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How to regulate a financial market ?

The impact of the 1893-1898 regulatory reforms on the Paris Bourse ¹

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Abstract

Theoretical and historical experience suggests a financial centre may either include a single, consolidated and loosely regulated stock exchange attracting all intermediaries and actors, or a variety of exchanges going from strictly regulated to completely unregulated and adapted to the needs of different categories of intermediaries, investors and issuers. Choosing between these two solutions is uneasy because few substantial changes occur at this “meta-regulatory” level. The history of the Paris exchanges provides a good example, since two changes in opposite directions occurred in the late 19th century, when Paris was the second financial centre in the world. In 1893, a law threatened the existing two-exchanges equilibrium by diminishing the advantages of the more regulated exchange; in 1898, another law brought them back. We analyse the impact of these two changes on the competition between the exchanges in terms of securities listed, traded volumes and spreads. We conclude competition among exchanges is a delicate matter and efficiency is not always where one would think.

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Keywords : Paris stock exchange, microstructures, reforms, regulation, monopoly, spreads

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1. Introduction

The debate on the virtues of fragmentation vs consolidation of securities markets has recently been reopened by the Mifid directive of the European Union and its revision. In some European countries, like Italy and France, regulated markets were protected against internal competition by rules imposing the concentration of orders on listed securities, even if they competed with other international markets. The implementation of Mifid on November 1st, 2007 allowed the entry of new competitors in the stock exchange industry: MTF, systematic internalizers, crossing networks, dark pools. This was well in line with the idea dominating Mifid that the contestability of the market would allow both a substantial decrease of transaction costs and an important increase in transparency, when also stimulating the integration of the European securities market.

Nevertheless, the effects of Mifid as observed two years later don't correspond entirely with the Commission's expectations. The complex nature of transaction costs on stock exchanges – indirect costs related to multidimensional liquidity (tightness, deepness, immediacy) and information in particular – make them difficult to evaluate, and suggest the association of deregulation and the decrease of costs may be less obvious than previously considered.

The literature on the microstructures of securities markets often emphasized the benefits of a consolidated market for both investors and issuers, considering such a consolidation as the natural consequence of the competition between markets. The benefits of consolidation result from positive externalities of liquidity, from the diversification of risks and investment opportunities, and the reduction in information asymmetries resulting from the consolidation of the price discovery process. The organization of securities exchanges involving important fixed costs, the consolidation in one market, together with the competition among brokers, is supposed to decrease transaction costs.

Following the bonding hypothesis, investors and issuers should concentrate on a unique highly transparent market with strict listing and disclosure requirements. For issuers, this solution allows sending a signal on the quality of their governance. It protects uninformed investors against those better informed and screaming the market. Even informed investors would prefer concentrating on a market with the high liquidity resulting from the presence of uninformed investors (Coffee 2002).

In the opposite direction, a more recent literature emphasizes the obstacles to such a consolidation, and the advantages of a fragmented market if investors and issuers are heterogeneous enough in terms of risk aversion, information, costs structure and patience. For example, informed investors (and the CEOs of some firms) may prefer an opaque market where they can take advantage of their superior information, when uninformed investors may opt for a transparent and less immediate market; a variety of markets may emerge, where different categories of actors could find the characteristics they prefer (e.g. Seppi 1997). In terms of the bonding hypothesis, fragmentation may also result from the capacity constraints that a highly transparent market with strict listing conditions would face. Such a market must restrict access to a select group of brokers in order to limit counterparty risk, something which reduces the number of available counterparties and limits the market's capacity to treat a high number of transactions. Such a market must select firms on strict criteria, something which, especially during new technology booms, may restrict the access of emerging firms which will search for another market for their shares (Coffee 2002).

Hence, if there is a consensus on the inefficiencies that would result from the juxtaposition of various identical markets, serious arguments suggest that the co-existence of different markets may help the development of the securities market as a whole. In equilibrium, the transaction costs in such markets would differ profoundly in their structure. If one considers transaction costs as including not only commissions but also liquidity and uncertainty, one would expect commissions to be lower, liquidity to be higher and uncertainty to be larger in less regulated markets. Among the various dimensions of liquidity, immediacy would be the dominant one in such a market thanks to the presence of large informed traders aiming at taking profit from their information in a relatively opaque market (Pagano and Roell 1996); on the other hand, relatively high spreads could result from inventory costs and, mainly, from the risks intermediaries face when trading with highly informed agents (Stoll 1989, Hasbrouck 1988, Madhavan and Smith 1991). In order to manage uncertainty, a regulated market could reduce risks by both its organizational structure (i.e. efficient settlement and delivery) and the guarantees it offers (i.e. central counterpart) (Duffy and Zhu 2009, Bernanke 1990 and Kroszner (1999, 2006).

Recent research on the history of stock exchanges confirmed that some financial centres could develop successfully not only when, as London, they included a single, open,

stock exchange, but also when, as New-York and Paris, they included various exchanges (White, 2008; Hautcoeur and Riva, 2009). From the early 19th c. onwards, the structure of the Parisian stock market was bipolar, including two very different markets, the Parquet and the Coulisse. The Parquet was the official market organized by the Compagnie des agents de change (CAC), the semi-private body of 60 official brokers (*agents de change*) with a legal monopoly on transactions. These brokers were recruited on strict social and wealth conditions which provided high guarantees to the investors (see Hautcoeur and Riva 2009 for an estimate of these guarantees). The official market was highly transparent, imposed strict listing conditions, and provided investors with a collective guarantee which made losses unlikely in the case of the default of a member. It controlled strictly its members³. It also provided efficient payment and settlement mechanisms in cooperation with the Bank of France.

By contrast, the Coulisse was a loosely organized market (with no juridical structure until 1884), illegal de jure but de facto tolerated and even protected by the government. Its members acted both as brokers and jobbers. They were usually less wealthy than the official brokers. Their number was not fixed, and the admission procedure was loose. The Coulisse was opaque: orders were not centralised, transaction prices were registered unsystematically, and published by newspapers without any guarantee for investors, in variable lists. Competition among *coulissiers* was not regulated and transactions were only guaranteed by their capital and individual wealth that on average was lower than the agents de change' one⁴.

The differences between the two markets led to a specialization, competition developing only at the margin. The coulisse mostly dealt in forward and option operations, when the Parquet had a de facto quasi-monopoly on spot transactions. The Coulisse listed many (mostly foreign) issuers that did not satisfy the listing requirements of the Parquet (including some fiscal requirements). Competition between the two markets concerned mostly the most liquid, hence cross-listed, foreign and French government bonds, those on which

3 On the counterparty risk management by the Parquet, see Riva-White 2009.

4 We have no data on the personal wealth of the coulissiers, but historical research shows that they belong to a social class lower than the Agents de change (Verley 2007 and 2010, forthcoming). Concerning the firms' capital, we have detailed data on the Agents de changes' one, but not on the coulissiers' "houses". The *patente* (a tax on the value of commercial real estates owned by merchants) is the best available proxy for comparing the two groups: on average, an agent de change paid five times the amount paid by a coulissiers in 1893 (Administration des contributions directes. Département de la Seine. Rapport du Directeur, Paris le 3/1/1893. Tab. N° 1 Contribution des patentes - Agents de change, 4/1/1893 et Tab. N° 2 Contribution des patentes - Tenant caisse ou comptoir d'opérations sur valeurs, 4/1/1893. box B 33.236 CAEF). Nevertheless, it is worth noting that the total amount paid by the coulissiers was equal to the one paid by the agents de change.

most of the speculative activity was concentrated (Vidal 1904)⁵; from 1890 on, it also involved a number of mid-cap French firms listed on the two exchanges. Individual investors mostly sent their orders to the Parquet, when professional investors split their orders between the two markets.

This bipolar architecture remained quite steady over the century, suffering only one severe threat in the late 1850s, when the Parquet attempted (and failed) taking over the Coullisse. In the following decades, the Coullisse developed steadily. In the 1890s, the bipolar architecture was discussed and tested, the Paris market becoming the place for two experiments in microstructures that are the subject of this paper. In 1893, the creation of a new tax gave to the Coullisse a legal status, de facto dismantling the monopoly of the Parquet and creating an open field for new entrants in the exchange business. In 1898, a new (tax) law took the opposite route and re-established the monopoly of official brokers on all transactions in the securities they listed.

We first present an historical account of the suppression and reestablishment of the Parquet's monopoly, presenting the different arguments that were used and the main reasons one can propose in order to understand these two important changes. We then try to assess their impact on the market by looking first at quantities traded and at the two markets' quality as measured by the spreads on listed securities.

2. History

The 1893 reform

In 1892, a tax on stock market transactions was proposed by the socialist member of the Chamber of Deputies Antoine Jourde not only as a sanction for the various financial crises and scandals of the previous decade (among which the Panama canal corruption scandal led to the resignation of the finance minister on December 13th 1892, just one day after Jourde's proposal was approved by the Chamber), but also as a statistical instrument allowing the government to observe the operations on the stock market (see his speech at the Parliament on

5 During the XIX century, speculative activity concentrated on large international issues of public bonds cross-listed on the main European exchanges, not on stocks. Vidal (1904) explains that speculators dealt on this kind of securities because (i) the issues were very large; (ii) the probability of default was limited relatively to other securities; (iii) coupons insured stable and foreseeable revenues; (iv) prices' variations were not correlated to either local or seasonal factors.

Dec. 13th, 1895 and the introduction to the bill⁶).

The Coullisse and the Parquet brokers fought against the tax that would in their vision harm Paris as international financial centre. Nevertheless, each group rapidly turned to consider the tax as an opportunity for obtaining a favourable settlement in the conflict that opposed them: “they differed only on the application process, which, for both of them, was crucial”⁷. The tax created a dilemma for the government because of the structure of the Paris stock market: if it was to be imposed only to the Parquet, it would kill it, since all operations would migrate to the tax exempted Coullisse; but if imposed to the Coullisse too on equal bases, it would legalize it, and badly damage the Parquet which would suffer from its heavier regulatory burden without the advantage of a superior legal position. Nevertheless, the interactions among professional groups and regulators helped the latter to solve the dilemma.

The Finance Minister Pierre Tirard presented a bill in January which reinforced the official brokers' monopoly, since it made their signature necessary for the payment of the tax on listed securities. In fact, the Parquet had started lobbying the government very soon. Berteaux, an important official broker and member of the Parquet's Committee (the *Chambre Syndicale*) with influential political connections (he became a Member of Parliament in 1893 and Minister some years later⁸), met Jean Casimir-Perier⁹ and the Minister of Finance and was happy of their good will towards the Parquet¹⁰. Nevertheless, the *Chambre syndicale* prepared its arguments for the debate with the paradoxical support of two liberals Edmond Théry and Paul Delombre who would be the main advisors of the *Agents de change* during the entire episode¹¹.

The argument was first a purely legal one: as Crépon, a judge at the *Cour de cassation*

6 « La lumière pénétrera du même coup dans un monde spécial, extérieur à notre marché officiel, et où les intérêts et l'élément français ne figurent qu'en minorité » (Exposé des motifs, Impôt sur les opérations de bourse, January, 1893, box B 64.877, CAEF).

7 Y. Guyot, « L'impôt sur les opérations de Bourse », *Le Siècle*, Feb. 7th 1893.

8 Berteaux entered the *Chambre* thanks to the renewal following the scandal of Panama which obliged many of politicians to retire. He belonged the radical-socialist party and was many times Minister of War, after being President of the Budget Commission.

9 When Berteaux met the long lasting politician Jean Casimir-Perier, the latter was president of the budget commission of the *Chambre*, but some days later (on January 10), he became President of the *Chambre*. In 1894 he became President of the Republic.

10 “Dispositions bienveillantes” (Minutes of the *Chambre Syndicale* January 6, 1893).

11 The first one was an influential economist and journalist, director of the *Economiste Européen*, the main French economic newspaper. Delombre, a member of Parliament since September 1893 (*Union démocratique* and then *républicain progresiste*), was a brilliant lawyer in charge of the economic column of the important newspaper *Le Temps*. He would become Minister of Trade and Industry from 1/11/1898 to 18/2/1899. He was a member of the liberal *Société d'Economique Politique de Paris*. See the Minutes of the *Chambre Syndicale* January 20th, 1893.

(the highest judiciary level in France), wrote, it was impossible to tax the operations of the coulissiers since they were illegal (both the operations and the coulissiers). Nevertheless, even judges knew the Coulisse had a major role in securities transactions, and Crépon asked for a reform that would clearly define the Parquet as the centre of the market, but recognizing some role for the Coulisse¹². The Parquet apparently had convinced the government that it provided a necessary protection to individual investors, frequently unfavourably treated by the Coulisse and victims of the 1880s scandals. They also argued that the transparency of the Parquet was beneficial to listed firms (its price discovery process would insure a fair valorisation of their stocks), something also emphasized by the leading employers' union¹³. The restrictive law on corporations passed on August 2nd, 1893 (and still debated in early 1894) had revealed the Government desire of better controlling the financial market after the banks' scandals of 1889 and 1890 and the Panama affair. The official brokers argued that imposing a subsidiary position to the Coulisse would not affect the market as badly as the coulissiers pretended: first, the Parquet would provide, thanks to increased transactions, more efficient services and better immediacy; second, the Coulisse would not disappear, but only adapt to its subsidiary status and stop the illicit (because on Parquet's securities) part of its operations¹⁴. It would continue providing brokerage services but not market making on Parquet's securities: the coulissiers would switch from jobbers to speculators placing orders on the Parquet's book. Actually, the Parquet officially offered the coulissiers high rebates on their commissions for the business they would bring to the official brokers¹⁵. The presentation of the bill went as far as promising a reorganization of the whole market, which would give some recognition to the Coulisse.

The coulissiers refused, maybe because – as the Parquet argued – most of their business came from acting as counterparties on listed securities. Losing their immediacy

12 La Coulisse « est nécessaire pour le développement (...) des transactions (...) auxquelles font obstacle les heures de bourse étroitement limitées et les responsabilités rigoureusement définies des agents de change » (Gazette des Tribunaux, March 24th, 1893).

13 When audited by the Chambre commission, the chairman of the Association de l'Industrie Française declared favouring the Tirard bill because the price discovery mechanism on the Parquet allowed a better approximation of the « true value » of stocks, and because the Coulisse didn't provide sufficient guarantees in terms of « regularity » and « nationality » (Impôt sur les opérations de bourse, Dépôts devant la Commission du Budget, Audition du Président de l'Association de l'Industrie Française, CAEF, B34.010).

14 « Le parquet d'aujourd'hui, plus modéré que l'ancien, ne demande pas la mort du pêcheur ; encore voudrait-il lui enlever des occasions de pêcher » [Anonymous « Le marché libre ; Quinze millions par an pour l'Etat », 1893. box B. 64.877, CAEF p. 1.

15 *Lettre rectificative* (corrective letter) sent to M. E. Boulanger, Senator, by the Chambre syndicale des agents de change de Paris, March 21st 1893, p. 9; CAEF, box 64877..

because of the Tirard bill (since the agents de change would have to execute the transactions), they would lose most of their counterparty business¹⁶. They started an intense lobbying campaign, advised by Claude Clausel de Coussergues and Pierre Waldeck-Rousseau, famous financial lawyers and politicians¹⁷. They proposed a bill aiming at the buyback of the seats of the official brokers and at a general regulation of the profession of broker in exchange for the abolition of the official brokers and for the free entry in the profession¹⁸. They also pretended that submitting the Coullisse operations to the tax would bring 15 millions in taxes, which would otherwise be lost for the budget¹⁹.

The budget commission of the Chamber of Deputies, of which the Coullisse's advisor Claude Clausel de Coussergues was a member, auditioned the various interests and, under the influences of Felix Faure and Raymond Poincaré (two future Presidents), took a position hostile to the bill proposed by the government and favourable to the Coullisse. Officially, the commission argued that the government should not modify the status quo on the stock market – that is, impeaching the coullisse from doing what it was actually allowed to do for decades – without a law directly aiming at such a change. It added that the Parquet could still legally sue the Coullisse if considering it was breaking its monopoly²⁰. It ended up creating a special sub-commission which would prepare a different bill, one “which would not disturb the stock

16 This was also the interpretation of the Paris Chamber of commerce: « l'énorme majorité des transactions exécutés par le marché libre n'a souvent pour origine que des affaires entamées par les coullissiers sans contre partie trouvée d'avance (...) les affaires dites arrêtées ». *Rapport présenté au nom de la commission n° 3 de la Chambre de commerce de Paris par M Hugot. Adopté et converti en délibération de la CCI dans sa séance du 15 mai 1898*, CAEF, box B.64895.

17 Claude Clausel de Coussergues was a brilliant financial lawyer who became member of the Chambre (as Républicain) in 1889. President of the Commission on the Panama affaire and member of the Budget at the time of the discussion of the tax on stock exchange transactions, he was the *rapporteur* on the first draft of 1893 law on corporations. In 1894, he became vice-president of the Chambre up to his death in 1896. Pierre Waldeck-Rousseau had been a member of the Parliament and Minister up to 1885 (Ferry government). He proposed the law passed in 1884 liberalizing the creation of unions, which benefitted the Coullisse (cf. infra). After the resignation of Ferry's government, he took a break from politics and became one of the most important lawyers in Paris. Elected again in 1894, he was candidate for the Presidency of the Republic in 1895, when Felix Faure won. Partisan of Dreyfus in the Affaire, he was the artifex of the Bloc Républicain and became minister as well as Prime Minister.

18 « Projet de loi portant suppression avec indemnité du monopole des agents de change et réglementation de la profession de courtier en valeurs mobilières », avril 1893, CAEF, cart. B 64877, and in the same file various other documents coming from the Coullisse. The Union of stock exchange and banks employees also lobbied against a bill potentially reducing employment at the coullisse brokers (letter by L. Strauss, the Union's chairman, to the Finance minister, February 10th 1893, CAEF B 64877).

19 Anonymous « Le marché libre ; Quinze millions par an pour l'Etat » (“ The free market : 15 millions per year for the State”), 1893. box B. 64.877, CAEF p. 1

20 A chief lobbyist for the coullisse, Y. Guyot, argued this would not occur because many official brokers had financial interests in some of the coullissiers : “des agents de change sont intéressés dans des maisons de coullisse, y compris le syndic” (“L'impôt sur les opérations de bourse”, *Le Siècle*, féb. 7th, 1893).

exchange”²¹.

This attempt was short lived since the Minister threatened resigning if the bill was not passed. The bill was then passed on February 24th, 1893, at the Chamber of Deputies (by 436 to 41). But the conflict went then to the Senate, where the rapporteur of the budget commission, Ernest Boulanger²², also favoured the Coulisse. He argued that the government project would disturb the stock market, in which the Coulisse made 75 billions of operations a year compared to the Parquet’s 35 billions²³. Maybe more importantly even, he wrote that the Parquet could not replace the Coulisse for international financial operations, so that the trading would move to foreign markets if the Coulisse was to disappear²⁴. The Senate then separated the tax from the general budget. A discussion with the Chamber of Deputies ensued²⁵.

The debate ended, after the fall of the government (on a different topic). The new Minister of Finances Peytral²⁶ acted in favour of the Coulisse. This liberal needed the tax on stock exchange transactions in order to balance the budget²⁷. He ended the debate by promising a law reforming the stock exchange industry. Then, the law was passed: it allowed any intermediary to pay the new tax on any kind of securities. Therefore, it legalized the Coulisse and put it on an equal footing as the Parquet, de facto allowing it to trade even in securities listed on the Parquet.

Reasons for the reform

If one aims understanding the reasons for the 1893 reform, it is necessary to take some

21 *La Gironde*, Feb. 6th, 1893.

22 A Republican member of the Chambre, he was the head of the fiscal department of the Finance Ministry when elected in 1886. He was several times member and president of the Budget and Finances commissions and became Minister of the Colonies in the Casimir-Perier cabinet (Casimir-Perier took position in favour of the Coulisse in the 1893 debate within the budget commission). In 1893 he was also administrator of the Compagnie Général des Omnibus, which securities were traded on the Coulisse.

23 The Parquet discussed these figures, arguing they were produced by the coulissiers without any proofs. See the *Lettre rectificative* (corrective letter) sent to M. E. Boulanger, Senator, by the Chambre syndicale des agents de change de Paris (the governing body of the Parquet), March 21st 1893, p. 9; CAEF, box 64877.

24 E. Boulanger, « Rapport général sur le Budget au Sénat », pp. 160s.

25 Details can be found in the Rapport de M. le Président du Tribunal de Commerce de Paris à MM. les Présidents et Juges des tribunaux de commerce de la Seine, May 14th, 1898. CAEF, box 64.895.

26 A radical-socialiste, Peytral had been Vice president and president of the Budget Commission before being Minister. Some personal conflicts with Tirard could also explain his position vis à vis the project of the latter: Peytral had been Finance Minister just before Tirard and the latter had rejected every work in progress of his predecessor.

27 Peytral had to support the consequences of a decrease in the tax on alcoholised drinks, which he actually originated (in order to decrease the importance of indirect taxation)

distance from the immediate debates and to take a broad perspective on the Paris stock market. The reasons for the reform can be organized in three groups: the role and efficiency of the *Coulisse*; the interests of the banks; and those of the State.

The *Coulisse* had developed rapidly in the period before the law, and put the *Parquet* in a defensive position. Taking advantage of the 1884 law legalizing unions (a law proposed by the *Coulisse*'s advisor Waldeck-Rousseau), the *Coulisse* had organized as a union (which meant no solidarity among its members), which allowed it to organize more efficiently, particularly the settlement and delivery system, which had been run earlier on a bilateral basis.

Various regulatory changes were responsible for much of these changes. First, the 1882 crash had led in 1885 to the legalization of the forward market, which benefited more the *Coulisse* than the *Parquet*: not only because it mostly operated on the forward market, but also because the *Parquet*'s forward operations already benefited before the law from a quasi-systematic enforcement by the courts (mainly because of both the *Parquet* collective guarantee to the forward market operators and its strict trading rules²⁸), which were more reluctant towards the *Coulisse*. Second, an 1885 decision by the Cassation court also reduced the uncertainty that *coulissiers* faced, by stating that a *coulissier* was a valid broker for a trade in securities not listed on the *Parquet*²⁹. From then on, a list of securities tradable outside the *Parquet* was published yearly: it included 202 securities in 1892³⁰. Third, the 1890 new legal regulation of the *Parquet* reinforced its security, but increased its regulatory burden and then decreased its competitiveness.

The banks formed a group increasingly supportive of the *Coulisse*. First because part of the advantages of trading on the *Parquet* have been lost to them because of an unsuccessful strategic move of the official brokers: after the 1882 crash, which had led to 14 defaults among these brokers, the *Parquet*, after paying for all the losses as their internal rules guaranteed to their clients, had considered its internal controls as unable to prevent free-riding within the *Parquet*, and decided to pay only for the debts they were legally constrained to guarantee. This led some of their clients – mostly bankers – to lose money when two official brokers went bankrupt in the 1886 (*Vuafart*) and 1888 (*Bex*), events that the *coulissiers*

28 See Lagneau – Riva (2010, forthcoming).

29 This decision ended a long-lasting debate on the extent of the agents' monopoly and limited it to the officially listed securities.

30 *Tableau des Valeurs négociables Hors-Parquet* published every year by the *Almanach Financier*.

highlighted in their campaign³¹. This was maybe efficient in terms of the Parquet internal incentive system, but tarnished heavily its reputation, and made the banks increasingly favourable to the Coullisse.

More importantly, the banks had common interests with the Coullisse³². The deposit banks provided the huge amounts of short-term credit that was required by the forward market³³. The merchant banks were important clients of the Coullisse since they appreciated the immediacy it alone could provide, as well as the opaqueness that allowed them to take advantage of their superior information. All banks wanted the market to be liberalized since it would allow them to internalize many of their clients' orders without risk³⁴, and to use the intermediation of the coulissiers without any legal uncertainty³⁵. This new architecture would have allowed banks to put the official brokers in competition with the coulissiers and to decrease the intermediation costs³⁶. Thanks to the dual capacity, the coulissiers already proposed low commissions (25 to 50% of the legal maximum commissions on the Parquet), since their profits would mostly come from their operations as counterparty. The last reason for the interest of the banks to be in line with those of the Coullisse was their joint involvement in the primary market, in particular on foreign and SME's securities that could not always be listed on the Parquet: the coulissiers could buy on their own account a large portions of the issue and then trade it on the market. The banks and the Coullisse then jointly argued that the liberalization of the market would stimulate the role of Paris as a financial

31 Anonymous « Le marché libre ; Quinze millions par an pour l'Etat » (“ The free market : 15 millions per year for the State”), 1893. CAEF, box B. 64.877.

32 “L'agent de change rend moins de services aux banquiers que les coulissiers”, *Lettre rectificative* (corrective letter) sent to M. E. Boulanger, Senator, by the Chambre syndicale des agents de change de Paris, March 21st 1893, p. 9; CAEF, box 64877.

33 In 1892, a huge conflict oppose the Parquet and the Crédit Lyonnais, at this time the main French deposit bank, on the Bourse du Soir, the evening session of the Coullisse held in the Crédit Lyonnais' hall. The Credit Lyonnais extracted valuable information from hosting this session and fought against the Parquet which was asking its closure. The Parquet, after enormous efforts, obtained the closure, disrupting the evening international order flows (cf. Riva 2007)

34 Following contemporaries' accounts, it seems that internalisation was a common practice of many banks before 1893. Nevertheless, in case of litigation, the client could ask for the agent de change's receipt, and have the bank condemned and the contract declared null.

35 In case of litigation, the coulissiers dealing on securities listed on the Parquet could be condemned because not entitled for handling such a transaction and the contract declared null, if the latter was unable to exhibit this receipt.

36 Various of these arguments were discussed in the letter to Boulanger by the Parquet : Les banques « généralement bien informé[e]s, trouvent leur avantage à se procurer ou vendre rapidement un lot de valeurs à la Coullisse » (p. 10) ; « banquiers et sociétés de crédit ont un intérêt puissant à ce que la dualité de la coullisse et des agents de change persiste. Avec cette concurrence ils obtiennent les avantages particuliers des deux Marchés et ils craignent, naturellement, que ces avantages disparaissent avec la concurrence » (p. 11) ; letter sent to M. E. Boulanger, Senator, by the Chambre syndicale des agents de change de Paris (the governing body of the Parquet), March 21st 1893; CAEF, box 64877.

centre, when the reinforcement of the Parquet monopoly would destroy it.

The last party interested in the debate was the State. Its interest had various dimensions. The fiscal dimension opened the debate and was certainly not negligible. Nevertheless, the impact of a given choice on stock market operations was not clear, so that the *Coulisse* argument was not very strong. The impact of a blow to the *Coulisse* on the trading of French *rentes* was a more serious preoccupation, since most of that trading was done on the *Coulisse*; a *rentes* conversion was considered for January 1894, which bankers and *coulissiers* pretended would fail if the *Coulisse* was weakened. The role of the *Coulisse* during the huge issues of *rentes* required in 1872-75 by the war indemnity paid to Germany was still in all minds. Precisely for this reason, the Finance Minister asked the agents de change for renouncing to sue the *Coulisse* as they planned after the 1893 bill passed.

The diplomatic dimension was also underscored: the *Coulisse* was the main market for various foreign government bonds, which listing in Paris was important for foreign relations. In 1892, the Russian Finance Minister S. Witte, had protested because of the move of Russian bonds from the *Coulisse* to the Parquet. It was the consequence of a private settlement between the Parquet and the *Coulisse* done, under the Minister of Finances pressures, after the Parquet planned to sue the *coulisse* in 1892. Major new issues of Russian debts were under consideration. In the same fashion, bankers and *coulissiers* pointed out that, without an active *Coulisse*, German financiers would take the place of French ones in Middle East countries, whom sovereign debts were traded mainly in the *Coulisse*.

Finally, the population certainly appreciated the creation of a tax on financial operations, and would likely prefer a more regulated market, dominated by the Parquet, compared to a more deregulated one, dominated by the *Coulisse*. Creating a tax was nevertheless certainly sufficient to obtain a speculation-bashing reputation³⁷.

The 1898 law

The 1893 reform, a result of a number of partially conflictive tensions, was reversed as soon as 1898. Another fiscal law then included the Fleury-Ravarin amendment, which imposed that the tax on officially listed securities could only be paid by the agents de change.

³⁷ In 1895, a member of the Parliament spoke of the 1893 law as being received with fervour by the public (« la loi de 1893 est une de celles que le pays a accueillies avec le plus de ferveur parce qu'il a vu qu'on se décidait pour la première fois à frapper la spéculation », Henry Cochin, Chamber of Deputies, December 13th, 1895, *Journal Officiel*, p. 2919).

This arrangement forbade the *Coulisse* to trade in these securities except for an agreement with the *Parquet*.

Such a drastic reversal resulted from various reasons. The first one is the gold mines crash of 1895, which affected mostly the *Coulisse*. Many observers considered the *coulissiers* had developed the market on gold mines shares very speculatively: most of the shares did not comply with neither French regulations nor the *Parquet*'s listing requirements, the market was opaque and the information on the firms was very limited. Nevertheless, thanks to a huge media campaign, hundreds of millions worth of securities had been sold to the general public, whose losses were enormous. Furthermore, the *Parquet* proposed to organize the selection and listing of the best of these foreign shares by creating a specific market. This proposal had been refused just before the crash³⁸. In 1896, the *Parquet* transmitted to the Finance Minister a file detailing the losses that the gold mines' crash had imposed to French savings.

This crisis facilitated a campaign by the *Parquet* against foreign brokers and their unsecured markets³⁹, which fell well in a period of populist and xenophobic attacks against the Jews and their international (worse: German) connections making them insufficiently loyal to the country⁴⁰. The *Coulisse* was even accused of allowing speculative practices that created diplomatic tensions, as in the case of the bull campaign on the Italian government bonds in 1894⁴¹.

A second reason for modifying the law was the tax evasion by the *coulissiers*. The behaviour of one of them, who avoided paying the tax on 2575 operations representing 44 millions francs, was revealed in 1897 and provoked some scandal at the Chamber of Deputies, especially when the *coulissier* escaped the tax and penalty (totalling 2,786 millions) thanks to

38 The *Parquet* asked in 1895 the extension to foreign securities of the limit (put by the law of August, 2nd, 1893) on the nominal value of the shares in French companies (which applied to its list), in order to be able to list some foreign shares (including gold mines). It argued it would better protect investors if able to screen and list the best shares, provide a secured market and have taxes paid (letter "Le syndic des agents de change à M Le Président du conseil, Ministre des finances, Paris, le 1/4/1895 CAEF B33232).

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

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

41 The sudden rise of the price of the Italian government bonds in January of 1894 was attributed to a speculative operation coordinated by the Deutsche Bank with the help of *Crédit Lyonnais* and German *coulissiers*. M. Jourde raised the point at the Chamber of Deputies and the government refused answering for diplomatic reasons. See articles in *Les Débats*, February 25th, 1894; « Diplomatie » in *La Petite République*, February 26th, 1894, « La rente italienne » in *La Lanterne*, February 22nd, 1894. « Les préoccupations de M. Jourde » *La Liberté*, February 25th, 1894.

a bankruptcy (apparently not an isolated case⁴²), and when it appeared that any coulissier acting as counterparty could relatively easily escape the tax⁴³.

On the positive side, a major reason for re-establishing the Parquet's dominant position was its return to its traditional policy of guaranteeing collectively the losses of its clients. The short-lived « anti-free-rider » policy which had been adopted in 1883 was disputed as soon as 1890, when Verneuil entered the Chambre syndicale, and strengthened first when the Parquet faced the 1895 crash, second when Verneuil became syndic in 1896.

The aftermaths of the 1898 law

The 1898 law didn't bring the market back to its pre-1893 organization. First, the reaffirmation of the Parquet's dominance had a price: the Parquet had to reorganize strongly. To a large extent, this was less the price of a monopoly than the requirement for the changes necessary in order to be able to handle a substantially increased number of transactions: the Parquet itself calculated that about 5/7 of the 70 billions of Coullisse transactions concerned securities listed on the Parquet, which would then be negotiated by the Parquet after 1898. The number of agents de change was increased from 60 to 70 and the number of pits was doubled; the commissions were reduced so much that they became inferior to those in London and other foreign markets⁴⁴; the procedures for payment and settlement were reinforced and accelerated. An extension of the stock exchange building (the Palais Brongniart) was to be

42 A report by the Chairman of the Paris Commercial Court mentions several « frauds which repression was hindered by the insolvency of the offenders » (« fraudes sont l'insolvabilité des délinquants ne permettait pas la répression », Rapport de M. le Président du Tribunal de commerce de la Paris à MM. Les Présidents et Juges des Tribunaux de commerce de la Seine, May 14th, 1898, CAEF, box 64.895).

43 The head of the tax administration in charge explained that the only possible verification depended on the matching of the records of two intermediaries having done an operation together, which made it easy to escape for those acting as counterparty (letter «Le Directeur de l'Enregistrement au Ministre des Finances. Note Impôt sur les opérations de bourse. Observation de M Krantz », July, 2nd, 1897 ; CAEF, B 34.010).

44 That very low level resulted both from a decrease (by half) of the legal maximum commission, and from the usual practice of commissions representing only about half the legal maximum. These «usual commissions» were the minimum that the Parquet itself tried to impose to its members in order to avoid excessive competition. The Crédit lyonnais calculated in 1906 for its own use a comparison of commissions on the major European markets, which mentioned the lowest rates for the Parquet. The same fact was considered a good reason for raising the tax on securities transactions without threatening the Paris market by the tax administration in 1906 (see « Note du Mouvement général des fonds au cabinet du Ministre (bureau des travaux législatifs), october 13, 1906, CAEF box B.64.877). Even the Paris Chamber of commerce, certainly not favourable to the Parquet monopoly, considered the commissions as low compared to the responsibilities that the agents de change beared (malgré « le principe du monopole qui n'eut peut-être pas prévalu dans vos avis (...) il est même évident que dans certains cas ce nouveau tarif fixe ce courtage à un taux peu en rapport avec la responsabilité qu'assume l'Agent » , rapport présenté au nom de la commission n°3 de la Chambre de commerce de Paris par M. Hugot, adopté et converti en délibération de la Chambre de commerce dans sa séance du 11 mai 1898, p. 2; CAEF, box B. 64.895).

financed by the Parquet, as well as a new association for the defence of investors in foreign securities, on the British model.

Furthermore, the collective guarantee of the Parquet was enshrined in the law. The Finance Minister had promised such a decree on the subject to the Chamber of Deputies on April 6th, 1898. The Parquet opposed it because of the moral hazard it may involve if no official broker could become bankrupt because of such solidarity: the brokers could take risks without sanction, and the public would have no incentive to discriminate among brokers on the basis of bankruptcy risk⁴⁵. After lengthy debates, a text aiming at both limiting the moral hazard and guaranteeing solidarity was adopted⁴⁶.

The Government also imposed through moral suasion a radical reorganization of the *Coulisse*: conditions for the admission of new members as well as a set of formal trading rules were established, a list of admitted securities was printed daily from 1899, making the market more transparent, and various regulations imposed, making the *Coulisse* less different from the Parquet. A result of this stricter integration was the creation of a third market, the Free Market, more opaque and unregulated, which nevertheless remained marginal up to World War One. Some securities listed on the Parquet were also nominally traded in Brussels by former *coulistiers* who refused adhering to the new structure and delocalized their headquarters while maintained their activity in Paris.

Since at that moment the *Coulisse* operations were largely concentrated on securities listed on the Parquet, the reform would have killed the *Coulisse* except for an arrangement with the Parquet allowing the *coulistiers* to trade in some of the officially listed securities under the authority of the Parquet, but without acting as direct counterparty. That *modus vivendi* was signed in 1901. It made provision for large rebates (up to 80%) on the agents' commissions to be given to the *coulistiers* for the business they provided to the Parquet. In particular, the *Coulisse de la rente* (on French government bonds) was allowed to continue its operations without change.

One may then consider that the 1898 reform increased very substantially the size of the Parquet, allowing for the transfer of a large proportion of the business previously done by the *Coulisse*, but not eliminating the *Coulisse* thanks to the *modus vivendi*. Even if less efficient

45 Letter from the Syndic to the Finance Minister, May, 17th, 1898; CAEF, box 64.895.

46 Cf. another, undated, letter from the « Syndic au Ministre des Finances », accompanying the « Note remise par le syndic des agents de change, texte proposé en remplacement de l'amendement Viviani sur la solidarité, rédaction de M. Sabatier ». CAEF, box 64895.

on some dimensions, this new architecture conferred more stability⁴⁷ to and does not affect the development of the Paris financial centre: it did maintain firmly its position of second larger world financial centre, a rank that could not be explained by the French real economy.

3. Quantitative tests

We aim at estimating the impact of the 1893 and 1898 regulatory changes in various dimensions: first, the impact on the development of the market; second on the market's quality.

The regulatory changes of 1893 and 1898 cannot be separated, as should be clear from the historical presentation above, from other changes in the microstructures of the two markets, so that we can only measure the impact of these broad, global changes, on the market development. Two polar arguments can be made, following either the contemporaries favourable to the *Coulisse* or to the *Parquet*: for the first ones, the 1893 liberalization should help develop the whole market and increase the share of the *Coulisse*. It should also reduce the transaction costs thanks to improved competition. From the point of view of those favourable to the *Parquet* or to a hierarchy of markets, the 1893 move should have damaged the *Parquet* and improved the situation of the *coulissiers* because of their dual capacity as brokers and operators on their own account (without the obligations market makers have nowadays). This setting would not lead to a decrease in transaction costs for investors because the informational rents⁴⁸ and inventory costs of *coulissiers* and the increased uncertainty for investors could compensate the positive impact of improved competition. The effects of the 1898 move should be the opposite: for *Coulisse* supporters, it should not only have damaged the *Coulisse* but the market as a whole, and increased transaction costs. For *Parquet* supporters, it should have little affected the market as a whole and decreased transaction costs by reducing uncertainty and informational rents.

These arguments could be valid only for some segments of the market, since the competitive advantages of both organizations differed. For example, it may be that the 1893 liberalization affected mostly some segments of the *Parquet*'s activity: foreign bonds and shares with large

47 For example, the world 1907 crisis which devastated the London Stock Exchange didn't affect the Parisian exchanges

48 The *Coulissiers* benefitted from two kinds of informational rents : on the one hand, they monitored better than operators the order flow ; on the other hand, they were mainly foreign operators maintaining strong links with correspondents in their home country, which gave them useful insights for international arbitrage.

volumes, particularly in the forward market, were taken over immediately by the Coullisse, when the Parquet resisted better on private (French) securities, both for the spot and forward operations. After the 1895 crisis, the Parquet may also have benefitted from a flight to quality, some investors and issuers looking again for the reputation and stability of a regulated market.

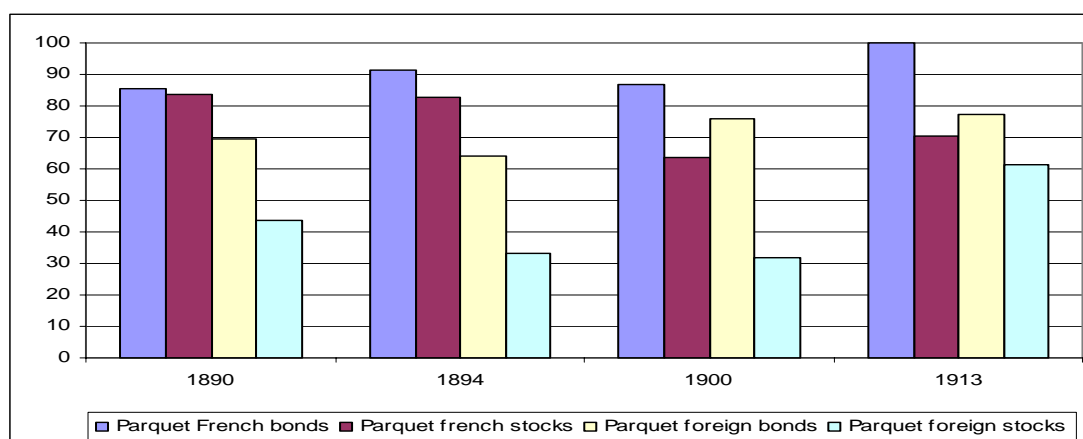
Data

Little data is available on the Coullisse before 1898 and on transactions in general before 1893. It results precisely from the organization the new laws planned to modify: without a transaction tax, transactions were not registered, except within the Parquet, where the registration aimed at financing the central organization thanks to a contribution of each agent proportional to its transactions, but did not provide details on transactions by security in order not to affect competition among members. The list of the securities traded on the Parquet is precisely known thanks to the official listing procedures and publicity, but the very concept of listing did not exist for the Coullisse, each broker quoting prices for the securities he wanted, and newspapers publishing the lists of their choice. By contrast, an “official” list for the Coullisse was published from 1899 on (but not for the new “marché libre”). Only prices are reasonably well documented... as long as one picks them by hand in contemporary newspapers. This is easily done concerning the Parquet, which published an official and exhaustive daily price list. For the Coullisse, the *Cote de la Banque et de la Bourse* was, from 1884 on, the prominent private list of the market, but included probably only part of the securities traded.

Listings

We constructed a list of securities which prices were published as “traded on the Coullisse” in the *Cote de la Banque et de la Bourse* for July 1st, 1890, December 31st 1894, December 31st, 1900 and December 31st, 1913 (table 1). It suggests that the regulatory changes had relatively little impact. The market share of the Parquet didn’t decrease after 1893: it actually rose on French securities, and decreased on foreign ones. Coullisse didn’t suffer from 1898 either: in 1900, the market share of the Parquet had increased, compared to 1894, only for foreign bonds (certainly the most contested market), but decreased for French stocks. Moreover, the Coullisse’s list in 1900 included twice the number of securities that we counted for 1890.

Table 1 Market share of the Parquet in terms of number of securities listed (see annex 1).



Source : our count, from the *Cote officielle des valeurs cotées à la Bourse de Paris* (Parquet) and the *Cote de la Banque et de la Bourse* (Coulisse).

Nevertheless, it may be that the 1898 change is responsible for the decline of the Coulisse after 1900: the 12% decrease overall of the number of securities listed (almost 30% on foreign stocks) may well result from the growing interest of the Parquet for some segments (it more than doubled during that period the number of foreign stocks on its list), and from its legal capacity to exclude the Coulisse from them.

Transactions

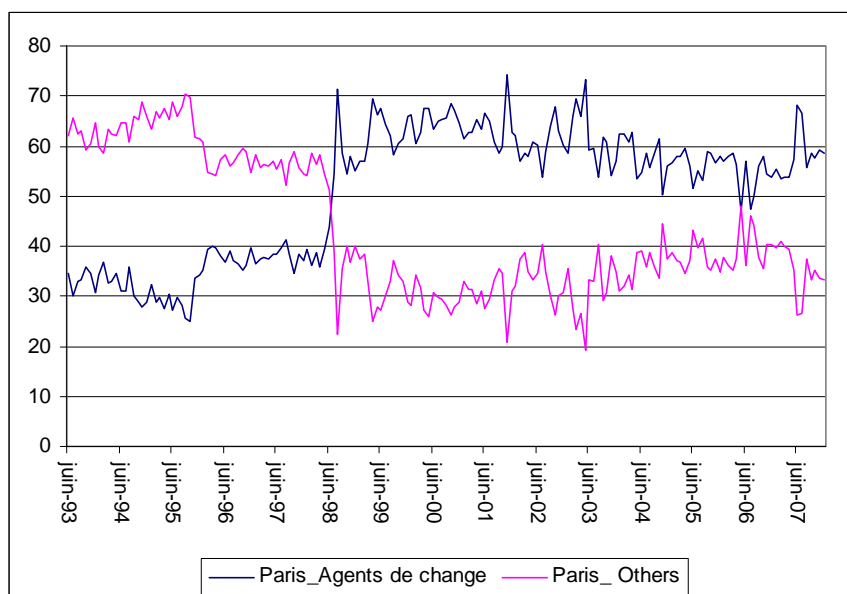
The volumes of transactions are difficult to evaluate before the 1893 law. After that law, data on the payment of the tax provide some information. Nevertheless, the rates of the tax are lowered (by 75%) for the French rentes in 1895, and unfortunately the allocation of transactions between these rentes and other securities is unknown. This makes it difficult to compare the 1894-1895 years with the following ones.

Table 2: rates of the tax on stock exchange transactions (in per thousand)

Date	Forward & spot transactions		Reports		Deals on foreign exchanges
	French public bond	Other securities	French public bond	Other securities	
28/04/1893	0,05	0,05	0,025	0,025	0,1000
28/12/1895	0,0125	0,05	0,00625	0,025	0,1000
31/12/1907	0,0125	0,1000	0,00625	0,025	0,2000
15/07/1914	0,0125	0,1500	0,00625	0,0375	0,3000

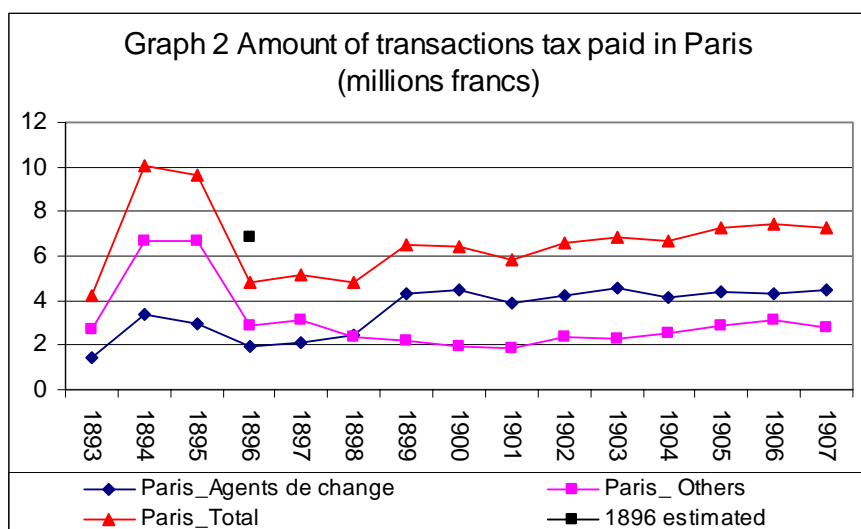
If we believe the estimation (provided by supporters of the *Coulisse*) of 75 billions francs of operations for the *Coulisse* in 1892 and 35 for the *Parquet* (then a 2.14 to 1 ratio), and compare it to the ratio of the tax paid by the two markets in 1894 (2.17 in favour of the *Coulisse*), the similarity is striking. It suggests that the *Coulisse* didn't benefit much, at least in the short term, from its new freedom⁴⁹. On the other hand, the same ratio for 1903 was only 0.5. As graph 1 shows, the « market share » of the *Coulisse* dropped from 2/3d to 1/3d around the 1898 reform. In terms of timing, the *Coulisse* suffered a first drop in 1895, which may be attributed to the crash in the “gold mines” stocks.

Graph 1 Market shares of the transaction tax paid by the *Parquet* and all other markets (in %)



Source : *Bulletin de statistiques et de législations comparées*

⁴⁹ Both the 1892 and 1894 figures could overstate the size of the *Coulisse* since what they call « *Coulisse* » measures actually all operations not passed through the *Parquet*, which includes operations done by banks and by independent mini-markets like those organized by some financial newspapers. On the other hand, fiscal evasion works in the opposite direction.



Sources : *Bulletin de statistiques et de législations comparée*; archives CAEF for internal documents of the Finance Ministry allowing the calculation of the “1896 estimated” point.

Graph 2 gives the amount of the tax paid on stock exchange transactions from 1893 onwards by brokers located in Paris (they represented around 96% of all tax payments in France). The 1896 drop results both from the “gold mines” crash of October 1895, and from the decrease in the tax rates. The point “1896 estimated” gives an estimate of the total tax that would have been paid in 1896 had the tax rates remained the same. It suggests that around 60% of the decline resulted from the change in tax rates, the rest resulting from a decline in transactions. Most importantly, graph 2 shows that total transactions didn't decline after 1898, contrary to the predictions of the Coullisse supporters. They may even have increased.

The internal stamp tax that the Parquet imposed to its members (in order to finance collective action and collective guarantee) provides us with more detailed information on the transactions on the Parquet⁵⁰. If one considers more carefully the various segments of the market (see graphs in appendix 2), it is possible to note that the Parquet suffered no serious blow from the 1893 reform: even if its market share declined from mid-1894 up to the gold mines crash, it participated the boom of 1894-95 and the 1896 crisis, mostly on the forward market. The spot market wasn't much affected by the 1898 regulation, which benefited mostly the forward market (which activity rose by 75% between 1898 and 1899. This increased activity was concentrated in foreign government debts (+60%) and, above all, private foreign securities (+150%). On the other hand, the decrease in the Parquet forward operations on the French rentes was not stopped, and the rise in its forward operations on

50 This information is registered in the Parquet archives, see Lagneau-Riva 2005

private French securities was not much affected by either the 1893 or the 1898 laws, maybe because it always had dominated that market segment, either (overwhelmingly) for spot or (relatively) for forward operations.

These results suggest that neither the supporters of the *Coulisse* nor those of the *Parquet* were right: The *Parquet* didn't suffer much from the 1893 law, mostly because the *Coulisse* had already conquered most of the market it could pretend to satisfy (banks, institutional investors and brokers issuing and dealing in securities not – yet – definitively distributed in individual portfolios). On the other hand, the supporters of the *Coulisse* were wrong in pretending that transferring the control of the market to the *Parquet* would result in an overall decline of the market: the change affected the distribution between *Coulisse* and *Parquet* but didn't – apparently – stop the development of the market, which was rapid from 1898 to 1913.

Transaction costs

Commissions were usually lower on the *Coulisse*, at least for large transactions. The difference, nevertheless, was lower than argued by *coulissiers*, since they compared their commissions to the official maximum commissions set by the *Parquet* regulation rather than to the actual commissions, usually nearer from the minimum (50% of the official maximum) that the *Parquet* tried to impose to its members (with frequent enforcement problems, as the CAC archives testify). Furthermore, the 1898 reform led to official maximum commissions being halved, which put the *Parquet* on a footing similar to the *Coulisse*.

A major reason for the low commissions on the *Coulisse* is the fact its members acted also on their own account as counterparty, something forbidden to *Parquet* members. Part of their profits then resulted from the spread between their bid and ask prices. Unfortunately, these spreads have not been registered by the press, and – maybe in order to hide the dual capacity of the *coulissiers* to the private investors – the prices for securities listed on the *Coulisse* were always published as if they were pure “equilibrium” prices. We use the Roll (1984) model in order to derive implicit spreads, a measure of the liquidity cost, for both the *Coulisse* and the *Parquet* in 1892, 1894 and 1903. We chose these dates in order to observe the impact of the 1893 change before the market boom and crash of 1895-6; then we chose 1903 as the last term of comparison because, as our narrative demonstrates, all the adjustments to the 1898 law were not ended until 1902.

One must consider that the *Coulisse* provided a higher immediacy, since on many securities

its members were willing to buy or sell at any moment, when, after the opening fixing, Parquet members, as pure brokers, had to wait for a colleague to post an opposite order during the continuous auction. Furthermore, the Parquet was open only two hours a day, when the Coullisse opened much longer hours. The important advantage of immediacy had a price, which the spread certainly measures to some extent.

In a perfectly competitive and transparent market in which all agents have access to the same information, the spread must correspond only to their non-informational costs. An informed operator with dual capacity and no disclosure obligations can impose margins higher than these costs only in a situation of both opaqueness and asymmetric information. The Roll measure estimates realized spreads based on the covariance of past prices. His model makes strong hypotheses on the independence and random walk of past prices, and is more restrictive than more recent models (Glosten, 1987; Stoll, 1989; Roomans, 1993). Nevertheless, these models require more information (on volumes in particular) that are not available in our historical setting.

We built portfolios corresponding to the various segments of the Paris stock market: not only the Parquet and the Coullisse, but their different sections, in order to compare properly average spreads. One methodological problem we faced is that, precisely because of the (changing) regulations, the Coullisse and the Parquet didn't list entirely comparable securities. This is why we built quite diversified portfolios (see appendix 3), totalling respectively 51, 51 and 38 securities for the Coullisse in 1892, 1894 and 1903, and 48, 50 and 47 for the Parquet (changes result from the availability of securities in some small segments at some dates). We focused particularly on cross-listed securities (those listed both on the Parquet and the Coullisse, something which supposedly should have not existed in 1892 and disappeared in 1903 but existed in both cases⁵¹). For these securities (which represent above a third of our total sample), any result will appear as particularly strong since no fixed effect of the security can explain differences between the markets and affect the results. Furthermore, in order to facilitate the comparison between years, we also included as frequently as possible the same securities in the portfolios of consecutive years. We were able to include at least 75% of identical securities, which also reinforce our results.

51 Nevertheless, illegal operations before 1892 and, after 1898, the publication of prices for transactions handled by the Coullissiers having established their headquarters in Brussels allow us to collect the prices of cross-listed securities for these years.

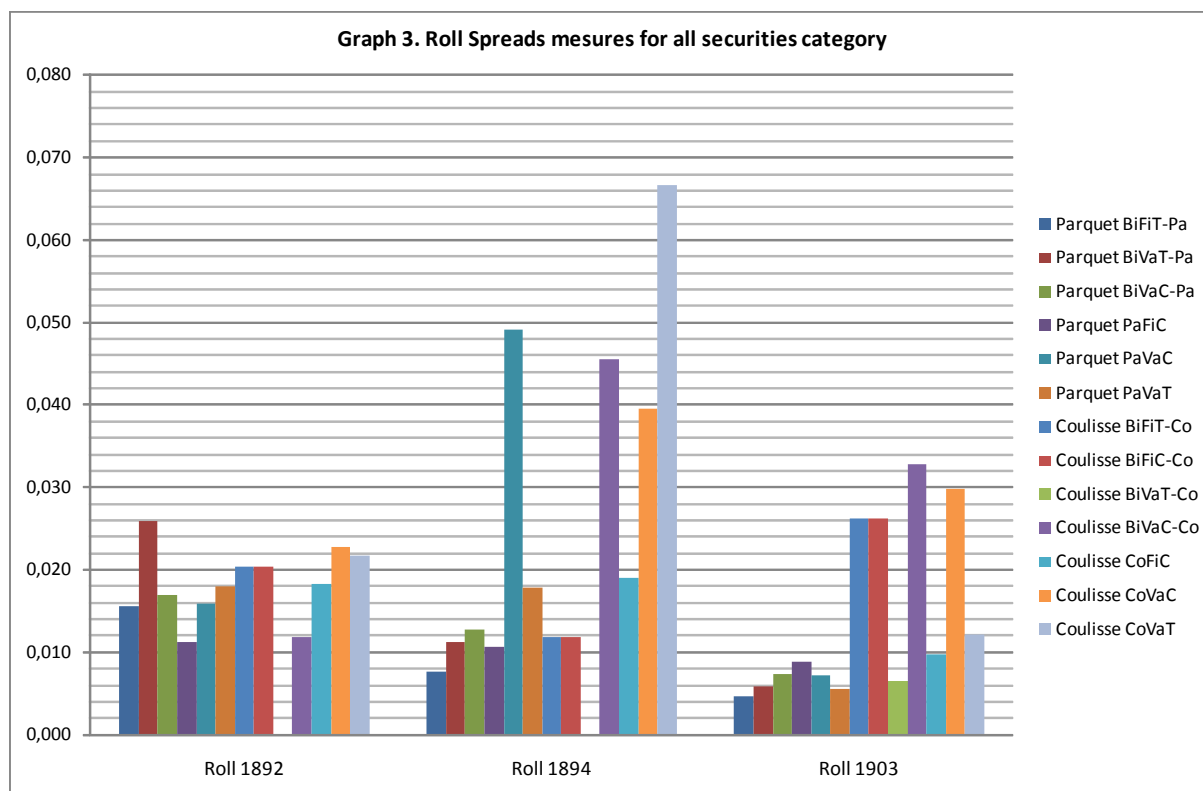
We collected weekly prices for these securities and calculated the spreads for each security (some spreads could not be calculated because the co-variances were positive); we averaged these spreads for various portfolios, built on a combination of the market were the securities were listed (Parquet, Coullisse, or both), the type of security (bonds or stocks), the nationality of the issuer (French or foreign), the type of operation (forward or spot). The spreads on the Parquet are regularly lower than the Coullisse's ones, reflecting the differences in the trading systems. According to Pagano-Roell (1996), the transparent market run by pure brokers with starting fixing and continuous auction produces tighter spreads; the opaque market run by informed dual capacity operators gives higher spreads, reflecting the rents coullissiers could extract from their superior information in an opaque market.

Despite the fact that all segments were not represented, the results of the diachronical analysis are quite clear (figure 2): in the Parisian market as a whole, spreads rose after 1893 (by 35% on average) and decline after 1898 (by 45%). The increase in the spread of the Coullisse was markedly higher than the one in the Parquet. This suggest that the 1893 move gave to coullissiers the opportunity to increase their spreads, thanks to their capacity to provide immediacy to a larger number of securities and their ability in using their private information in a more opaque market: in practice, the coullissiers were allowed to trade in all the securities without any juridical uncertainty. The increase in 1894 Coullisse's spreads were markedly strong in the spot and forward prices of single listed French and foreign shares. For these segments, the lack of competition allowed the coullissiers to wider more their spreads than on cross-listed securities⁵². In 1898 by contrast, the re-regulation imposed a reduction in spreads, which was particularly strong in the Parquet, mainly thanks to the consolidation of the order flow in a transparent market⁵³.

If this hypothesis is true, spreads should be higher on average on the Coullisse, especially for cross-listed securities. This is clearly the case for most of our portfolios, but not true systematically (which may result from the small size of the portfolios).

52 On the other hand, the Coulliss's spreads on cross-listed foreign bonds did not change much, which is not surprising since they were already traded by the coullissiers in 1892 and remained submitted to the competition of the Parquet in 1894.

53 Note that the increase in spreads should not result from the introduction of the tax, which was ultimately paid by the clients, not the intermediaries; in any case, the tax remained in place in 1903, when spreads fell.



Legend : The graph gives the average spreads of the various segments of the market, each one being identified by a combination of initials: Bi is for cross-listed (on both Parquet and Coulisse), Fi for fixed income securities; Va for stocks; T is for forward market; C is for spot market; Co is for Coulisse (only); Pa is for Parquet (only); Pu is for government bonds; Pr is for private securities; Et is for foreign and Fr for French.

In order to test more strictly for this, we regressed the individual securities' spreads on a set of dummy variables for the different characteristics all presented in the following model:

$$\text{SPREAD} = \mu_1 \text{Year92} + \mu_2 \text{Year94} + \mu_3 \text{Type} + \mu_4 \text{Market} + \mu_5 \text{Country} \\ + \mu_6 \text{Private} + \mu_7 \text{Crosslisted}$$

The results confirm our hypothesis (table 3): spreads are significantly higher in 1894 (and much higher: one average more than one percentage point higher, or 50% higher), and they are also significantly higher on the Coulisse (almost by the same amount). Furthermore, as one may find reassuring, they are higher for stocks than for bonds (also by a similar amount).

Table 3. Roll Spreads vs securities and markets (Parquet & Coullisse) characteristics					
Dependent Variable: SPREAD					
Included observations: 177					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
μ 1 YEAR92	0.004677	0.004919	0.950865	0.3430	
μ 2 YEAR94	0.013156	0.004788	2.747706	0.0066	***
μ 3 TYPE	0.011917	0.005990	1.989434	0.0483	**
μ 4 MARKET	0.009819	0.003921	2.504338	0.0132	**
μ 5 COUNTRY	-0.003900	0.004506	-0.865502	0.3880	
μ 6 PRIVATE	-0.001218	0.006332	-0.192442	0.8476	
μ 7 CROSSLISTED	0.007497	0.004834	1.550852	0.1228	
R-squared	0.126543	Mean dependent var	0.020193		
Adjusted R-squared	0.095715	S.D. dependent var	0.027951		
S.E. of regression	0.026580	Akaike info criterion	-4.378599		
Sum squared resid	0.120101	Schwarz criterion	-4.252988		
Log likelihood	394.5060	F-statistic	4.104819		
Durbin-Watson stat	2.142975	Prob(F-statistic)	0.000712		
*, **, *** significant respectively at 10%, 5% and 1%.					
Legend:					
μ 1 YEAR92	1892=1 other year=0				
μ 2 YEAR94	1894=1 other year=0				
μ 3 TYPE	Stock=1, fixed income securitie=0				
μ 4 MARKET	Coulisse=1, Parquet=0				
μ 5 COUNTRY	Foreign security=1, French=0				
μ 6 PRIVATE	Corporate security=1, else=0				
μ 7 CROSSLISTED	Mono-listed security=1, cross-listed=0				

Financial integration

The next step in this work entails measuring the degree of integration of the two markets. For that purpose, we study the co-integration of various portfolios for the Parquet and the Coullisse and test for Granger causality between these series. This is necessary in order to understand better the relationship between the two markets. As Hasbrouck (1995) put it, a market might have large spreads and a relatively slow price-adjustment, but if innovations in this market cause reactions in another market where spreads are smaller and adjustment more rapid, the first market can still be understood as informationally dominant. In our case, this would may suggest that the Coullisse may be the most efficient (informationally) despite having larger spreads.

We built portfolios for six segments of the market, and price indices for each portfolio; we

calculated returns for these portfolios. Unit roots tests on the indices (in logs) showed that all indices were non-stationary and first order integrated. This allowed us to test for cointegration using the Engle-Granger (1987) test. Results are given in table 4. Unsurprisingly, cointegration is more frequent for cross-listed securities, since the same securities appear in both markets so that direct arbitrage is possible. It is also higher for securities traded on the more active forward market.

In order to apprehend whether one of the markets is dominant and influences the other, we tested for Granger (1969) causality using the returns on our indices. Results are reported in table 5. They are consistent with table 4 in that causality mostly appears for cross-listed securities and those traded on the forward market. Causality runs always from the Coulisse to the Parquet, suggesting the Coulisse was actually the market where information was gathered first, and then diffused towards the Parquet. There is one exception : the spot market for stocks, where, at least for cross-listed stocks in 1894, causality runs from the Parquet to the Coulisse; this is actually not surprising as the Parquet was well known by contemporaries as being the dominant market for most (at least French) stocks.

Both cointegration and causality are more frequent in 1894 compared to 1892 (most tests have higher values), which suggests that the 1893 deregulation had a positive impact on the efficiency of the market. Nevertheless, the level in 1903 is not much below that in 1894, suggesting the 1898 reform didn't have consequences symmetric to the 1893 change.

Portfolios	Engel-Granger (ADF)		
	1892	1894	1903
Cross-listed, fixed income, forward market	-1,56	-5,65 ***	-4,04 ***
Cross-listed, stocks, forward market	-7,51 ***	-6,8 ***	-6,61 ***
Cross-listed, stocks, spot market	-1,96	-2,78 *	-2,49
Mono-listed, stocks, forward market	-1,43	-2,32	-5,37 ***
Mono-listed, fixed income, spot market	-2,62 *	-2,12	-1,4
Mono-listed, stocks, spot market	-0,93	-2,28	-1,05

*, **, *** significant at 10% (-2,58), 5% (-2,89) or 1% (-3,51).

The table provides the tests for cointegration (H0: absence of cointegration) between indices of two portfolios of securities in the same market segment traded on the Parquet and the Parquet.

Tableau 5. Granger-causality tests between portfolios of the Coulisse and the Parquet, by year (p-value)						
	Granger causality from	1892	1894	1903		
Crossi-listed, fixed income, forward market	Parquet to Coulisse	0,66	0,70	0,38		
	Coulisse to Parquet	0,53	0,08	*	0,07	*
Cross-listed, stocks, forward market	Parquet to Coulisse	0,21	0,79	0,73		
	Coulisse to Parquet	0,99	0,00	***	0,91	
Cross-listed, stocks, spot market	Parquet to Coulisse	0,97	0,00	***	0,57	
	Coulisse to Parquet	0,30	0,19		0,36	
Mono-listed, stocks, forward market	Parquet to Coulisse	0,16	0,20	0,20		
	Coulisse to Parquet	0,30	0,04	**	0,02	**
Mono-listed, fixed income, spot market	Parquet to Coulisse	0,47	0,62	0,62		
	Coulisse to Parquet	0,07	*	0,53	0,72	
Mono-listed, stocks, spot market	Parquet to Coulisse	0,59	0,75	0,65		
	Coulisse to Parquet	0,41	0,61	0,36		

*, **, *** significant at 10%, 5% and 1%.

4. Conclusion

Our analysis of the 1893 and 1898 regulatory changes suggests that the reforms had unexpected consequences for all the actors involved. The 1893 reform likely improved the efficiency of the market as a whole and reinforced the primacy of the Coulisse as the dominant market (in terms of returns' causality), a primacy that resulted less from its institutional position than from its large market share in transactions. Nevertheless, it is not clear whether the 1893 reform would have facilitated a long term development of the market: in the short term, it probably contributed to the speculative bubble on the gold mines which ended with the 1895 crash; after that episode, transactions stagnated until the 1898 reform. Furthermore, the 1893 reform imposed substantial costs on investors: it allowed the Coulisse to enlarge its spreads, increasing transaction costs. By contrast, the 1898 reform look like mostly beneficial: transaction costs declined substantially thanks both to price controls on the Parquet (to a small extent) and (mostly) from the lower spreads on the now dominant transparent market. Immediacy was still available on the Coulisse for a number of securities, but most investors exchanged some immediacy for lower costs. Most importantly, the 1898 reform didn't provoke a decline in the market as a whole, which continued growing up to World War One. It may also have contributed to stabilizing it: the Paris Bourse escaped the 1907 crisis. The analysis of this episode then reinforces the literature emphasizing the

capacity of dual market organizations in providing efficient services to the users of stock exchanges.

References

Archives

CAEF, centre des Archives Economiques et financières, Ministère des Finances

Fonds Compagnie des Agents de Change de Paris, auprès du CAEF, centre des Archives Economiques et financières, Ministère des Finances.

Minutes of the Chambre Syndicale de la Compagnie des Agents de change de Paris, Fonds Compagnie des Agents de Change de Paris, auprès du CAEF, centre des Archives Economiques et financières, Ministère des Finances, various years.

Minutes of Assemblées Générales de la Compagnie des Agents de Change de Paris, Fonds Compagnie des Agents de Change de Paris, auprès du CAEF, centre des Archives Economiques et financières, Ministère des Finances, various years.

Bibliography

- Bernanke B., “Clearing and Settlement during the Crash”, *Review of Financial Studies*, Vol. 3, No. 1 (1990), pp. 133-151.
- Coffee J, “Racing towards the Top?: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance”, *Columbia Law Review*, Vol. 102, No. 7, Nov., 2002, pp. 1757-1831.
- Duffy D., Zhu H., “Does a Central Clearing Counterparty reduce Counterparty Risk?”, WP, Stanford University, July 1st 2009.
- Engel, R.F., and C. W. J. Granger, 1987, Co-integration and error correction: Representation, estimation, and testing, *Econometrica* 55, 251-276.
- Glosten, L. R., 1987, Components of the bid-ask spread and the statistical properties of transaction prices, *Journal of Finance* 42, 1293-1308.
- Granger, C. W. J., 1969, Investigating Causal Relations by Econometric models and Cross-Spectral Methods, *Econometrica* 37, 424-38.
- Hasbrouck J., “Trades, quotes, inventories and information”, *Journal of Financial Economics*, 1988, 22, pp. 229-252.
- Hasbrouck, J., 1995, “One Security, Many Markets: determining the Contributions to Price Discovery,” *Journal of Finance* 50: 4, 1175-1199.
- Hautcoeur P.-C., Riva A., « The Paris Financial Market in the 19th Century: an efficient multi – polar organisation? », paper presented at the World economic History Congress, Utrecht, 3-7 August 2009.
- Kroszner R., “Can the Financial Markets Privately Regulate Risk?”, *Journal of Money, Credit, and Banking*, Vol. 31, No. 3, (August 1999, Part 2), pp. 596-618.
- Kroszner R., “Central Counterparty Clearing: History, Innovation, and Regulation,” European Central Bank and Federal Reserve Bank of Chicago Joint Conference on

- Issues Related to Central Counterparty Clearing, Frankfurt, Germany, April 3, 2006.
- Lagneau P., Riva A., « Les archives de la Compagnie des Agents de Change de Paris », WP IDHE, n° 2007 – 08.
- Lagneau P., Riva A., « Les opérations à terme à la Bourse de Paris au XIX siècle », in Levratto N. - Stanziani A. (s.d.d.), *Droit et crédit : la France au XIX siècle*, Bruylant, forthcoming (2010).
- Madhavan A., Smidt S., “A Bayesian model of intraday specialist pricing”, *Journal of Financial Economics*, n° 30, 1991.
- Pagano M., Roell A., “Transparency and liquidity: A comparison of auction and dealer market with informed trading”, *Journal of finance*, vol. 51, n°2, June 1996.
- Riva A., « Les grandes Bourses italiennes à l’époque giolittienne », dans *Entreprises et Histoire*, septembre 2007, n° 4.
- Riva A., White E., « Danger on Exchange: Counterparty Risk on the Paris Stock Exchange in the XIX Century », paper presented at the 6th World Cliometrics Congress, Edimbourg, July 17-20 2008.
- Roll, R., 1984, “A simple implicit measure of the effective bid-ask spread in an efficient market”, *Journal of Finance* 39, 1127-39.
- Roomans, M., 1993, Asymmetric information in securities markets: an empirical investigation of serial covariance models of the spread, Working paper, The Wharton School, University of Pennsylvania.
- Seppi D., “Liquidity Provision with Limit Orders and Strategic Specialist”, *The Review of Financial Studies*, Vol. 10, No. 1, Spring, 1997, pp. 103-150
- Stoll H., “Inferring the components of bid-ask spread: Theory and empirical tests”, *Journal of Finance*, 1989, vol. 44.
- Stoll, H. R., 1989, Inferring the components of the bid-ask spread: theory and empirical tests, *Journal of Finance* 44, 115-134.
- Verley P., “Les opérateurs du marché financier parisien”, in Gallais-Hamonno G., Hautcoeur P.-C. (eds.), *Le Marché financier français au XIX*, Paris, Presses Universitaires de la Sorbonne, 2007.
- Verley P., “Organisations of the national financial markets and convergence of the practices: Parisian brokers’ institutions and networks of in the XIXth century, Baubeau P., Ogren A., *Convergence and Divergence of National Financial System*, Pickering and Chatto, 2010 forthcoming
- Vidal E. (Courtois A.), *Traité des opérations de bourse et de change*, Paris, Garnier, 1904, 13th ed.
- White E., Competition among the exchanges before the SEC: was the NYSE a natural hegemon?”, paper presented at the International Conference « Les places financières comme pôles de compétitivité », Paris, Université Paris Ouest La Défense, January 30, 2008.

Appendix 1 Securities listed on the Parquet and the Coulisse

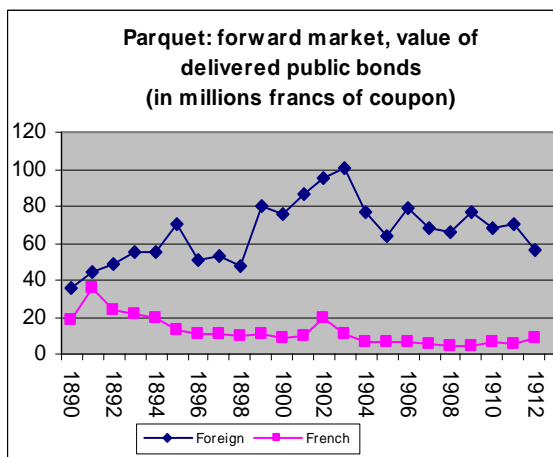
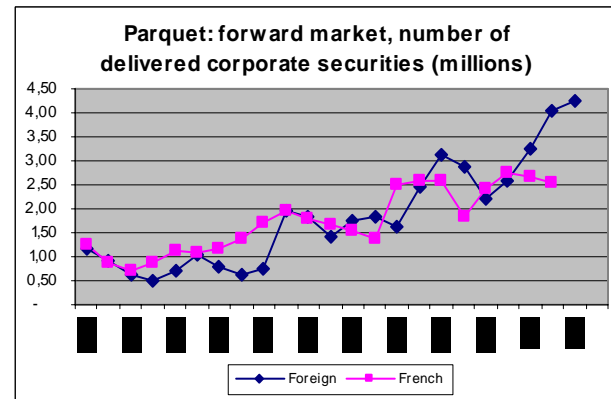
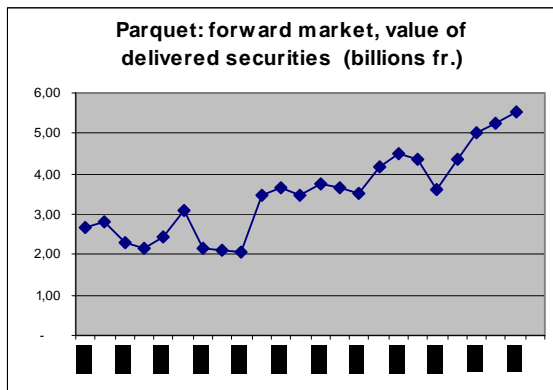
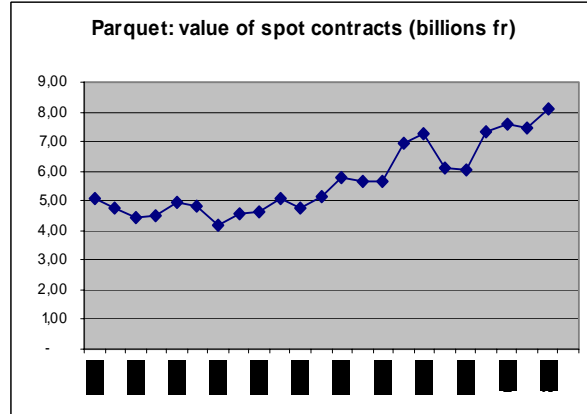
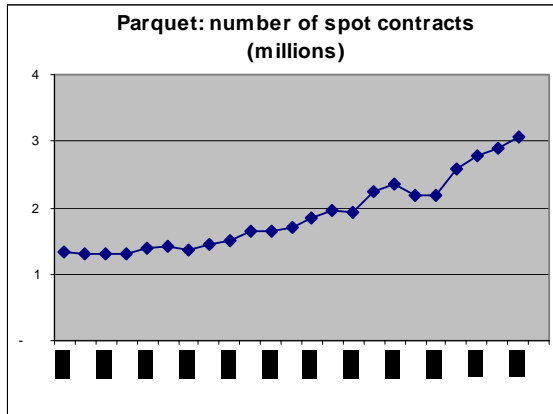
Parquet

	1890	1894	1900	1913
French and colonial securities	1-VII	31-XII	31-XII	31-XII
	Théry	us	us	us
Government bonds	6	8	11	27
Regional governments bonds	35	5	8	9
Local governments bonds	19	40	38	37
Railroads bonds	92	74	82	100
Transportation bonds		40	17	21
Other bonds	68	72	110	143
Total French bonds	220	239	266	337
Railroads stocks	37	27	40	39
Finance stocks	53	43	41	58
Insurance stocks	47	33	32	37
Various stocks	167	101	143	239
Canals and transport stocks		32	30	51
Total French stocks	304	236	286	424
Parquet : total number of French securities	524	475	552	761
	us	us	us	us
Foreign securities				
Government bonds	91	114	141	167
Regional governments bonds	5	7	3	6
Local governments bonds	1			3
Railroads bonds	33	36	38	77
Other bonds	8	16	21	50
Total foreign bonds	138	173	203	303
Railroads stocks	15	12	17	20
Finance stocks	18	11	13	43
Insurance stocks		1	2	2
Various stocks	7	13	28	64
Total foreign stocks	40	37	60	129
Parquet : total number of foreign securities	178	210	263	432
Parquet : total number of listed securities	702	685	815	1193

Coulisse

	1890	1894	1900	1913
	1-VII	31-XII	31-XII	31-XII
French and colonial securities				
Government bonds		2		
Regional governments bonds	1	2	1	
Local governments bonds	3			
Railroads bonds	1	1	3	
Transportation bonds	6	1	4	
Other private bonds	26	17	32	
Total number of French bonds	37	23	40	0
Railroads stocks	1	1	2	
Finance and insurance stocks	1	4	14	17
Transportation stocks	3	9	18	25
Other stocks	55	36	129	134
Total number of french stocks	60	50	163	176
Coulisse : total number of French securities	97	73	203	176
Foreign securities				
Government bonds	13	25	17	42
Regional governments bonds		4		8
Local governments bonds	17	20	17	38
Railroads bonds	23	24	15	
Various private bonds	7	24	16	
Total number of foreign bonds	60	97	65	88
Transportation stocks	4	4	2	16
Finance and insurance stocks	9	6	5	8
Various stocks	39	65	121	58
Total number of foreign stocks	52	75	128	82
Coulisse : total number of foreign securities	112	172	193	170
Coulisse: total number of securities	209	245	396	346

Appendix 2. Transactions on the Parquet, 1890-1913 (from the stamp internal tax of the Parquet)



Appendix 3 : details on the spreads by segment for the Parquet and the Coulisse

Coulisse

			Number of securities per category			Number of spreads available			Average spread		
			1892	1894	1903	1892	1894	1903	1892	1894	1903
Bi-listed securities											
Fixed income, forward market			6	6	5	2	4	2	0,02	0,01	0,03
	Foreign	Government	6	6	5	2	4	2	0,02	0,01	0,03
Stocks, forward market			1	2	1	na	na	na	na	na	na
	Foreign		1	2	1	na	na	na	na	na	na
Stocks, spot market			9	9	2	5	6	2	0,01	0,05	0,03
	French	Corporate	9	9	2	5	6	2	0,01	0,05	0,03
Securities listed only on the Coulisse											
Fixed income, sport market			11	11	10	11	11	7	0,02	0,02	0,01
	Foreign		11	11	10	11	11	7	0,02	0,02	0,01
		government	6	6	5	6	6	4	0,02	0,02	0,01
		Corporate	5	5	6	5	5	3	0,02	0,02	0,01
Stocks, spot market			11	11	10	7	9	5	0,02	0,04	0,03
	French	Corporate	6	6	5	3	5	2	0,02	0,04	0,05
	Foreign	Corporate	5	5	5	4	4	3	0,02	0,04	0,01
Stocks, forward market			7	6	5	6	5	2	0,02	0,07	0,01
	Foreign	Corporate	7	6	5	6	5	2	0,02	0,07	0,01

Parquet

			Number of securities per category			Number of spreads available			Average of the spreads		
			1892	1894	1903	1892	1894	1903	1892	1894	1903
Bi-listed securities											
Fixed income, forward market			7	7	8	4	2	5	0,02	0,01	0,01
	French	Government	1	1	1	1	na	na	0	na	na
	Foreign	Government	6	6	7	3	2	5	0,02	0,01	0,01
Stocks, forward market			1	3	4	1	2	3	0,03	0,01	0,01
	Foreign	Corporate	1	3	4	1	2	3	0,03	0,01	0,01
Stocks, spot market			9	9	5	5	5	3	0,02	0,01	0,01
	French	Corporate	9	9	5	5	5	3	0,02	0,01	0,01
Securities listed only on the Parquet											
Fixed income, spot market			12	12	12	10	10	10	0,01	0,01	0,01
	Foreign		12	12	12	10	10	10	0,01	0,01	0,01
		Government	6	6	6	5	4	6	0,01	0,01	0,01
		Corporate	6	6	6	5	6	4	0,01	0,02	0,01
Stocks, spot market			12	12	11	8	7	5	0,02	0,05	0,01
	French	Corporate	7	7	7	3	4	4	0,02	0,07	0,01
	Foreign	Corporate	5	5	4	5	3	1	0,02	0,02	0,02
Stocks, forward market			7	7	7	5	6	4	0,02	0,02	0,01
	Foreign	Corporate	7	7	7	5	6	4	0,02	0,02	0,01

This table provides information on the number of securities in each portfolio, on the spreads available (by construction, the spread is unavailable when the covariance in the security prices is positive), and the average spread used for graph 2.