progressive, less visible, but played a major role in the separation and later competition between the *Parquet* and the *Coulisse*: the more efficient organization of settlements and payments. As soon as 1836, the *Chambre syndicale* organized a centralized settlement of the forward operations, with the help of the Bank of France for the payments. This mechanism was limited because the courts required the *agents* to be always able to follow every debtor during all the transaction process, impeding full multilateral compensation. It was extended and reinforced in 1843 and 1845, when a true compensation of all debts among the participants was put in place. Multilateral compensation required mutual confidence. It was then a consequence of the increase in collective guarantee among the *agents de change*. It also implied excluding the brokers whose clients could not be monitored by the CAC. As early as 1828, the *Chambre syndicale* tried to limit the brokers’ counter-party risk by establishing lists of bad clients. It also reinforced its screening of potential new *agents*.

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23 Nevertheless, the Chambre also tried to speed up the listing by asking the government for its concession decisions (cf. AG 22/12/1841, et 20/12/1847)
24 The Law passed on July 15, 1845 forbid to agents de change listing share without at least ¼ of their nominal value paid.
25 The government also asked the Parquet to take care of investors' security in the listing decision.
(focusing also on the candidates’ wealth) and its monitoring of the agents’ partners. In the 1860s, the CAC considered its settlement mechanism as much superior both in terms of rapidity, security and cost to those existing anywhere else in Europe, and as a direct result of the entry restriction it enforced (AG CAC 15/2/1869).

The Parquet’s strategy was then to provide a low-cost efficient and secure operating mechanisms in order to attract investors (especially risk-averse ones), and to abandon to the Coulisse the high-risk, high-return end of the market. The group of regulatory changes and of innovations in products and organization it put in place explains that the Paris market – mostly the Parquet – was able to respond to the increase in the demand for an efficient financial market. That demand started with manufacturing firms in commandite form and with foreign government debt in the 1830s, and increased substantially with the transport and later the banking revolutions of the 1840s and 1850s. The French stock exchange ended up financing almost entirely the railroads, which alone mobilized investments of around 2% of GDP every year from the 1840s to the 1860s (Verley, 1989).

These developments led to an increase in the heterogeneity among the securities traded (from small firms’ shares to the rente), which made inefficient a single market organization. Although the legal monopoly was not terminated, in practice the Coulisse developed as a separate market, and the Parquet renounced to quote some securities in order to focus on the major new issues of the period, among which railroads and new joint-stock banks were the most important. The Coulisse focused instead on shares in smaller firms: the commandites in the 1830s, the promesses d’actions in the 1840s, and on foreign private securities in the 1850s; it also competed with the Parquet on the rentes market, especially after the creation of bearer rentes certificates in 1831. That separation appears clearly in the business newspapers which, publishing securities’ prices, distinguished from the late 1820s the Coulisse (the marché en banque) from the Parquet (the marché officiel).

c. 1859-1882 The failed takeover on the Coulisse

The specialization between Parquet and Coulisse that emerged in the late 1830s was accepted by both up to the end of the 1850s, and the markets appeared mostly complementary. Nevertheless, from the very beginning, the Parquet considered the relationship as a

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26  The solidarity was further boosted when the Chambre syndicale obtained the right to decide at which price the charges were to be sold.

27  From the mid-1830s on, the CS fixes and tries to enforce minimum commissions that are markedly lower (by about 50 %) than the maximum commissions imposed by the law. This concerns mostly the less liquid securities, those with high unit value and the nominative ones (see for example CS 21/1/1836).
hierarchical one given its official character. Increasingly yet, the very functioning of the Parquet, with its special settlement and guarantees, led to a separation. The Parquet took advantage of its innovations and reputation to appropriate the best share of the market and enlarge the list of the securities it dealt with. At the same time, the traded volumes skyrocketed (figure 6 below). All these successes were motivated by the high efficiency and the dynamic strategies of the Parquet, but they inefficiently led to an attempt at monopolizing the market and absorbing the Coulisse.

Within the context of a huge development of the Paris financial market, the cooperation-competition between the Parquet and the Coulisse became increasingly conflictive at the end of the 1850s. After a number of coulissiers’ defaults during the 1847-1848 crisis (without consequences on the Parquet), the Coulisse reorganized in a more formal structure and also thrived. The skyrocketing volumes traded on the Parquet led to a sharp increase in the offices’ prices (see figure 8). A number of agents de change took advantage from these high prices to sell their offices: as shown in Table 1, the agents’ turnover in the 1850s is the highest of the XIX century. The buyers – themselves not yet well established and wealthy bourgeois as the agents would become during the Belle Epoque – would need high profits in order to earn a sufficient return on their investment, especially since they had become highly indebted when buying the offices. This led them to more risky behaviour and to claim for the reinforcement of the monopoly when the 1856-57 crisis hit the market, since they then felt strong enough for managing the entire market.

Previously, the Parquet had sometimes asked the courts to enforce its monopoly, but without much success (though in some cases a few coulissiers had been condemned, mostly when the government wanted to calm down speculative behaviours). In 1859 by contrast, the Parquet agreed with the government on both a new regulation and a reinforcement of the monopoly, by which it essentially would absorb the Coulisse. With the support of the government (which wanted to sanction the Coulisse for allowing foreign firms to evade the new 1857 tax regulation and issuing requirements), it obtained a very severe sentence against all the major and most reputable brokers of the Coulisse, just after having passed the new internal rules allowing for the take-over (AG CAC 18 and 20/10/1859 and 14/12/1859). The Parquet then took the opportunity of that sentence for absorbing the Coulisse.

28 Courtois (Vidal), 1904, p. 266
29 French law imposed the official stockbrokers to hold in their own name at least ¼ of the brokerage house.
30 This dynamic explains also the high number of defaults of the stockbrokers during the second half of the 1850s.
31 CAEF archives, box B33.232.
In order to do so, the Parquet modified its own organization: new pits were created, new securities were listed (especially foreign private ones), minimum commissions were decreased, new operations were introduced that existed previously only on the Coulisse (low price options in particular), the monthly settlement was reintroduced (as in the Coulisse tradition). Most importantly, new jobs as “main clerks” (commis principaux) were created for former couliissiers. They were supposed to maintain substantial autonomy within the agents de change offices, which had been transformed into increasingly structured firms during the high-growth period, a transformation which would be formally recognized by the law as not contradictory with their “public duty” in 186232.

Four main reasons explain the failure of the merger.

First, the new commis did not adapt to this hierarchical organization. They kept making their own operations outside the stock exchange, and took risks the agents de change did not want to consider as theirs. They were not satisfied by the restrictions imposed by the Chambre syndicale, on the variable part of their income (which would lead them to take excessive risks and then to free ride first on the offices they were supposed to pertain, second on the CAC as a whole). This led to the re-establishment of many of these commis as independent brokers, without any formal organization at first, later with a very loose one allowing for operations to be done and settled (a history actually badly known up to now).

Second, the Parquet could not provide all the services required by the market. In particular, it didn’t create a market for the foreign securities that circulated in France without complying with fiscal and issuing laws. This was a reason for the Coulisse to develop again (see e.g. AG CAC, 21/12/1863 and 9/5/1870).

The Parquet was also not able to provide the international arbitrage that was required when international issues on the French market exceeded its absorption capacity (something infrequent but which happened again when large issues of government bonds issues were necessary for the payment of Reparations to Germany after the Franco-Prussian 1870 war). The agents de change and the Treasury agents in the provinces were not able to facilitate the distribution of these enormous issues (5 billions francs or some 3 months of GDP after 1871) because they lacked the international connections that were the raison d’être of many couliissiers. Only the Coulisse could develop that international arbitrage and the speculative forward market on the rentes which “help” (since speculation remained bullish almost

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32 The law was made necessary when a 1861 court decision – in rupture with established jurisprudence – declared null and void the company that financed and structured an agent de change office, arguing an office ministeriel was a public office and could not use commercial law legal forms. This could be reversed only by a law.
constantly and the price of the *rentes* increased from 1872 to 1879) the government greatly appreciated.

The listing policy of the *Parquet* concerning French securities was also unsatisfying for many issuers. In 1864 the Chambre Syndicale still believed it could handle all the market and list illiquid securities in order to prove that “our guild satisfies all the needs of industry and trade”33. Nevertheless, in 1866 the Minister of Finance Fould required the suppression of the Rez de chaussée of the Cote Officielle since, on the one hand, the renaissance of the *Coulisse* reduced its purpose, and, on the other, it implied fixed costs and risks that the *Parquet* should avoid. In spite of this apparent retrenchment, the *Chambre syndicale* acquired a new power in 1867 when the new commercial code liberalized the creation of joint stock companies: the Minister of Finances gave then the Chambre syndicale the full responsibility of listing French securities as well as a large autonomy concerning the listing of foreign securities34. The Chambre syndicale was then the “master of the official list”35… but of a list of limited dimensions.

Last reason for the re-establishment of a *Coulisse*: the development of the newly created banking corporations (among which the Crédit Lyonnais in 1863 and the Société générale in 1865), which rapidly searched for diminishing their dependence towards the Parquet for their operations on securities36, in particular in terms of commissions and flexibility. The strict rules that the Parquet imposed to forward operations (and which contributed to their legitimization by the courts) made it less flexible than the *Coulisse* (Lagneau-Riva, 2010). The Crédit Lyonnais hosted the *Coulisse* brokers in its main building for years, with government approval from 1880 (Romey 2007). In the early 1870s, the CAC feared that some banks might try to buy an agent de change office which would have allowed them to legalize their own operations and escape the monopoly (PV CAC 21/12/1872)

One must conclude that the very success of the Parquet in the 1850s led it to adopt an erroneous monopolistic strategy: in trying to absorb the *Coulisse* without being able to create an actual hybrid market given its formal and informal constraints, it created a hole in the provision of financial services. When an exogenous shock increased the demand for the services usually provided by the *Coulisse*, the *Parquet*’s attempt at controlling all the financial market was deemed to fail. This attempts’ failure then confirms the importance of a

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33 PV AG CAC, 19/12/1864
34 The legal framework for the listing of foreign securities is set in 1880 by the decree 6/2/1880 and the circulaire ministérielle 12/2/1880 which harmonize and make coherent the previous fragmented rules.
35 PV AG CAC 26/12/1866, 30/12/1867, PV CS CAC 30/1/1867, 18/2/1867,
36 In the early 1870s, the CAC feared that some banks might try to buy an agent de change office which would have allowed them to legalize their own operations and escape the monopoly (PV CAC 21/12/1872)
multi-polar organization and the impossibility for a regulated exchange to handle all the market. It also confirms that the reason for the existence of the *Coulisse* was not the inefficiency of the *Parquet*, but the fact it imposed strict rules and regulations that did not satisfy all the actors involved.

d. 1882-1898: the *Parquet* decline; unable or unwilling to provide a secure market?

In spite of its failure to absorb the entire market, the Parquet still constituted an efficient and secure segment of the Parisian market. Although it was unable to provide some specific services, it still dominated the market for most investors and most securities. The reason for its relative decline must be searched first in its avoidance (or neglect) of the fastest growing market of the period, that for stocks (especially foreign ones), second in the internal struggles that developed after the 1882 crash concerning the adequate organization of the *Parquet*. The two issues are linked since the choice of an organization was directly linked to the constraints on individual agents’ pursuit of innovative business and the resulting risks. New regulations in 1885 and 1890 also played a role.

In the 1870s, a financial bubble developed starting with the speculation on government bonds, followed by a spurt of creation of new banks and financial services’ firms that the *Parquet* listed with little caution. The resulting 1882 “Union générale” crash mostly affected that financial sector. The Union générale, the most recent of the big banking corporations, failed in the middle of the crash, mostly because of buying back its own shares on the forward market. The crash deeply affected the Lyon stock exchange, where 14 *agents de change* filed for bankruptcy. In Paris, the crisis was also serious, since 6 agents had to resign and 8 others suffered enough to ask for the help of the CAC. More importantly, the CAC had to borrow 80 millions francs from the Bank of France and a consortium of banks in order to face the January settlement and avoid outright failure.

In a recent paper, E. White considers this loan as a proof of the incapacity of the *Parquet* to provide the security it promised. Since its superior security was a major argument in favour of the market model of the *Parquet*, he suggests that the French financial market was globally inefficient. We agree that the crash tarnished the *Parquet*’s reputation, but we don’t think it proves it was unsecure or inefficient. First, the *Parquet* didn’t fail, so that he actually delivered the security that investors waited for. For sure, it had to ask for a loan, but the loan was reimbursed within ten months on the personal wealth of the agents and their relatives, proving the only problem the *Parquet* suffered was one of liquidity, not solvability, and
confirming the strong credit of the Parquet, a direct result of its integrated organization\textsuperscript{37}. Moreover, the Parquet faced the losses without obtaining a court judgment imposing its clients to pay for their debts. The agents wrongly believed that the previous jurisprudence would convince their debtors to pay. But the courts changed their jurisprudence unexpectedly, did not enforce forward operations and annulled the contracts when debtors asked for the “exception de jeu”. The losses of the Parquet resulting from cancelled contracts (including those undertaken by the Union générale itself\textsuperscript{38}) amounted to 117 millions, 84\% of the total Parquet losses during the crisis. Importantly, this amount is superior to the loan that the Parquet necessitated, suggesting that a constant jurisprudence would have made that loan unnecessary (Lagneau-Ymonet & Riva, 2010). It then looks like the Parquet was the adequate scapegoat because it could both be incriminated for the errors of the entire market and remain reputable enough to guarantee a secure end to the crisis. The losses on the Coulisse were certainly huge, but remained unpublicized (although bankruptcies were many). So did the government deficiencies in regulating the financial industry\textsuperscript{39}.

We conclude that the 1882 crash does not prove the inefficiency of the Parquet. The value of the agents’ offices didn’t decrease substantially after the crash (see figure 10 below), suggesting new buyers didn’t think the future earnings were much affected. Nevertheless, the confidence of contemporaries was damaged by the difficulties faced by the Parquet in 1882, a problem the Coulisse did not face since it didn’t pretend providing security. On the contrary, the Coulisse was able to use the new 1884 law legalizing unions to organize more formally, allowing it to appear more as a structured market and to improve the effectiveness of its market.

We will argue here that the main reason for the continuing decline of the Parquet in the 1880s compared to the Coulisse was neither the dynamic behaviour of the Coulisse nor the inherent deficiencies of the Parquet’s organization, nor the Parquet increasing conservatism (as

\textsuperscript{37} E. White argues that the security provided by the Parquet was indeed limited because the guarantees given by the agents de change had decreased compared to the transaction volumes. Nevertheless, he neglects to include the personal wealth of the agents, which was the main guarantee of these operations, and which explains the rapidity of the loan reimbursement as well as the fact the banks accepted to lend without asking for interests.

\textsuperscript{38} The courts argued the forward contracts of the Union générale were not “serious”, when the CAC argued that all the market was lending to the Union, a bank with a capital stock of 150 millions. The Coulisse was also affected by the crash, but maybe comparatively less, first because its forward contracts were less generally considered as secure, and also because the coulistiers unilaterally (as argued by the CAC) compensated with their losses the debts they had towards the Union générale (corresponding to the last shares issue of the bank).

\textsuperscript{39} The government several times refused to legalize the forward markets before 1882, considering the risk that the courts recognized the “exception de jeu” imposed some restraint on speculative behaviours. Actually, it only created more uncertainty.
argued by Verley\textsuperscript{40}). More important was the internal conflict that affected the CAC concerning the solidarity among agents when facing crises, a conflict that predated but was reinforced by the 1882 crisis.

In the immediate aftermath of that crisis, the long standing (since 1861) head of the CAC (syndic), Moreau, was criticized for his management of the crisis, and especially for trying to impose the solidarity of all agents for the reimbursement of the 80 millions loan. Actually, he had been in that occasion perfectly consistent with the policy he had been pursuing for 20 years, which had permitted the CAC to protect investors for any losses in all crises (except in the Leperche bankruptcy of 1868). The opposition to Moreau, which had constantly emphasized the moral hazard dimension of his policy\textsuperscript{41}, convinced the CAC general meeting not to follow Moreau and the Chambre syndicale anymore. Instead of an internal loan subscribed by the agents on a voluntary basis as Moreau proposed (which would have imposed a long standing solidarity among them), the general meeting imposed an equal contribution of all brokerage firms, clearly more favourable to the richest ones. It also made clear that the 1882 bailout was the last one: “it (the CAC) solemnly protested against the maintenance of any solidarity principle” (AG CAC 9/7/1883). Following that decision, Moreau resigned. In the next few years, the CAC actually proved more reluctant in paying for its members’ problems, and tougher in its negotiations with banks, which had to accept their share of the losses (Vuaflart case in 1886). In the Bex case, in 1888, it refused to pay anything beyond the debts related to the spot operations, and let the agent go bankrupt.

Our view is that this policy change may have been rational from the point of view of some agents for whom solidarity was costly, but that overall it led to a decline of the Parquet, since the security resulting from that solidarity was one of its major competitive advantages vis-à-vis the Coulisse. The new policy, which led to increased competition and decreased cooperation within the CAC, was finally rejected in 1892 when Hart, the syndic who had succeeded Moreau, was removed, and the solidarity among agents was reemphasized (as was proved in the 1895 failures)\textsuperscript{42}.

The reason for this second change can only be encountered in the interaction between the State and the Parquet. The State constantly made clear its preference for maintaining a market

\textsuperscript{40} Verley (2007) considers that for example the increasingly long tenure of the agents in their charge, and their increasingly familial transmission are proofs of a conservative rentier attitude that explains a declining entrepreneurial behaviour.

\textsuperscript{41} See e.g. PV AG CAC 28/7/1882, AG 9/7/1883.

\textsuperscript{42} Actually, the change started as soon as 1890, when Verneuil, a nephew of Moreau and future Syndic (from 1896 to 1913) entered the Chambre syndicale. From then on, Verneuil became the alter ego of the Syndic and participated many negotiations. Bertaux, another long lasting member of the Chambre Syndicale (and future Minister), was also an active supporter of the change.
structure including a strictly organized and secure market, in spite of the pressure of the dominant laissez-faire economists (such as P. Leroy-Beaulieu) towards the monopoly’s abolition. Its position was reinforced by the 1889 crisis, which resulted from speculative positions taken by the Comptoir d'escompte, a major bank. More profoundly, that position was the political consequence of the development of a middle class of investors asking above all for security for their retirement savings and fearing the asymmetries of size and information they would likely suffer on a less regulated unified market. This is also consistent with the limited development of collective management under investment funds or even life insurance (Hautcoeur, 2004).

Before that second move of the Parquet, the government had tried to adapt the regulation in order to stabilize both the Coulisse and the Parquet, treating the two in an apparently more similar manner which in practice favoured the Coulisse. The first step was the legal recognition given to the Coulisse operations on unlisted securities by a decision of the Cour de cassation in 1885. This restricted officially the Parquet monopoly to officially listed securities. The second step was the legalization of forward operations, also in 1885. It was good news for the market as a whole since it ended an uncertainty resurrected by the 1882 decision; but it benefited mostly the Coulisse since, except for the 1882 crisis, the Parquet had obtained a favourable jurisprudence much earlier (Lagneau-Ymonet and Riva, 2010).

After the 1889 crisis, the government decided to reinforce the Parquet regulation. For the first time, a law regulated the transactions and homologated the Parquet’s internal rules. The government also asked the Parquet to enlarge its list, which led to the creation of a second list of medium-sized firms. In exchange for their stricter regulation and enlarged service, the agents de change could ask the courts for the enforcement of their rules, reducing uncertainty. This move sanctioned the monopoly, but it also made the Parquet operations more rigid, and didn't stop the development of the Coulisse, which was taking advantage of the 1884-85 regulations and developed forward and option contracts on many securities listed on the official list. The Parquet then asked for the enforcement of its monopoly on these securities. The government imposed the Coulisse to accept a Modus vivendi, by which the coulissiers would renounce making operations on most listed securities but a small number of highly liquid ones.
The **coulissiers** didn't respect the agreement. They kept trading many listed securities at the evening session they held in the lobby of the Crédit lyonnais⁴³, until the **Parquet** obtained its closure by the police. But under strong pressure by the banks, which supported the **Coulisse** (among other because of its crucial role in the primary market of the securities that the banks were issuing), the government switched to the liberal view of a contestable market of open competition between the two markets. That view was put into law thanks to the 1893 fiscal law that recognized the **coulissiers’** operations even on listed securities. This would likely have meant the end of the **Parquet**, since its heavier regulation put it at a competitive disadvantage. But another shock caused a move in the opposite direction: the “gold mines” crash of 1895. During the previous years, the **Coulisse** had listed a great number of new gold mines operating in the recently colonized Transvaal, which did not match the parquet listing criteria. That period of intense speculation ended with a sharp drop and with the failure of a high number of investors and **coulissiers**. This reopened the regulatory debate.

1898-1914 The monopoly reinforced and contested

The gold mines crash convinced the government that the **Coulisse** did not provide the security required by a well-functioning market. It then decided reinstating the **Parquet** monopoly and imposing new regulations to the **Parquet**. This move brought back a dual organization of the Paris financial market.

The crash occurred at the worse moment for the **Coulisse**. Their market had expanded rapidly in the previous years and appeared fragile. The political situation was one of increasing tension between the increasingly socialist left and ultranationalists (cf. the Dreyfus affair). Nationalistic – and sometimes anti-Semitic – attacks developed against the **Coulisse**, which had many foreign – and, worse, mostly German – members. In 1898, the Fleury-Ravarin law imposed the **coulissiers** to use the intermediation of the **agents de change** for all officially listed securities. As a compensation, the **Parquet** was supposed to improve its services: maximum commissions were slashed, minimum ones suppressed for small orders, delivery delays were reduced, new pits were created (which would allow hiring some former **coulissiers**), the CAC was to support the Association nationale des porteurs français de valeurs mobilières (an investors’ lobby negotiating mostly with bankrupt foreign

⁴³ The Crédit lyonnais, a big operator in both the primary and secondary market, attached much importance to the Coulisse’s evening session to be held in its lobby since it could extract valuable information for its own operations.
governments) and the enlargement of the Palais Brongniart. More importantly, ten new agents de change were created, solidarity among the agents was made legally compulsory, and, from 1901, the price of agents de change offices was fixed by the government – and maintained constant until World War One.

The Coulisse was severely damaged. From the 70 billions francs of its 1897 turnover, 50 came from Parquet listed securities, a business it would lose (AG CAC 30/4/1898). It reorganized in two organizations (syndicats), respectively for spot and forward operations (the second one being by far the most important) on unlisted securities. The government imposed to the two syndicates organizational structures much more hierarchical than previously, on the Parquet’s model.

Contrary to the “government capture” argument, the Parquet did not consider with satisfaction the strict regulation of the Coulisse. Maybe thanks to the experience of the failed take-over of the 1860s, the agents were convinced of the need for a free market as a complement to their own. They did not want to suppress the Coulisse, but only to control and dominate it. They accepted a new modus vivendi in 1901, by which they authorized the Coulisse to continue trading a number of highly liquid securities (and any listed security under an advantageous commission-sharing agreement). Overall, the Parquet attitude is clear from the following (privately held) statement by the syndic of the CAC:

“If our Corporation is an indispensable basis for the market because of the security it represents, it is not and cannot be active enough for conducting a number of businesses”, so that “the duty of the Chambre syndicale was to search for a system which, while strictly respecting the law, would maintain the activity of the Coulisse and allow it to do business” (AG CAC 30/4/1898).

But as the Coulisse became more regulated, other markets appeared in the early 20th century, in order to allow for the flexibility and freedom that was disappearing from the Coulisse. An informal and highly liquid market for the French rentes subsided with implicit government approval. Some former coulissiers who had moved (nominally) to Brussels kept operating on listed securities. Others exploited a “jurisprudence hole”, that allowed them dealing in listed securities (so called “direct operations”). A new “free market” also developed: not formally organized and publishing no list, it probably worked like an OTC and a start-up market among financial intermediaries. Together, these various competitors of the Parquet kept realizing a substantial proportion of the transactions. Nevertheless, their market share was reduced from almost two-thirds (as measured by the tax on stock market operations) to around one third. Their existence is perfectly consistent with our multi-polar framework, and it
suggests that the harsh regulatory framework of 1898 led not only to a Parquet monopoly but also to the development of new markets more opaque than the former Coulisse.

The 1898 law was then not the end of the story, and focusing exclusively on it – as much of the literature does – would be misleading, since the competition to the Parquet didn’t come exclusively from the Coulisse.

From then on, the main challenge to the Parquet was the development of the role of the banks in securities issues and trading. A number of medium-sized banks, loosely organized in the Syndicats des banquiers de province, circulated lists of bid and ask prices (on SMEs shares) among them, avoiding the intermediation of any formal market. The competition from deposit banks was even more important since they wanted to substitute the agents de change as advisers (a role legally forbidden to the agents de change) for the middle-class investor, and even as intermediaries. Although the extent of the (illegal) practice is unknown, it seems that they sometimes matched directly buy and sell orders from their clients, avoiding the Parquet intermediation (but using its prices).

On the primary market, the big deposit banks started in the 1890s organizing issues of new securities, without introducing them on the stock exchange (through formal IPOs) as they had done previously: they took advantage of their networks to sell the securities directly to individual investors (Bouvier, 1961; Lévy-Leboyer, 1976). The admission to the list was asked only at a later stage, and a period of highly active trading was then lost for the Parquet. This was very different from the London situation where issues were organized by brokers and were held by speculators making frequent operations for a long period before they were sold to more permanent holders, and where the presence of investment funds rebalancing regularly their portfolios maintained more liquidity (Aupetit & al., 1912). This may explain a more dynamic spot market in London and the more limited volatility of the Paris market during the gold standard period (ibid).

The CAC rapidly reacted against this competition. As early as the 1880, the Parquet proposed similar services, like the payment of coupons and safe custodian services in cooperation with the Bank of France (AG CAC 18/12/1882). On the secondary market, the agents de change and the banks agreed on the “par contre” in 1895, an agreement by which a bank paid commissions only on the largest of two matching orders passed in the same day to an agent; the Parquet also maintained the rebates on commissions to the banks that provided them with orders (see CAC general meeting of 1908 and 1910). On the primary market, where no monopoly existed, the Parquet organized in the mid-1890s in order to be able to be part of the most important issues as a group. In 1894, the CAC general meeting considered this
participation as an “important innovation (...) [that would help to] increase the reputation of our Company and (...) help it to rise from the inconsequential situation bankers want to impose it” (AG CAC 17/12/1894). After a few years, the CAC situation was well established in issue consortiums and it obtained conditions similar to those of the biggest banks (AG CAC 19/12/1904).

These moves suggest that the Parquet was not living on monopoly rents, but had to innovate in order to maintain its position. Nevertheless, its action was not sufficient, and the Parquet also suffered from low profitability. This was the result of the constraints it faced, the decrease in its commissions and the rise in risks. Controlling almost entirely the market for spot transactions was not profitable: the number of small operations was very high and commissions restricted. Forward operations were potentially more profitable, but they were also transmitted through a large number of intermediaries and spread among a large number of securities, both of which increased costs. The positions accumulated during every liquidation period were huge (totalling 1 to 1.5 billions), leading to a high risk. One major problem for the agents de change was that the positions accumulated on their market could not be compensated with other markets, since Paris was the only or the dominant market for most of the securities, and the new 1898 rules excluded any risk-sharing with the coulisse. Many agents de change were also convinced that the monopoly was not profitable because of the strict regulation and the solidarity it imposed to them. Even more important is the incentives problem resulting from the 1901 reform: by fixing a unique and constant price for the agents de change offices, it pushed the collective and corporative logic to its limit. Previously, the Chambre syndicale fixed the price in part as a function of the clientele and business of the office; which created incentives for the agents to develop their business. With the 1901 law however, that incentive disappeared. As it was certainly difficult to get side-payments for such important and official transactions, this may explain why the offices became more and more family assets, transmitted to the sons or in laws of existing agents de change, something which contributed to an increasing conservatism and lack of entrepreneurship on the Parquet (Verley 2007).

When increased volumes imposed capacity investments, the Chambre syndicale increased the number of pits while maintaining a strict control on pricing and then avoiding a rise in volatility. The Parquet did not suffer during the 1904, 1907 and 1911 crises, contrary to other Europeans exchanges or the Coulisse. But the main agents wanted to take advantage of the need of capacity investment in order to change the rules of the market and increase profitability: they proposed to transfer the Bourse (Parquet and Coulisse alike) to the Palais
Royal (a much larger place), and to privatize the Parquet. A large bank would be created thanks to the reimbursement of the offices, and would participate in the primary market; the agents de change would become private brokers and would compete with the coulissiers and other bankers on a free securities market, in which the constraints imposed to the Parquet would no longer exist.

This project, which was supported by the Chambre syndicale and the major agents de change was rejected in 1913 by a majority of the CAC, except the transfer to the Palais Royal. The likely consequences of such a radical reform were the following: an extension of the operations done by the agents towards securities’ dealership; so a rise in the necessary capital stock of all agents, as a compensation for increasing risk (itself a result of increased competition, more risky positions as dealers, and the suppression of solidarity among brokers). This would threaten the control of small agents on their office and their social position, and make them lose the benefits of the equalitarian solidarity organization of the Fonds commun.

Whatever the possible attitude of the government in case that project would have been approved, that very debate suggests the agents de change were not in such a profitable monopoly situation as to protect it against any move, and that the solidarity which the government and investors valued so much was actually a substantial liability for many agents. If not for the start of World War One soon after that episode, the pressure of the banks and the most important agents de change may well have ended a few years later with the suppression of the monopoly.

Paradoxically, at the very moment Paris agents de change considered the opportunity to create a new broad, private and less regulated market on the London model, London brokers discussed the creation of a new market without jobbers because they suffered the strong position of the jobbers resulting from the 1907 suppression of the dual capacity. They ended up fixing minimum commissions. These developments were stopped by World War One, which froze the 1913 positions and gave them the status of “Belle Epoque” symbols for generations of brokers and economists. We must remember they were only a step in a complex transformation.

3. Some quantitative tests: transaction costs, risk, liquidity, volatility, and the Parquet relative development
This section aims at evaluating the efficiency of the Paris stock market as the outcome of the changes in organization and regulation we discussed in the previous section. We also aim at validating the chronology and the interpretation that we presented above. We may summarize our claims as follows:

- The development of a complex organization allowed the Parquet to develop more rapidly during the 1830-1860 period;
- Its attempt at taking over the Coulisse in the 1860s was a result of that previous success; but it failed. After 1870, the Coulisse developed more than the Parquet because both of changes in the demand for market services, of the 1882 crash, of the 1885-90 regulations and the reluctance of the Parquet to provide the guarantees the government and investors asked for.
- Both in the late 1850s and 1898, the government helped the Parquet to reinforce its position in order to make it a safer market for investors; it imposed more regulation and controlled the prices and profits on the Parquet.
- Overall, the strong organization of the Parquet helped bring down transaction costs and risks and didn’t hinder the development of the market as a whole.

These claims are not easy to demonstrate fully. We provide below much more evidence than have been provided up to now on the history of any exchange, and we will argue that it is supportive of these claims. Unfortunately, most of the reliable quantitative evidence is available only for the Parquet; similar data for the Coulisse does not exist (except the one we produce below), largely because of its unofficial status and limited formal organization up to the end of the 19th c. Evidence on the London market may exist but has not been gathered systematically.

We start by discussing transaction costs; we provide measures of the effectiveness of the risk management by the CAC. We then turn to quantitative measures of the development of the market in terms of volumes traded and number of securities listed.

**Transaction costs**
Measuring transaction costs is complex. Following Pagano & Roell (1990), they include brokerage commissions, delivery and settlement costs and delays, and liquidity as proxied by market spreads. In the absence of jobbers, the Paris market provides no bid-ask spreads, the indicator of transaction costs used by Davis & Neal (2006) and Pagano & Roell (1990). Official brokerage fees were initially fixed at ¼% by a decision of the Paris commercial
court\textsuperscript{44} from Messidor 26\textsuperscript{th}, an IX (15\textsuperscript{th} of July, 1801). These were maximum commissions. During most of the century, the CAC tried to define and enforce minimum commissions. The argument for these minimum commissions, still used today in economic theory (Allen & Gale, 2000), was that predatory pricing could make the intermediaries fragile and create systemic risk because of the externalities among them. Nevertheless, enforcement measures were always weak: they had no legal value and the CAC could not even expel an agent violating them.

Actual brokerage commissions always differed from official rates, as the CAC archives abundantly testify. Commissions varied very much not only through time, but also with the operations, the securities and the people involved. One example is the 1836s period of speculation on (frequently unlisted) new firms’ shares. In their general meetings, the official brokers defined two categories of shares supporting respectively $1/8\text{th}$ and $1/4\text{er}$ of a percent as commission. The category paying the lowest fee included a large majority of all shares traded, but their number varied during the following years under the influence of circumstances (and sometimes the pressure of interested bankers, heads of the listed companies\textsuperscript{45}, the government, etc). It seems that the low commission became the norm at that moment, but maybe not in the bear market that followed.

Commissions were negotiated by intermediaries, coulissiers, remisiers and bankers. In the late 19\textsuperscript{th} c., the Chambre syndicale tried to created rules for the rebates of commissions to remisiers, bankers or even private clients. It accepted rapidly 33\% rebates, sometimes 50\%, and up to 80\% in some occasions. As we mentioned above, an 1895 agreement recognized the strong position of deposit banks, creating the « par contre ».

As in today’s most competitive markets, a major consideration for fixing the commissions was the volume of trade involved. For widely traded securities and good clients, the minimum fee became as soon as 1842 the standard fee, even when representing no more than 0.1\%, well below the officially agreed 0.125\% minimum. After the 1866 crisis, the Chambre syndicale obtained a reintroduction of the bi-monthly settlement, arguing a lesser risk (see below). Since this was supposed to bring more business (those investors wanting to settle their position after one month would have to pay a reporting fee after two weeks), it accepted to reduce the commissions for the securities involved. Government securities (including those of foreign

\textsuperscript{44} Contrary to the “monopoly” view of the Parquet, up to 1890 commissions were not fixed by the CAC but by the government, which had no reason to maximize the agents’ profits (and conflicted sometimes with the Parquet, e.g. on the forward market legal status).

\textsuperscript{45} For example, in 1838 (CS 2/5) Baron Rothschild required Mines de la Grande Combe to be included, arguing it also included a railways company and most railways were in the low-cost category.
governments) benefited from lower commissions, and even sometimes of fixed commissions (benefiting major investors) (in the 1890s). After 1871, official commissions were very detailed and changed frequently.

Furthermore, the government constantly pressured the CAC for decreasing the commissions. The 1898 reorganization which reinforced the agents de change monopoly also imposed them a substantial reduction in commissions and authorized commission rebates almost without limit. Many agents complained then that they were loosing money on the spot market and that even on the forward market the low level of commissions did not compensate for the risk.

Figure 1 proposes a summary of the main changes of commissions on the Parquet, neglecting the qualitative changes we just emphasized and which concur to significantly lower commissions, at least for the major investors. The main conclusion is that the courtages were very low: from the 1830s on, they didn’t exceed 0.125% on most securities, 0.05% on the rentes. On the most important forward market, the maximum rate was 0.1% as early as the late 1860s, and a proportion of this was transferred to the coulissiers, the bankers or the remisiers. After 1898, even small spot operations on standard securities paid no more than 0.1%, and the normal price on the forward market was 0.05%, (0.025% for the rentes). Some options did not pay any commissions, the CAC considering they were necessary to the development of the market (cf. AG CAC 16/5/1902). All these prices were frequently below those practiced in other international markets (see e.g. the comparison of commissions in Berlin, London, New-York and Paris computed by Crédit Lyonnais in 190546). Actually, after the 1898 reform, the agents feared that the remisiers left Paris for London because of the low level of commissions in Paris, which made it impossible for the agents to transfer them a sufficient profit (cf. AG CAC 23/6/1910). This does not mean competition was limited among London brokers: it was considered responsible for the 1907 crisis, at least enough for the LSE to impose minimum commissions based on that argument.

Transaction costs should also include delays in delivery and payment, which also increased the risk for both the investors and the intermediaries. Considering the rules applied at the end of the 19th century, the Parquet would compare favourably on that account with most European markets in the early 1990s (Pagano & Roell, 1990).

Risk management

46 CAEF archives, CAC archives, box JZ18, file P.122.211.0.
Investors in financial markets accept a number of different risks. One is the counterparty risk resulting from the delay in security delivery or in payment after a transaction. This risk has two dimensions, one idiosyncratic to the counterparties in a transaction; another, systemic, involving all intermediaries potentially weakened by the default of any of them. This risk can be increased by the volatility of prices and reduced by a higher frequency in settlements. The volatility is also a measure of the risk on the return on an investment. We will argue that the *Parquet* organization decreased significantly all these risks.

**Counterparty risk**

If one party in a transaction goes illiquid or bankrupt before delivering a security or paying for it, the other party risks a loss. The same is true if one of the brokers involved goes bankrupt. Although their reputation is sometimes supposed to be a sufficient motivation for guaranteeing the good behaviour of market participants, even the socially highly constrained 19th century *agents de change* considered reputation was only part of the solution, or more precisely that it would be the result of an adequate collection of information, a solid organization and good guarantees. For pure spot transactions, this risk is negligible thanks to the organization matching payment and delivery. It is much higher for forward and option contracts. There are two ways to decrease that risk: a good screening of the market participants, and the provision of guarantees. The CAC always argued its organization allowed a better screening of clients, and indeed asked the *agents* to provide lists of “bad clients” (sometimes in coordination with the Bank of France) (see e.g. AG CAC 13/12/1832 and 28/12/1866). The CAC also controlled strictly its own members. Above that screening, the CAC provided better guarantees to investors.

A key question is then the type of guarantees that are provided. Parisian *agents de change* were legally responsible for the operations they executed for their clients within the framework of their monopoly. Losses incurred by an agent when executing such an operation was considered as “faits de charge”, and the collateral he had placed with the government, the value of his charge and ultimately his personal wealth could be seized to pay for his debts. Furthermore, the CAC considered it was morally responsible for their payment even if it always denied any legal responsibility until it was imposed to it in 1898. As we have seen in the chronological presentation, the main changes on that respect before 1898 were the creation of the *Fonds commun* in 1818 and the change in 1830 in the internal rules concerning its use in order to help *agents* in trouble. The doctrine of the *Chambre syndicale* was to first help covering the *faits de charge*, then to pay for (part of) the debts of those *agents* which
were victims of a “crise de place” (a systemic crisis), then of those victims of their debtors’ bankruptcy or bad faith (especially when clients refused to honour forward contract claiming for “exception de jeu”); in that case the agents was considered having failed in his duty of vigilance. Ultimately, it may help those having violated the rules of the CAC. In the last two cases, the agents were required to send in their resignation before any help was given, thus limiting moral hazard issues. Loans were given under strict conditions of accounts verification, guarantees and interests payments, and only on a short term basis. All this suggest that the conditions for an efficient collective guarantee were present. A first empirical argument, provided in figure 2, is the permanent increase in the fonds commun except during major crises, after which it was always sharply increased. Maybe a more important one – as a result compared to an instrument – is the sharp decrease of the number of agents going bankrupt (the slopes of the lines in the figure 3), first after 1818, second after 1830 (long before it became impossible with the 1898 legal solidarity). The fact bankruptcies (which involved losses to the clients) almost disappeared when forced resignations (which did not) occurred at a relatively stable pace suggests the organization allowed the CAC to strengthen its reputation by assuming collectively most of the losses incurred. The mere survival of the CAC also suggests that it was able to limit free-riding and to prevent even the most risk-lovers among its members from taking uncontrollable risks that it would have been unable to assume. The decrease in the number of “crises” (here defined as crises sufficiently serious for the Chambre syndicale to have to ask the authorization of the general meeting) resolved without even having to expel the agents recurring to CAC loans also suggests that risk-taking was mostly under control. Clearly, a precise measure of the losses finally supported by the clients of the illiquid agents would be useful. It has been impossible to gather systematic data on that account up to now. The debts for “faits de charge” were systematically paid for from 1830 on. Earlier on, definitive losses suffered by clients on that account represented a total of only 0.315 millions francs for the period from 1818 to 1830, to be compared to 0.667 millions for a single bankruptcy in 1817 (the Pillot one).
Systemic crisis
The response of the *Parquet* to systemic crises is also quite efficient. The 1830 crisis, which resulted from the revolution, helped the *Chambre syndicale* obtaining from the general meeting the right to intervene more rapidly and freely, and to strengthen the CAC as an organization. The next revolution, in 1848, proves that the Chambre was able to use efficiently these powers since not only there was no bankruptcy, but not even a single forced resignation or even a crisis mentioned to the general meeting. The same was true in 1870 in spite of the war and the *Commune*.

The 1882 crash proved that the *Parquet* organization didn’t impede speculation in the worst sense; but it was also a perfect example of the security provided by the CAC organization to individual investors. When as many as 14 agents suffered some liquidity problem on the month of the krach, six reimbursed the loans from the *Fonds commun* within the month, no one filed for bankruptcy, and only six were forced to resign by the *Chambre syndicale*. The public suffered no losses, and the CAC reimbursed rapidly the loan it had obtained (see above). This confirms that even major crises could only affect the liquidity of the CAC, but not its solvency, making operations on the *Parquet* very safe for any individual investor.

Settlement period
It has been argued that the interval between two settlements (*liquidations* in French) affects transaction risk, the longer the interval the larger the positions accumulated, the potential fluctuations and then the risks taken. On the other hand, more frequent settlements involved costs, and then commissions covering them; they also involved, like in New-York, the daily availability of enormous quantities of cash, when the Paris or London settlements allowed most transactions to clear and reduced the need of cash payments. The minutes of the CAC general meetings when the choice between monthly and bi-monthly settlements was under discussion (in 1844 the fortnightly settlement was established, a monthly one was imposed in 1859 by the government, before a partial reestablishment of the fortnightly one in 1866) show that the agents preferred more profitable bi-monthly settlements and argued it was less risky for the market (e.g. PV AG CAC 9/7/1866). We don’t consider this will make much difference with the London fortnightly settlement.

Volatility
We have no data on volatility in the very short run, the major determinant of such risk, for the 19th c., but various qualitative accounts suggest the agents de change were conscious of the risks involved in violent short term drops in prices, and knew how to “tenir le carnet”, which could impose slowing the quotation process in order to calm down the market and avoid defaults⁵⁰. If medium term volatility on stock indices is a good proxy, available data suggest it was rather low and declining in Paris. The volatility of Arbulu’s (1998) index of monthly spot prices decreased significantly during the century (figure 4) suggesting the market’s organization was able to limit the extent of price volatility, especially from the 1850s. It is consistent with other more recent indices (Hautcoeur and Le Bris, 2007; Rezaee, 2009). A comparison of Arbulu’s and London’s “Bankers magazine” index suggests average volatility was double in London compared to Paris for the period 1887-1913 (22.3 compared to 11.2%) (figure 5).

**Market development**

We discussed above some indicators of the Parquet transactional and safety effectiveness. Other indicators are necessary to understand the competitive position of the Parquet and its development. The first one is the price of the agents de change offices, which should in part reflect expected profits (at least up to 1901). The second one is a set of proxies for traded volumes on the Parquet. Last, but not least, we propose accounts of the number of securities listed on both Parquet and Coulisse at crucial moments of the 19th century, which give an idea of their respective market shares.

**Office prices**

The price of the offices should increase either with the degree of monopoly or with the relative efficiency of the Parquet and its development. The first one is the price of the agents de change offices, which should in part reflect expected profits (at least up to 1901). The second one is a set of proxies for traded volumes on the Parquet. Last, but not least, we propose accounts of the number of securities listed on both Parquet and Coulisse at crucial moments of the 19th century, which give an idea of their respective market shares.

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⁵⁰ This behaviour was praised in particular in the case of the Russian bonds crises in 1904 (AG CAC 19/12/1904).
regulation of the *agents de change* business. The 1882 crash had little impact on prices, suggesting no significant impact of the crisis on the *Parquet* was anticipated.

**Liquidity**

The measure of transaction volumes and then liquidity on the *Parquet* is not straightforward, although various quantitative indicators are available in the archives. A first proxy are the volumes traded; a measure of traded volumes is provided by the *timbre*, a stamp duty levied from 1818 on the brokerage commissions of each agent in order to finance the *fonds commun*. The *timbre* is supposed to represent 10% of the commissions (after a doubling in 1822), but the minutes of the CAC meetings show it was not so stable: it was raised in 1882 after the crisis in order to refill the *fonds commun*, as had been previously the case in 1848. The *timbre* could also differ among securities. In 1846, a hot debate divided the *agents* among those wanting to suppress the reduced rate for railways shares and those considering it had to be maintained. The actual rate of the *timbre* depended on the precise way the intermediation was organized. When *remisiers* obtained a share in the brokerage commission (to distinguish from an independent payment), the *timbre* ended up representing more than 10% (25% following agent Perdrigeon, AG CAC 9/5/1870, and even more after 1898). More importantly, the *timbre* varied with the commissions actually cashed in by the *agents*, not with the volume traded, so that a decrease in commissions reflects in the *timbre* payments. Despite these limitations, the timbre provides interesting insights on the evolution of transactions on the *Parquet* (figure 6). It shows the vigorous surge in transactions in the middle of the century, when the *Parquet* improved its organization; the following stagnation in the timbre resulted both from the *Coulisse* competition and from the decrease in commissions.

The timbre was the only quantitative measure of the activity of the *Parquet* as a whole up to 1870. From 1871 on, the creation of a new settlement system provides a complete measure of all spot transactions. For forward operations, the same source provides only the volume of actually delivered securities, a small fraction of the total but maybe a correct proxy for its evolution since the compensation method (compensation both among clients and *agents* for a settlement period) did not change until World War One. Both series are provided on figure 7, although no direct comparison of the relative importance of spot and forward categories either as concerns the *Parquet* traded volumes or its profits can be deducted from these data. Forward market transactions measured in that way are also given disaggregated in four categories: French and foreign government debts, French and foreign other securities. Figures
8 and 9 provide these data. A clear result is that the French rente was almost not traded anymore on the Parquet on the eve of World War One, the “Coulisse des rentes” being its almost only market in spite of the legal monopoly of the Parquet. Transactions on foreign government debts were the only one little affected by the 1882 krach; they grew up to the late 19th century, and then decreased under the competition of other securities, mostly shares which benefited from the long bull market of the Belle Epoque.

Listings
Overall, the number of listed securities rose dramatically on both the Coulisse and the Parquet. The Coulisse developed up to 1859, almost disappeared in the early 1860s, and recovered only after 1870, mostly thanks to its business on foreign securities. The Parquet’s development was more gradual, with a strong boost during the Second Empire.

Figures 11 and 12 give the number of securities listed on both markets, separating French and foreign securities and government and private ones. More details can be found in tables 2 and 3. These data mostly result from a hand count from the Cote officielle for the Parquet and from the successive publications where the Coulisse list was given (being illegal up to 1893/98, the Coulisse did not have a formal publication). The very fact that we were unable to find a publication for Coulisse prices before 1827 confirms our claim that the two markets were not actually separated up to the early 1830s. Both markets developed rapidly after 1850, but the rise of the Parquet was more rapid, and it dominated clearly the Coulisse by a wide margin in 1869. In the following decades, the Parquet remained dominant for most French securities, but the Coulisse attracted a large proportion of foreign stocks (and to some extent French stocks also), a more risky and growing part of the market which was of interest mostly to large investors. In the years after 1898, the Coulisse not only suffered a decline in the number of securities it listed, but it also lost an important part of the transactions in international bonds.

Conclusion

The Parquet, which was the centre of the Paris stock exchange in the 19th century, was not the inefficient monopoly that many (sometimes interested) observers argued. Thanks to major organizational innovations, it became from the 1830s on a structured institution which minimized transactions costs thanks to very efficient settlement and compensation procedures and maximized the security of transactions thanks to collective guarantee procedures that took
into consideration moral hazard and adverse selection problems. Intermediation commissions, which are supposed to be high in a monopoly, were actually low. The history of the exchange shows that these qualities resulted from a permanent interaction between the government, the Compagnie des agents de change and its competitors, bankers and coulissiers. During much of the period, the relationship between the various intermediaries was one of both cooperation and competition, involving a substantial specialization of each group. Nevertheless, some periods of conflicts had a deep impact, leading to attempts by the Parquet at absorbing the Coulisse, or by the Coulisse at suppressing all the Parquet’s monopoly. At the end of the century, more regulation was imposed to both the Coulisse and the Parquet. This new architecture was probably less efficient, and it led to the rise of new and opaque markets. It would likely not have survived long without the First World War and its large depressing impact on the market as a whole. In its dual form, the Paris stock exchange allowed for an enormous increase in listings, IPOs and transactions that made it the second-biggest exchange in the world.
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Tables and figures

Table 1 Agents de change turnover over the XIX century

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Number of resignations</th>
<th>Impact of crisis</th>
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<td>1/7/1830</td>
<td>1/7/1840</td>
<td>52</td>
<td>during the 1830-1831 crisis</td>
</tr>
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<td>1/7/1850</td>
<td>34</td>
<td></td>
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<td>1/7/1860</td>
<td>82</td>
<td>during the 1856-57 crisis</td>
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<tr>
<td>1/7/1860</td>
<td>1/7/1870</td>
<td>56</td>
<td>during the 1866-1867 crisis</td>
</tr>
<tr>
<td>1/7/1870</td>
<td>1/7/1880</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>1/7/1880</td>
<td>1/7/1890</td>
<td>41</td>
<td>during the 1882-1883 crisis</td>
</tr>
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</table>

source: Box JZ 3, file B. 614, CAC archives

Figure 1 Commissions on the Parquet

Source : Minutes of the Chambre syndicale de la Compagnie des Agents de change, several dates.

Figure 2 : Liquid assets from the CAC (Fonds commun)

Source : Minutes of the Chambre syndicale de la Compagnie des Agents de change and Minutes of the General Assembly of the Compagnie des Agents de change, several dates.
Number of agents de change suffering bankruptcy (faillites), forced resignation or crises (with help from the Fonds commun). The first (complete) series take into account all cases discussed in the Chambre syndicale (up to 1830), the second ones only the cases debated in the general meeting of the CAC. From 1830 on, there was an increased number of crises for which no debate in the general meeting was necessary (because of the increased power of the Chambre syndicale, see text).

Source: our elaboration from the Minutes of the Chambre syndicale de la Compagnie des Agents de change.

Figure 5 Volatility of indices of shares listed on the Parquet (Arbulu) and on the London Stock Exchange (Bankers’ Magazine), 1887-1913.


Figure 6: Transaction volumes measured by the *timbres*.

The *timbre* represented usually 10% of the commissions. Source: Grand Livre de la Chambre Syndicale de la Compagnie des Agents de change de Paris, sub anno.
Figure 7: Measures of spot and forward transactions

Source: Rapport de la Commission de comptabilité to the General Assembly, sub anno.

Figure 8: Government debts traded, forward market

Government debts are measured in “francs de rentes”, i.e. in francs of coupons to be paid. If the French 3% rente price was at par, 3 million of transactions corresponds to a face and market value of 100 millions. As previously, these data correspond only to forward operations actually delivered at settlement date. Source: as for Figure 7.
Other securities are measured in number of securities traded. Average security price was probably around 500 francs during the period, so 1 million of transactions corresponds to 500 millions francs at market value. As previously, these data correspond only to forward operations actually delivered at settlement date. Source: as for Figure 7.

**Figure 10 Price of an agent de change office**

Source: CAC archives, Box JZ 3, file B. 615.4
Figure 11 Number of securities listed on the Coulisse and the Parquet

Source: see tables 2 and 3

Figure 12 Share of the Parquet in the number of securities listed on the Parquet and the Coulisse (1830-1913)

Source: see tables 2 and 3
Table 2 Number of securities listed on the Coulisse

Sources: our own count from the *Cote de la Bourse et de la Banque*

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Table 3 Number of securities listed on the Parquet

Sources: Théry (1900), Neymarck (1884). Our own count (us) for all remaining years, either from *Bulletin de statistique et législation comparées* (for 1900 onwards) or from the *Cote officielle*.

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**Total French bonds** | 9    | 34   | 33   | 86   | 127  | 190  | 220  | 266  | 337  |

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**Total foreign bonds** | 11   | 29   | 21   | 53   | 80   | 113  | 138  | 203  | 303  |

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**Total foreign securities** | 11   | 29   | 26   | 77   | 105  | 137  | 178  | 263  | 432  |

**Total listed securities** | 61   | 120  | 120  | 230  | 373  | 603  | 702  | 815  | 1193 |