The Berlin Bourse in the London mirror: An asymmetric comparison of microstructures and the role of Germany's large banks in securities trading, c. 1860–1914

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Abstract: This article provides the first in-depth account on the organisational history of the Berlin Bourse based on archival evidence. It demonstrates that the microstructures of the Berlin Bourse basically corresponded to the needs and activities of the largest commercial banks and, consequently, argues that these large banks played a 'gatekeeping' role in securities trading. Moreover, the Berlin example perfectly illustrates the close ties which existed between banks and financial markets and the resulting amalgamation of banking and stock-broking activities in imperial Germany. The comparison to the London Stock Exchange also shows that both stock exchanges fulfilled different economic roles within the overall financial system.

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Contents

* The paper summarises some of the most important findings of a PhD-thesis presented to the University of Heidelberg in February 2017 under the title 'Die Spielregeln der Börse. Institutionen, Kultur und die Grundlagen des Wertpapierhandels in Berlin und London, ca. 1860-1914'. In the following, not all arguments can thus be developed in full detail. First versions of this paper were presented in the research seminar in economic and social history at the University of Regensburg and at the Second Congress for Economic and Social History in Bonn in April 2017. I would like to thank the participants in these events for many valuable comments. Of course, all remaining errors are mine.

1. Introduction

When the German government decided to launch an encompassing legal reform of national stock exchanges in the 1890s, many contemporary observers, like Max Weber and a number of economists, turned their attention to the London Stock Exchange as a benchmark model.[1] Obviously, London then constituted the world's uncontested financial centre. However, German financial elites involved in the reform campaign proved to be much more reluctant. In particular, Berlin's *haute finance* resisted all attempts to take over the London Stock Exchange's overall institutional design or only parts thereof.[2] In the end, bankers clearly won through since the German Stock Exchange Act, passed in 1896, primarily codified existing rules and regulations of most exchanges instead of completely reshaping traditional organisational forms.[3] As this article will show, the German financiers' resistance to overtake London structures can largely be explained by the many conveniences that the traditional microstructures of the Berlin Bourse provided for them in carrying out securities trading. This is particularly true for the leading banks of the time.

In the following, we do not take a normative look on the London Stock Exchange as the model which the Berlin Bourse ought to have followed, as did our predecessors in the nineteenth century. Instead, we provide a detailed comparison which carefully reconstructs the market microstructures of the Berlin financial exchange in order to contrast their actual functioning with their London counterparts. For two reasons, however, this comparison will necessarily be asymmetric. First, the London Stock Exchange primarily serves as a contrasting point of reference for the historical institutional analysis of the Berlin Bourse on which our empirical research is concentrated.[4] For the purpose of this paper, the London Stock Exchange provides a very powerful foil to which the Berlin Bourse can be compared, because the overall organisation of both exchanges differed from each other in many respects.[5] Therefore, an asymmetric comparison to London can help to highlight the peculiar features of the Berlin stock exchange. Secondly, asymmetry in this comparison also results from quite opposite states of historiography on both stock exchanges. As the most

[1] Weber (1999/2000 [1894-96]); Struck (1990 [1881]).
[2] See Börsen-Enquete-Kommission (1892/93) for numerous examples.
[3] Schulz (1994); Meier (1992); Burhop (2015).
[4] See Greif (1998) on this methodology.
[5] Of course, the choice of a particular point of reference can itself be the result of normative considerations. See Kocka (1999).

important financial hub in the globalised world of the nineteenth century, the London Stock Exchange has attracted interest among historians for a long time.[6]

In recent years, substantial research has also been done on the Berlin securities market.[7] According to these studies, the pre-1914 Berlin market was remarkably efficient, both with regard to the primary and to the secondary market. What is even more, Berlin could obviously compete with the London Stock Exchange in terms of efficiency standards.[8] However, we still know very little about the institutions, processes and practices which generated these astonishing results on a micro level.[9] Certainly, this gap in literature is, in large parts, due to the complicated state of the archives of the Berlin financial exchange. A lot of material, like the records of the Berlin chamber of commerce, has been completely destroyed and the quality and extent of the material that did survive is often rather limited. In addition, many surviving records have been kept in former East Berlin where they were not easily accessible for research.[10] Nonetheless, the fact that the Berlin Bourse as an organisation has almost been neglected by historical research so far must also be attributed to the prevalence that was given to Germany's famous universal banking system in historiography. Following this literature, markets and stock exchanges apparently were considered less important or even insignificant in a bank-based financial system *par excellence* like the German one. Instead, large universal banks were regarded as the necessary prerequisites for Germany's late industrialisation.[11]

With regard to these opposite historiographies on both financial centres, it does not come as a surprise that Berlin does not play any role in a growing body of historical literature on market microstructures.[12] As the underlying 'rules of the game', microstructures not only are crucial to compare the efficiency of different financial markets but also to understand their long-term development. Since microstructures greatly differed among financial centres and government intervention before 1914 overall was rather weak, we can assume that market participants faced choices when it came to the question of establishing and running stock exchanges. Therefore, the particu-

6 Consequently, there are several extensive monographs on its history. See Morgan / Thomas (1969); Kynaston (1983); Michie (1999).

7 Baltzer (2007); Burhop (2011); Gelman / Burhop (2008); Fohlin (2007); Weigt (2005).

8 Burhop / Chambers / Cheffins (2011).

9 For the history of Berlin as a financial centre see the contributions in Pohl (2002). In addition, Gömmel (1992), provides a general overview of the historical development of stock exchanges in 19th century Germany.

10 Christof Biggeleben, in his social history of Berlin's commercial elite, has rediscovered the archives of the Berlin merchants' corporation which was also in charge of the administration of the bourse. See Biggeleben (2006). Besides these archives, our research draws on records within the archives of the Prussian ministry of Commerce and Trade which refer to stock market questions and of which important parts have only recently been classified.

11 This traditional view on the German financial system goes back to Alexander Gerschenkron's seminal contributions. See Gerschenkron (1962). According to Caroline Fohlin, this literature sometimes even considered markets and banks to exclude each other. See Fohlin (2007), p. 222.

12 Davis / Neal (1998); Davis / Neal / White (2003); Neal (2006); Neal / Davis (2005); Neal / Davis (2006).

lar institutional design of a stock exchange can be interpreted as corresponding to the needs of its stakeholders – or at least to the interests of the most powerful among them. However, in order to grasp such potential bargaining processes, it is essential to not only rely on formal legal rules as provided by published sources but above all to take into consideration the 'informal rules of the game' as expressed in actual trading practices. In their analysis of microstructures prevailing in the Paris financial market, Pierre-Cyrille Hautcoeur and Angelo Riva have made an important step in this direction. Drawing extensively on archival sources, the authors are able to contrast formal rules with what they call the *"actual functioning"* of the market.[13] Notably, Hautcoeur and Riva can demonstrate that some legal provisions have never been enforced in practice. Taking a very similar approach, we argue that securities trading at the Berlin Bourse primarily followed informal and unwritten modes of conduct. Like Hautcoeur and Riva, we try to *"understand the behaviour and motivations of the actual market players"* by studying hitherto unnoticed primary sources.[14] Moreover, the Berlin Bourse provides another interesting piece in the overall puzzle of market microstructures as its institutional design greatly diverges from what we commonly know from other financial centres during this particular period.

In addition, and as a second major contribution, this paper argues that Germany's famous universal banking system can only be fully understood when taking into account the peculiar role that these large banks played on financial markets. Traditional studies on the German banking system, inspired by the work of Alexander Gerschenkron, argued that large universal banks were able to significantly reduce information costs through long-term business relationships and ensuing monitoring mechanisms.[15] Industrialisation could therefore be financed at comparatively lower costs than in countries with much more fragmented banking structures. In recent years, however, the overall importance of universal banks for financing Germany's industrialisation was heavily questioned and a more nuanced picture gained strength.[16] According to this new perspective on the pre-1914 German financial system, universal banks only played a minor role for the financing of industrial growth at large. In turn, services of these particular financial institutes were crucial for that small minority of large industrial joint-stock corporations which were financed through the capital market. Thus, the characteristic system of interlocking directorates between joint-stock corporations and universal banks, which contemporaries used to interpret as a striking feature of

[13] Hautcoeur / Riva (2012), p. 1326. Riva (2007); Riva (2012).
[14] Hautcoeur / Riva (2012), p. 1328.
[15] Calomiris, (1995). This paper is itself a prominent example of asymmetric comparison.
[16] See Fohlin (2007), pp. 65-105, for an extensive discussion of the supposed nexus between universal banking and economic growth. In addition, see Burhop (2006b), and Edwards / Ogilvie (1996), who also downplay the role of universal banks for financing Germany's industrialisation. Wixforth (2017) provides a recent literature survey which, in turn, documents the importance of industrial financing as long-standing topic of research on the German universal banking system.

'bank dominance' over industrial companies, is now regarded as a signaling strategy. Having a bank manager on its supervisory board was a message which a corporation would send to the capital market in order to prove its sound financial conditions.[17] As a consequence of this new interpretation of the German universal banking system, the relationships between banks and financial markets, which have been neglected so far, take center stage.[18] However, research on the influence of universal banks on the German financial market still almost exclusively concentrates on the primary market, i.e. the issuance of new securities.[19] Therefore, we contribute to this new field of research by highlighting the consequences which resulted from the simple fact that banks also enjoyed direct access to the trading floor. In addition to Sibylle Lehmann's documentation of the importance of universal banks for initial public offerings, we provide evidence that these banks also played a crucial role on the secondary market, i.e. for the actual trading activity in shares.

We develop our hypotheses by focusing on a particular feature of market microstructures, namely broker-dealer-relationships which had an impact on how orders were carried out in practice. These relations are analysed through the prism of a broad principal-agent-model which is discussed in the second section, after the following section has briefly outlined the evolution of market size in both places. The heart of our paper is the third section, which contrasts practices of financial intermediation prevailing on the Berlin Bourse with those characteristic of the London Stock Exchange. Section four then links the role Berlin's largest banks played inside the stock exchange to their functions in other business fields and also briefly addresses the resulting issue of market power. The last section finally concludes.

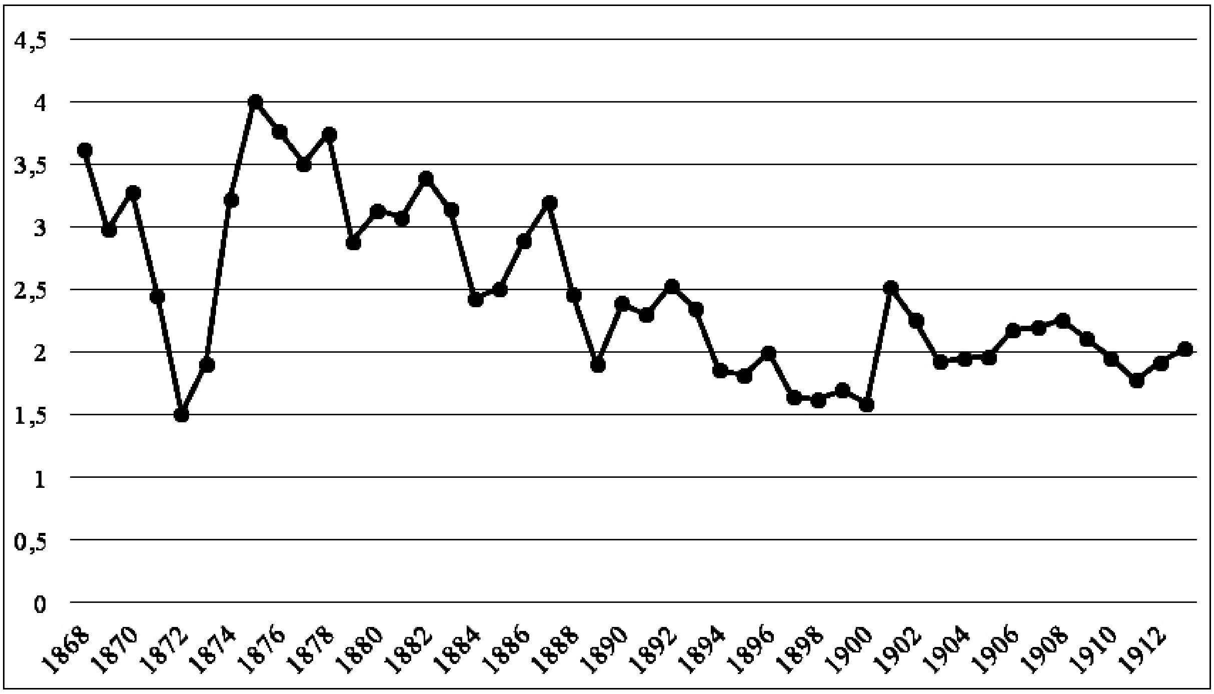
2. Differences in market size

As a first attempt to explain the divergence in microstructures between London and Berlin, one might assume that they simply resulted from the obvious difference in size of both markets. Indeed, there is no doubt that trading activities at the London Stock Exchange exceeded the overall volume of transactions ever carried out in Berlin by far. First of all, even though the total number of shares listed on the Berlin Bourse increased more than twentyfold, with only 155 securities

[17] See Fohlin (2007), pp. 106-168, who elaborated this signaling hypothesis. For further quantitative evidence see Burhop (2006a).
[18] For a similar interpretation see Tilly (1998), p. 20.
[19] Lehmann (2011); Lehmann-Hasemeyer (2014).

listed in 1863 to about 3,000 in 1913,[20] the London figures rose from less than 500 to more than 5,000 during the same time period.[21] In addition, the total nominal value of all shares listed in Berlin clearly lagged behind its London counterpart. So in 1906, the only year for which we possess the relevant data, this figure reached the total of 92,503.2 million Mark in Berlin,[22] whereas in London in 1903, the equivalent figure amounted to 8,833.8 million Pound Sterling – about twice the Berlin amount.[23]

Figure 1: Ratio of amounts settled on 'Stock Exchange Account Days' in London to 'Gesamt-Inkasso-Verkehr' of the 'Bank des Berliner Kassen-Vereins', 1868-1913, current prices



Sources: Matthews (1921); Bank des Berliner Kassen-Vereins, Geschäftsberichte 1869-1914.

Unfortunately, contemporary statistics do not provide figures on turnover, neither for Berlin nor for London, which could directly reveal the extent of trading activities in both markets. However, we can rely on the data of both clearinghouses, which have already been used by contemporaries in order to approximate turnover activity. Of course, these data only provide a crude approximation to the overall turnover because only a small fraction of all stock exchange transactions was finally

[20] Berliner Jahrbuch für Handel und Industrie (1914), vol. 1, p. 320.
[21] Michie (1999), p. 95.
[22] Berliner Jahrbuch für Handel und Industrie (1908), vol. 1, p. 212. However, it seems as if this number is largely inflated by the fact that with regard to government bonds listed on the Berlin Bourse the total nominal value of these bonds was simply added up instead of only taking into account that part of the bond which was actually traded in Berlin. Usually, government bonds were cross-listed on several foreign exchanges.
[23] Michie (1999), p. 88.

settled via payment and delivery. Nevertheless, comparing the Berlin and London figures at least allows for assessing the relative weight of both markets. Figure 1 therefore depicts the ratio of the total sum of money settled by the London Bankers' Clearing House on so called 'Stock Exchange Account Days' to the total amount cleared by the 'Bank des Berliner Kassen-Vereins', i.e. the Berlin bankers' clearinghouse.[24]

We see that 'turnover' in London always was significantly higher than in Berlin. But while it had initially exceeded the Berlin Bourse almost four times, the ratio was later reduced to about twice the Berlin amount. Thus, the latecomer clearly caught up but the pioneer still stayed in a dominant and uncontested position.

Since the London Stock Exchange provided the much larger securities market, one might argue that the more sophisticated system of intermediation prevailing there, with its peculiar division of labour among brokers and jobbers, resulted from a stronger need for specialisation. However, looked upon in more detail, this functionalistic argument does not hold. While there is certainly some truth in this observation, it cannot account for the divergence in microstructures of both stock exchanges. First, most of the institutional features of the London Stock Exchange had already been established in the early years of this organisation, which was before the massive expansion of securities trading took place in the second half of the nineteenth century.[25] Second, even when the Berlin market reached a size which corresponded to that of the London market in its early days, there were no attempts whatsoever by market participants to overtake some of the London institutions. Instead, both stock exchanges stayed on their respective paths of development.

In fact, throughout the century, the evolution of both stock exchanges, like that of many others, was highly path-dependent. But whereas the London Stock Exchange was founded at the end of the eighteenth century as a private club where only members, i.e. brokers and dealers, had access, the Berlin Bourse rather constituted a sort of public marketplace which could be entered by all merchants of the city, regardless of whether they specialised in securities trading or not. The latter thus followed the tradition of many exchanges in Continental Europe, which originated from the public fairs that were organised periodically at particular trading venues during the early modern period.[26] As a result, in London, we can very early observe the emergence of a new specialised group of financial intermediaries whose only task was to carry out buy and sell orders at the Stock

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24 Since the principal purpose of the Berliner Kassen-Verein consisted in facilitating securities trading, the total sum of its clearing activity can be compared to the amount of settlements on Stock Exchange Account Days in London. The ratio was calculated on the basis of a nominal exchange rate with one Pound Sterling equaling twenty German Marks.

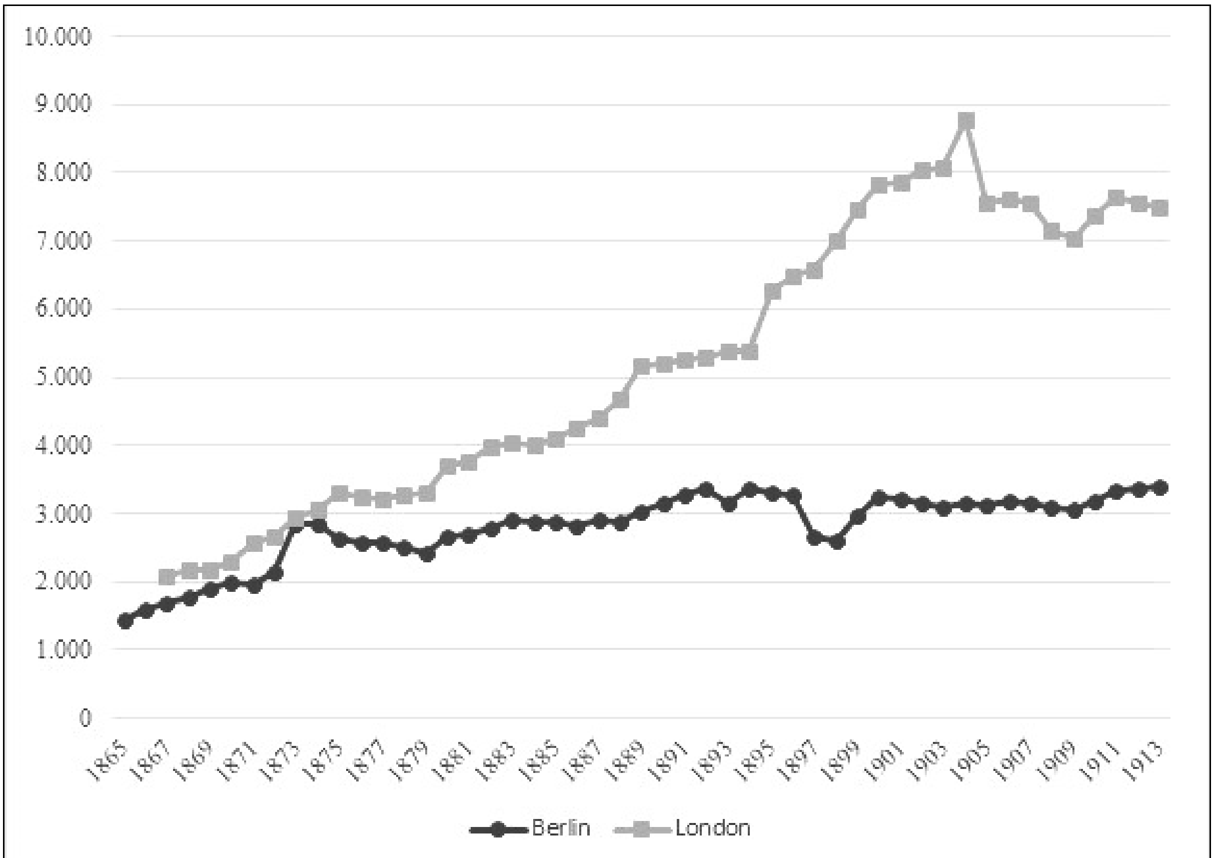
25 Michie (1999), p. 69.

26 Buchner (2017).

Exchange. In addition, from the very beginnings of the London Stock Exchange, its members were prohibited from carrying out other financial activities than securities trading. In Berlin, instead, securities trading continued to be carried out by bankers and other financial intermediaries who, for that purpose, gathered regularly at the Bourse as a public venue.

In turn, having a closer look on the total number of people frequenting both stock exchanges, as illustrated in figure 2, there is a certain irony to the development of visitors in both places. While the London Stock Exchange, which many German observers admired because of a supposedly strict access policy, attracted ever more people until membership was finally limited in the early twentieth century, the total number of visitors to the Berlin Bourse, which was more or less open to the public, was rather stagnating since the late 1880s.

Figure 2: Total visitors to the stock exchange, 1865-1913



Sources: LMA, CLC/B/004/B/03/MS19297/6-22; Biggeleben (2006), p. 255; Korporation der Kaufmannschaft von Berlin (1920), p. 317; Börsen-Enquete-Kommission (1893), p. 385; Bericht über Handel und Industrie von Berlin (1889-1903); Berliner Jahrbuch für Handel und Industrie (1904-14); Correspondenz der Aeltesten der Kaufmannschaft von Berlin (1879-84); LA Berlin, A Rep. 200-01, n° 433, 568, 601, 1158, 1244.[27]

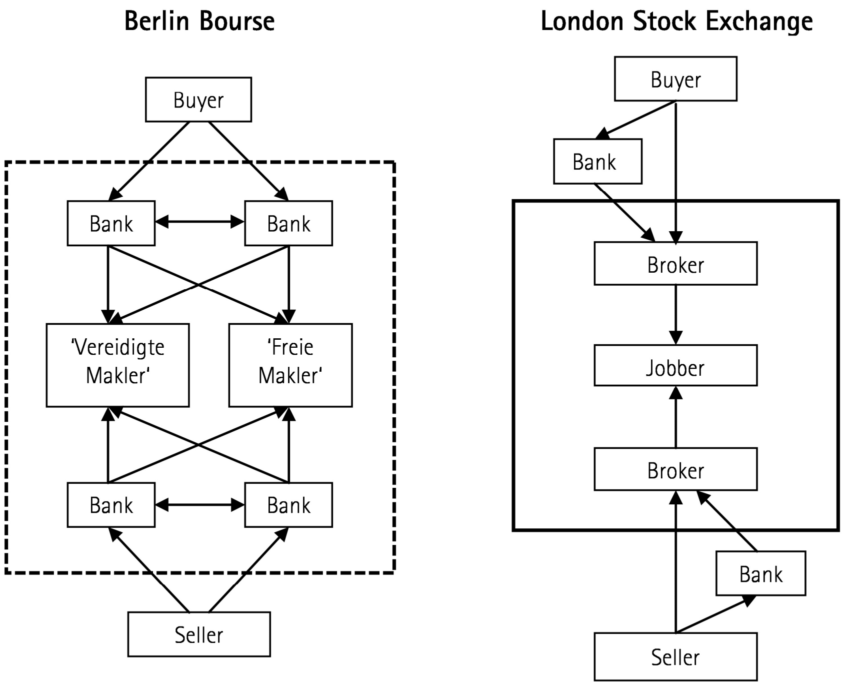
[27] More detailed information on the calculation of total numbers of visitors is available on request.

How does this stagnating number of visitors to the Berlin Bourse correspond to an ever increasing turnover as shown in figure 1? In part, both phenomena taken together can be interpreted as evidence for the official market being progressively bypassed by inter-bank dealings, as we have argued elsewhere in more detail.[28] On the other hand, the expansion of overall trading activity on the Berlin securities market being carried out by a rather stable number of intermediaries can also be considered a form of market concentration. Both interpretations, however, require a more detailed look on practices of financial intermediation in Berlin.

3. Principals and agents in securities trading

An historical institutional analysis of trading practices has to start with a closer look on the most important players involved in economic exchange. To this end, figure 3 illustrates all the parties, and their mutual relationships, which were engaged in bringing buyers and sellers of securities together in London and Berlin.

Figure 3: Financial intermediation at the Berlin and London stock exchanges



Source: Own diagram based on Prion (1930), p. 15.

[28] Buchner (2017), pp. 224-227.

Usually, buyers and sellers of securities did not directly enter the stock exchange, although they could do so in Berlin which is symbolised by the dotted line. However, in most cases they would entrust a bank with the execution of their orders, whereas in London private clients could also immediately go to a broker of the stock exchange. Only the latter were supposed to intermediate between the private public outside and the jobbers on the trading floor who specialised in certain groups of securities and, thereby, 'made the market'. Thus, there was a distinct division of labour according to which a broker was not allowed to trade on his own account or to make prices, which was the task of the jobbers who, in turn, were prohibited from accepting orders of private clients. In Berlin, instead, banks directly brought their clients' orders to the floor. There, two distinct groups of intermediaries, so called sworn and free brokers, should match the buy and sell sides. It is important to notice that we face a crucial semantic problem in this respect since the German word 'Makler' literally translates to 'broker' but the economic role of these 'Makler' rather corresponded to that of the London jobber. However, they were also allowed to accept orders from the private public, while banks could always match their orders with each other which is symbolised by the corresponding arrows. Therefore, the division of labour between banks and 'Makler' was less clear-cut than the one between brokers and jobbers in London.

From an analytical perspective, what resulted from this process of intermediation in both places was a two-stage principal-agent constellation in which the agent of stage one became the principal at stage two. Following the standard PA-model, we assume that there is an information asymmetry between the principal and its agent which the latter might misuse in order to reap benefits to the former's disadvantage.[29] However, besides this general threat of opportunistic behaviour, the relationships among principals and agents within the stock exchange were characterised by some particularities of securities trading. First, the length of a single transaction usually was extremely short as buy and sell orders were executed during only one trading day. This further limited the scope of control which principals could have on their agents. However, secondly, clients and their banks or brokers could always choose among a great number of potential intermediaries which means that agents had to enter into competition with each other. Finally, although principals did not employ their agents in long-term contracts, both parties often carried out similar transactions with each other for an extended period of time and, thus, established long-term business relationships. Consequently, relations between principals and agents in this two-stage process of securities trading corresponded to what can be called a repeated game. This aspect is crucial for the following analysis as it allowed intermediaries to build up reputation.

[29] See Laffont / Martimort (2002) for an extensive discussion.

Moreover, we modify the traditional PA-model in two further aspects. First, we focus on strategic interaction between principals and agents in contrast to a prevailing literature which treats PA-relationships primarily as top down decision making processes.[30] Secondly, and even more importantly, we deliberately include the social and cultural context of actors into our analysis. This extension of our research focus is very much inspired by the work of Avner Greif who convincingly demonstrated that the stability of economic transactions often is guaranteed by auxiliary transactions stemming from the social and cultural realm.[31] In the following empirical analysis, we will argue that Germany's large banks became the dominating players in this two-stage process of securities trading. Thus, the formal and informal microstructures of the Berlin Bourse allowed the largest banks to accumulate substantial market power and shape the unwritten rules of the game according to their needs.

4. Microstructures and trading practices

As already mentioned above, the London Stock Exchange and the Berlin Bourse greatly differed from each other with regard to their overall organisational structures which are summarised in table 1. In order to grasp the full meaning of these differences, however, we will now have a closer look on their consequences for daily trading practices.

[30] Meyer (2003).
[31] Greif (2006).

Table 1: The microstructures of the London Stock Exchange and the Berlin Bourse in comparison, c. 1860-1914

Dimension	London Stock Exchange	Berlin Bourse
legal status and governance of stock exchange as an organisation	- trust / private club - dual control by owners of the exchange ('trustees') and Committee for General Purposes (CGP) elected by members	- formal State supervision - de facto self-government and self-regulation by the merchants' corporation (owner of the bourse); since 1903 by newly founded chamber of commerce
members / visitors and conditions for access	- access for members only (and their clerks) - one-time entrance fee and annual subscription fee, equal for all members - new members have to provide three guarantors held liable for the candidate	- open to every merchant buying an entrance ticket - graduated tariffs according to the size of business done by firm - new members have to provide three recommendations by existing visitors (no liability by the latter)
legal basis of stock exchange transactions	- in general, laws of agency according to Common Law - particular terms and conditions: rules and regulations as codified by the Stock Exchange	- in general, laws on commission business according to Commercial Code of 1861 - particular terms and conditions: rules and regulations codified by stock exchange authorities - in addition: particular terms and conditions of banks
intermediation between public and trading floor	- brokers only	- banks, commission houses and 'brokers'
intermediation on the trading floor	- jobbers only	- sworn and free 'brokers' - also inter-bank dealings
order execution and price formulation	- continuous dealership market - 'dealing by making a price'	- spot market: single batch auction at the end of trading time ('single price') - futures market: auction at beginning of trading, then continuous dealing
price registration	- price registration decentralised - left to market participants	- official price registration carried out by sworn brokers and supervised by stock exchange authorities
settlement and payment	- fortnightly settlement - Stock Exchange Clearinghouse since 1873	- spot market: settlement on the next day - futures market: settlement at end of the month ('ultimo') - clearinghouse for futures trading since 1869 ('Liquidations-Verein für Zeitgeschäfte') as part of the bankers' clearinghouse ('Bank des Berliner Kassen-Vereins')

Sources: See text.

Contrary to London – as well as to other financial centres like Paris or New York –, banks enjoyed direct access to the stock exchange in Berlin. Following the usages of commercial life, being able to personally visit the bourse was even considered a central characteristic of a Berlin banker. As a consequence, the vast majority of all banks situated in the German capital also showed up on the list of regular visitors to the Berlin Bourse. For instance, 365 out of 491 banks officially registered in Berlin, in 1909, also can be found on the official list of so called 'independent visitors' to the exchange.[32] At the same time, however, the total number of independent visitors to the Berlin Bourse added up to 1614 firms. Apart from the small number of 70 to 80 sworn brokers, the vast majority of the remaining visitors consisted of smaller firms which were not officially labelled 'banks' and often acted both as commission houses and as brokerage agents. Unfortunately, it is impossible to retrace the business profile of those firms in more detail since almost none of them left any archival evidence. Similarly, the only available statistic on that issue does not distinguish between 'banks', 'commission houses', and 'free brokers'. Thus, we only know that the total number of all these firms increased from 367 in 1870 to 905 in 1893.[33] However, from this we can already derive that division of labour between banking and brokerage services was much less distinct in Berlin than in London. There, only members, and their clerks, were allowed to enter the trading floor, with their overall number increasing from less than 1,000 in the 1850s to more than 5,000 at the turn of the centuries. According to the figures available, both groups of members, brokers and jobbers, benefitted from this increase in membership in more or less equal terms.[34] What is even more important with regard to the prevailing division of labour is the fact that each member was restricted to act as either a broker or a jobber. Though it was possible to change one's function, it was never allowed to act in 'dual capacity' and carry out both businesses at a time. Furthermore, the rules and regulations of the London Stock Exchange prohibited members from taking over additional financial activities outside the exchange.[35]

The members of the London Stock Exchange continued to follow the traditional principles of *"absolute ownership and unlimited liability"*, as one author has put it.[36] That is the reason why small-scale private firms with only two or three partners still shaped trading at the London Stock Exchange in the early twentieth century. The largest commercial banks in Berlin, in turn, were organised as joint-stock companies with limited liability and became ever more dominating within

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[32] This figure results from comparing the *Deutsches Bankier-Buch* of 1909 (Berliner Börsen-Zeitung (1909)) to the *Alphabetisches Verzeichnis der selbständigen Besucher der Berliner Börse* in 1910 (Aelteste der Kaufmannschaft von Berlin (1910)). Unfortunately, we do not possess similar figures for the whole period under consideration.

[33] Eschenbach (1893), p. 396.

[34] Kynaston (1983), pp. 67 et seq.

[35] Michie (1999), p. 97.

[36] Reader (1979), p. 18.

the bourse. In the early 1880s, for example, the equity capital of Raphael & Sons, one of the biggest broker houses in London, amounted to 2.9 million Pound Sterling.[37] This more or less corresponded to the share capital of 60 million Mark of banks like Deutsche Bank, Disconto-Gesellschaft and Darmstädter Bank für Handel und Industrie whose total assets, however, already well exceeded the amount of 200 million Mark at that time.[38] Similarly, with regard to profits amounts ranging from 20,000 to 40,000 Pound Sterling seem to have been common for larger broker houses like Capel & Co. or Cazenove & Co. around the turn of the centuries.[39] At the same time, the annual profits of the Deutsche Bank and the Disconto-Gesellschaft began to total more than 20 million Mark.[40] Of course, provision from securities trading made up for only a part of this sum. Nevertheless, these numbers give an idea about the different size and market power of the largest commercial banks in Berlin in comparison to the London brokers.

Moreover, the largest Berlin banks involved in securities trading also surpassed the London brokers with respect to man-power. Whereas the number of clerks per member of the London Stock Exchange was restricted to two authorised and three non-authorised clerks after the turn of the centuries – due to lack of space[41] –, it obviously was quite common for large Berlin banks to have some twenty 'representatives' on the trading floor.[42] In fact, only about one half of all visitors frequenting the Berlin Bourse consisted of firm owners. The other half was composed by clerks of whom a larger part, and in particular the authorised clerks, is supposed to have visited the bourse on behalf of a leading bank. Employing a substantial part of all market participants also ensured that representatives of the larger banks regularly took seat in the executive board of the Berlin Bourse whose members were elected by the visitors to the stock exchange.[43] Having a closer look on the list of members elected each year, a few characteristics become evident.[44] First of all, quasi all the large commercial banks were represented there by at least one of their directors. From this we can also see that the Berlin Bourse was closely integrated into the city's broader commercial and financial elite. Maybe the most significant example for these close relationships is given by the long-standing chairman of the executive board of the Berlin Bourse, Johannes Kaempf. Since 1871

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[37] Chapman (1987), p. 30.
[38] Reitmayer (1999), pp. 400-409.
[39] Reed (1975), pp. 68-71; Kynaston (1991), p. 90.
[40] Dahlem (2009), pp. 347-351.
[41] Michie (1999), p. 104.
[42] Buchwald (1904), p. 133.
[43] Until the passing of the German Stock Exchange Act in 1896 this board was called 'Börsenkommissariat', from then on it was named 'Börsenvorstand'. However, the functions of the executive board more or less remained the same throughout the whole period. In particular, the board was responsible for granting listing permissions and for supervising compliance with the rules and regulations in daily trading. The executive board was organised in two distinct departments, one in charge of the stock market and the other dedicated to the commodities exchange.
[44] A complete list of names of all members belonging to the executive board of the Berlin Bourse between 1861 and 1914 is available from the author on request.

he was director of the Berlin branch of the Darmstädter Bank für Handel und Industrie and later joined the supervisory board of the bank. In 1881, Kaempf became also member of the executive board of the Berlin Bourse and since 1888 until his death in 1918 he acted as its chairman. But, in addition, Kaempf equally held a number of political offices. Most importantly, he was a member of the German Reichstag whose president he also became in 1912. Hence, for many years the Berlin Bourse was run by one of the leading figures among the city's financial and political elite.[45] In London, on the contrary, the most important figures of the City were not members of the Stock Exchange and, vice versa, the Stock Exchange's managers and directors did hardly play any role outside.[46] Nevertheless, the list of members of the executive board in Berlin also shows that private banks continued to play an important role in the stock exchange, although they generally lost ground to the growing joint-stock banks. This is particularly true for the Bleichröder bank or for the house of Mendelssohns who traditionally have been heavily engaged in securities trading. Together with the large joint-stock and universal banks, these long-standing private banks regularly formed part of such influential associations like the so called 'Preußenkonsortium' or the 'Stempelvereinigung' which played a crucial role in securities trading. Whereas the former constituted a bank syndicate, established in 1859, which was entrusted with the issuing of Prussian governments bonds, the latter was originally founded in the early 1880s in order to object the introduction of the stamp tax. Later, this group should become a general pressure group explicitly defending the interests of the largest banks with respect to securities trading.[47] Therefore, it seems appropriate to regard all those banks which belonged to these circles as leading players within the stock exchange. At the same time, however, it is important to notice that there were also a considerable number of small- or medium-scale private bankers among the members of the executive board of the Berlin Bourse.

In general, the openness of the Berlin Bourse, which figured as a sort of meeting place for the financial elite, caused a much greater heterogeneity among its visitors. This included the directors of large and influential banks on the one hand as well as a great number of small-scale private speculators on the other hand. The differences with regard to capital resources available to each visitor were taken into consideration by a system of graduated tariffs with nine, later fifteen, price categories. Compared to London where entrance and subscription fees could add up to a maximum amount of 1,300 Pound Sterling at the beginning of the twentieth century[48], the prices of entrance tickets were rather modest in Berlin. Although prices had been raised several times since the 1860s,

45 Details on Kaempf's biography in Biggeleben (2006), pp. 164-169.
46 Kynaston (1983), pp. 25-65.
47 Reitmayer (1999), pp. 22, 39 et seq.
48 Kynaston (1983), p. 73. Since the early 20th century, new members also had to buy so called 'nominations' from retiring members.

the cheapest entrance ticket was still available for only 30 Mark on the eve of the First World War. The most expensive category, in which usually only the largest banks were grouped, then amounted to 5,000 Mark. Since the largest banks regularly paid the highest entrance fees, it does not come as a surprise that they also demanded a corresponding stake in running the affairs of the bourse. But even though some leading bankers deplored the poor financial conditions of many visitors to the Berlin Bourse, most of them nevertheless outright refused to adopt similar capital requirements as they were prevailing in London and as many external experts had proposed.[49] Wilhelm Kopetzky, long-standing member of the executive boards of both the Deutsche Bank and the Berlin Bourse, is a perfect case in point. When he was interviewed by the enquiry commission which prepared the German Stock Exchange Act, Kopetzky repeatedly stressed the peculiar institutional history of the London Stock Exchange which would not suit the German traditions. In particular, however, he rejected stricter capital requirements precisely because these would exclude a great number of people from further visiting the bourse.[50] Obviously, in the eyes of the leading bankers, the advantages that came along with the general openness of the Berlin Bourse as an organisation must have outweighed the inconveniences. Therefore, we must have a closer look on the way in which securities trading was carried out in practice.

From a legal perspective, banks acted as commission agents for their private clients outside the exchange. But in order to understand the peculiar role that German banks played in securities trading, it is important to take into consideration the right on so called own-name transactions which German Commercial Law granted them. According to article 376 of the German Commercial Code of 1861, the commission agent was allowed to directly sell to or buy from his client instead of intermediating his client to a third party. However, this practice was only possible with goods which had an official market or exchange price.[51] Thus, contrary to the London broker the Berlin banker did not have to pass on his clients' buy and sell orders to a third party, but instead 'stepped in' – as this practice was called – and became himself counterparty to his client. In particular, this allowed those banks which were also largely engaged in issuing new securities to sell stock from their own account to clients wishing to buy shares. This is also the reason why the banker Paul Wallich later called the commission business of banks an *"auxiliary branch"* to the underwriting business.[52] In order to grasp the impact of this right on own-name transactions on the very practice of securities trading, it is revealing to compare it to the rules and regulations of the London Stock Exchange. The latter strictly confined the broker to his role as an agent of his private client,

49 Schulz (1994), pp. 259-274.
50 Börsen-Enquete-Kommisiion (1892/93), pp. 227-229.
51 For an extensive discussion see Endemann (1895).
52 Wallich (1978), p. 376.

i.e. his principal.[53] Not only was the broker prohibited to directly buy from or sell to his client on his own account, as it was common for the Berlin banker. But, what is even more, the broker was also supposed not to intermediate, at the same time, both for the buyer and the seller of particular shares. In general, only the clients on the buy and sell side respectively were regarded as counterparties to each other. The brokers and jobbers involved in the bargaining process, however, were considered to only fulfil intermediary tasks. As a consequence, every single transaction in securities that was entered on the trading floor had to be retraceable from the buy order to the corresponding sell order.[54] On the Berlin Bourse, however, it was often much more difficult to identify a single order as such. In particular, the large commercial banks first tried to match opposed buy and sell orders in the same securities inside their own stock market departments because this allowed them to economise on the brokerage fees. The rest of their clients' orders which could not be netted out in this way were then sent *en bloc* to the trading floor. Thus, for the intermediaries there, whether it was the representative of the bank or the 'Makler', it was not necessarily clear how many single orders made up the total amount that had to be bought or sold in particular shares. The client of a Berlin bank, in turn, did not bother where the shares he had bought actually came from because the bank itself was his real counterparty.[55]

Critics of the right on own-name transactions feared that banks might defraud their clients, if they were able to sell securities to their clients from their own account at a higher price than they had originally bought them themselves.[56] Of course, banks were never willing to give up this privilege and, as a consequence, they were regularly claiming this right for every single transaction that they carried out for their clients in their general terms and conditions. In fact, it seems as if the banks' clients also largely welcomed this practice since it prevented them from being referred to a third party which they did not know. Instead, their bankers were immediately liable to them. However, unlike in London where the rules and regulations of the Stock Exchange set the terms of business between clients and brokers in a centralised way, each Berlin bank set up its own terms and conditions. Accordingly, a great variance could be found in these regulations with regard to what was required from clients since banks enjoyed great scope in formulating their terms of business.[57] Thus, banks usually required a number of prerogatives from their clients of which the right

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53 Melsheimer / Gardner (1905), and Schwabe / Branson (1914), provide extensive contemporary discussions of the rules and regulations of the Stock Exchange.

54 The need to be able to identify every single bargain at every stage of the transaction process was also intensified by the fact that registered stock constituted a large part of all the securities traded in London.

55 In addition, securities traded in Berlin were mainly bearer shares.

56 Weber (1999/2000 [1894-96]), pp. 412-459.

57 It was only with the passing of the so called 'Bankdepotgesetz' in 1896, a by-product of the Stock Exchange Act which was passed in the same year, that some minimum standards were established in this respect. For details see Buxbaum (2002).

on own-name transactions just constituted the most important one. In addition, it was also completely left to each bank which margin it would demand and what time period it granted to clients to make payments. Through their general terms and conditions banks could therefore further shift the asymmetry in information between them and their clients in their advantage.

Could banks in Berlin thus systematically reap benefits to the detriment of their clients? While we can certainly not exclude that this might have happened in some cases, there were nevertheless some important institutional mechanisms which prevented principals outside the bourse from being defrauded by their agents. First of all, competition among banks did play a certain role as will also be shown in the next section. However, price competition alone is a deficient mechanism when it comes to differentiate between 'good' and 'bad' agents.[58] Therefore, we argue that it was in the very self-interest of 'good' agents to send out market signals which allowed principals to identify them as solid and reliable. In fact, the particular terms and conditions of banks can be interpreted as such a signal through which each bank could reveal its relative position within the very heterogeneous group of intermediaries engaged in securities trading.[59] In general, it turns out that larger banks granted more favourable conditions to their clients than many of the small-scale commission houses. For instance, leading banks usually conceded a period of grace of two or three days, if a client had to increase his cover, whereas smaller commission agents often proceeded to forced execution the next day. Furthermore, in the early twentieth century, when an increasing number of so called 'bucket shops' threatened to undermine the reputation of financial intermediaries as such, the leading Berlin banks took more decisive steps to warn the public against these dubious enterprises. These bucket shops basically constituted establishments where people could speculate on the movement of stock prices without having to buy the underlying securities and, therefore, with only a limited amount of money. Thus, they rather resembled a betting office but, in Germany, many of them were misleadingly labelled 'banks'. When ever more of these bucket shops had been founded around the turn of the centuries, the central association of German banks (CVBB) finally established an office where information about these dubious 'banks' could be gathered.[60] In addition, the CVBB also sought to cause the German government to put the notion of a 'bank' under legal protection.[61] In London, on the contrary, where bucket shops also posed a problem for ordinary securities trading, it was the managers of the London Stock Exchange who took similar measures. Since the 1880s, for example, the managers regularly published a notice in the most important financial newspapers which clearly stated that ordinary members of the Stock

58 In the extreme, markets suffer from a 'lemons'-problem and completely break down. Akerlof (1970).

59 The enquiry commission put up in the early 1890s in order to prepare the passing of the Stock Exchange Act also systematically compared the terms and conditions of several banks. On details see Endemann (1895).

60 Documents on this initiative can be found in: GStAPK, I. HA Rep. 120, MfHuG C XI 1: n° 45 vol. 2.

61 This, however, should only happen in 1934. Köhler (2005), p. 17.

Exchange were not allowed to send out advertisements for their services. This meant that a private client who received such advertisements could be sure that these referred to what was called an 'outside broker' and, consequently, was warned to be especially careful.[62] In Berlin, in turn, the care for the reputation of the stock exchange community was the task of the leading banks.

When it comes to the intermediation on the trading floor, banks again play a crucial role in Berlin. And again, the comparison to practices prevailing in London is very telling. There, brokers and jobbers were considered to do business on an equal footing and it often happened that former brokers started to deal as jobbers and vice versa. Whereas the brokers were responsible for dealing with the public outside the stock exchange, the jobbers only intermediated between members and, in particular, were supposed to continuously offer buy and sell prices to the brokers. Since there were several thousands of different securities listed at the London Stock Exchange, specialisation in certain shares was necessary with jobbers dealing in the same securities standing together in particular corners of the trading floor. In so doing, jobbers also spatially constituted the different 'markets' within the exchange.[63] In Berlin, instead, relationships between bankers and 'Makler' were characterised by distinct social hierarchies. For the members of Berlin's *haute finance*, in particular, it would have been unthinkable to work as a 'Makler'. The latter were thought of necessary personnel to formulate and register prices but they were hardly looked on as equal trading partners.

Traditionally, as in many other financial centres, only officially appointed merchants were allowed to broker in the Berlin Bourse.[64] With the expansion of trading activities, however, ever more free brokers started to offer their services and, consequently, engaged in competition with the sworn brokers. Finally, this state of affairs was also legally acknowledged by the introduction of the Commercial Code of 1861 which liberalised the business of brokerage. But in contrast to many other German commercial centres, the merchants' corporation in Berlin, which was responsible for running the bourse, continued to appoint sworn brokers. The reason is that the latter were further needed for formulating and registering the official prices, a task of utmost importance to the governing bodies of the Berlin Bourse. Thus, all editions of the rules and regulations of the bourse explicitly stated that there was an 'official' registration of prices supervised by the authorities of the stock exchange. This, in turn, was crucial for the commission business of the banks because according to the German Commercial Code banks were only allowed to match their own dealings with those of their clients, i.e. 'step in' and become the actual counterparty of their clients, as described above, whenever there was an 'official price'. In order to carry out this official price regis-

[62] Warren (1905), p. 160; Wilson (1897), p. 12 et seq.
[63] Attard (2000).
[64] See Struck (1990 [1881]), pp. 186-224, for a short history of the business of brokers in Berlin.

tration in practice, the sworn brokers were divided into groups each of which was responsible for registering the prices of particular securities. These securities were the only ones in which the corresponding sworn brokers were allowed to deal in and they were allocated to them by the governing bodies of the exchange. So, whereas the specialisation of jobbers in London was completely left to market forces, the 'markets' which the sworn brokers made up in Berlin were the result of hierarchical transactions.[65] The latter were also embedded in a broader regulatory regime which can be characterised as 'paternalism'.[66] Accordingly, the allocation of securities to the different groups of sworn brokers was explicitly regarded as a sort of disciplinary device by the executive board of the bourse because securities obviously greatly differed with regard to turnovers, i.e. their income-generating potential.[67] Furthermore, the sworn brokers of the Berlin Bourse markedly belonged to an inferior social class than the members of the executive board. In fact, many of them were former bank clerks.[68] As a consequence, leading Berlin bankers engaged in securities trading looked on the sworn broker of the bourse rather as their subordinates than as equal trading partners.

Free brokers, in turn, constituted a very heterogeneous group with many small brokers who always tried to leave the trading floor with their books being 'even' on the one hand, but also some specialised agents who acted as market makers in particular securities on the other. However, one group of free brokers stands out. These were the agents of the so called 'brokerage banks' founded in the early 1870s as joint-stock banks specialised in securities trading.[69] The brokerage banks provided guarantees for the agents they employed as free brokers and established an internal credit rating mechanism which categorised market participants in Berlin according to their respective creditworthiness. The latter thus determined the extent to which the agents of the banks, who exclusively intermediated between visitors to the bourse, were allowed to engage in dealings. The first brokerage banks had been established by the leading commercial banks in Berlin as an instrument to diversify their risks. As a consequence, the supervisory boards of the brokerage banks were also dominated by the largest banks involved in securities trading.[70] Contemporary observes therefore often blamed the leading bankers for abusing their positions to get inside information about buy and sell offers in the market because members of the supervisory board of brokerage banks

[65] As hybrid organisations, stock exchanges are characterised by a mix of institutional features of both markets and hierarchies. Richter / Furubotn (2010), p. 330.
[66] Berghoff (1997).
[67] See the corresponding statement of the banker Emil Salomon in: Börsen-Enquete-Kommission (1892/93), p. 1242.
[68] This is shown by the surviving documents which candidates who applied for the office of a sworn broker between 1868 and 1872 handed in at the merchants' corporation, in: LA Berlin, A Rep. 200-01, n° 1386.
[69] See Kleine-Natrop (1913), for a contemporary account. Unfortunately, archives of the brokerage banks have been almost completely destroyed.
[70] There is some remaining archival evidence in the trade register for the so called 'Berliner Makler-Verein' for the years between 1899 and 1914. In this period, universal banks were by far the largest shareholders and their representatives all took seat in the supervisory board of this brokerage bank. LA Berlin, A Rep. 342-02, n° 63596.

were supposed to have access to the books of the agents employed by these banks.[71] Of course, it is impossible to prove these accusations *ex post*; this is all the more true as insider trading then was not legally prohibited. But there can be no doubt about the fact that leading bankers were able to influence the standing and creditworthiness of market participants since the ratings of the brokerage banks had to be passed by the supervisory board.

With respect to actual intermediation, free brokers were almost exclusively dealing in the futures market where the massive amount of turnover could not have been carried out by sworn brokers alone. In addition, free brokers always traded on their own accounts – similar to the jobbers in London –, whereas sworn brokers were legally supposed to only intermediate between third parties without taking over any personal financial liabilities. In practice, a division of labour between free and sworn brokers had thus been established in Berlin over time according to which sworn and free brokers primarily dealt on the spot and futures markets respectively.[72] The most important – and exclusive – task of sworn brokers, however, consisted in the daily registration of prices. On the futures market, sworn brokers merely noted down the prices at which bargains were closed by the free brokers. On the spot market, in turn, the official price was formulated in a very peculiar way which was characteristic for the Berlin Bourse.[73] There was only one spot price for each single share which was registered every day at the end of the official trading time. This price then was liable for the entire buy and sell orders which had been given before. This so called 'single price' constituted a mechanism that most of the market participants were very proud of and to which they also attributed the rise of the Berlin securities market since the late 1860s when the single price was formulated for the first time.[74] The idea behind this peculiar institutional feature was that by the very fact that only one single price existed the outside public had an instrument of control in its hands to make sure that their bankers always made the best price possible. This was particularly important when banks acted as immediate counterparty to the client, as was usually the case in Berlin. Therefore, the right on own-name transactions, as provided by the German law, the importance of an 'official' price notation and the formulation of a single price on the spot market of the Berlin Bourse had a distinct functional relationship to each other.[75]

Finally, the peculiar way of calculating a single price on the Berlin spot market at the end of the official trading time also augmented the possibilities for the large banks to 'regulate' prices of securities which they had issued themselves and for which they consequently felt 'responsible'.

[71] Weber (1999/2000 [1894-96]), pp. 338-340.
[72] See Buchner (2016), for a more detailed account on this system.
[73] Bürger (1913), pp. 37-69; see also Löb (1896), for the role of brokers in this process.
[74] See the statements of several bankers and brokers in Börsen-Enquete-Kommission (1892/93), pp. 179 et seq., 705, 1232, 1632, 1984.
[75] Tilly (1975), pp. 183 et seq.

Certainly, price management was regarded a central financial service of any issuing house in the nineteenth century.[76] Berlin banks, however, through their immediate access to the trading floor and the formulation of the so called 'single price' enjoyed much greater possibilities to successfully carry out this activity in practice. For instance, at the end of the official trading time bank representatives used to consult the various sworn brokers who registered the prices of the securities that their bank had issued. If they felt that prices would be too low or too high corresponding to the existing buy and sell orders, they could pass on to the brokers additional orders and thereby try to push prices up or down.[77] Of course, this sort of price management was only possible within certain limits and could not permanently ignore the forces of supply and demand. However, there is some quantitative evidence which suggests that the prices of newly issued shares at least tended to be 'managed' for some time after their introduction to the trading floor.[78]

In sum, the traditional organisation of the Berlin Bourse which provided banks with direct access to the trading floor ensured that the governance of the stock exchange as well as securities trading in practice were dominated by banks – and not by brokers. In particular, the large commercial banks benefited most from the prevailing microstructures. As members of the supervisory board they could influence the prescriptions of the official rules and regulations of the exchange. As intermediaries they channelled their clients' orders to the trading floor, while, at the same time, carrying out proprietary trading. In addition, thanks to their direct access to the floor they could also control the very process of price formulation. Therefore, the leading banks played a 'gatekeeping' role within the Berlin Bourse.[79]

5. Banks and the financial market in Berlin

In addition to their crucial role inside the bourse, the large Berlin banks strengthened their dominant position in securities trading by some complementary activities outside the stock exchange. First of all, these banks operated as associations for the protection of shareholders in securities which they had themselves issued. The capacity to do so was further increased by the famous

[76] On the London case, see Mikkelsen (2014), pp. 186-209.
[77] See Prion (1910), for a rather balanced discussion of this practice which was heavily contested by some contemporary observers.
[78] Lehmann-Hasemeyer (2014), pp. 115-117; Weigt (2005), pp. 157-163.
[79] The notion of banks as 'gatekeepers' of the German capital market is borrowed from Fohlin (2007), p. 161.

proxy voting rights which banks usually exercised for their clients in imperial Germany.[80] These allowed banks to pool the voting rights of many individual investors and, consequently, influence the decision-making processes in the general assembly of joint-stock corporations. At the same time, the fact that many large banks preferred to directly represent the interests of shareholders also prevented the emergence of an independent organisation similar to the British Corporation of Foreign Bondholders.[81] Like the practice of price management, described in the previous section, representing 'her' shareholders was considered an important financial service of an issuing house.

Furthermore, the large Berlin banks also provided the short-term money necessary to finance stock market activities. Since they funded the issuing of new securities via long-term credits as well, they fulfilled a key role in financing trading activity and linking the primary to the secondary market. Unfortunately, we lack any precise figures on this aspect and only possess a very broad account which, at least, allows us to assess the overall importance of this business for the leading banks. According to the figures available, the overall amount of short-term money, provided in form of so called 'Lombard' or 'Report' credit, on average, made up for 11 to 12 per cent of all assets of nine leading Berlin banks between 1900 and 1913.[82] Finally, like the executive board of the Berlin Bourse, the leading bankers also dominated the governing bodies of the Berlin clearing-house, the so called 'Bank des Berliner Kassen-Vereins'. Basically all the large banks had at least one representative in the managing board of this organisation.[83] Compared to other market participants, the leading bankers therefore clearly enjoyed a privileged access to potentially relevant inside market information.

Given this remarkable accumulation of important functions among Berlin's leading banks we finally must also address the question of whether this resulted in monopoly power which banks could misuse. In this respect, our analysis of trading practices on the Berlin securities market confirms the standard interpretation in recent literature according to which the pre-1914 German banking system still showed considerable competition among market participants.[84] Certainly, not all the banks which had access to the Berlin Bourse stood in equal competition with each other. Instead, there was rather competition among certain groups of similar banks, with the large and leading banks on the one side and a great number of small commission houses on the other. Therefore, following Sibylle Lehmann, we argue that Germany's largest banks constituted what can

80 Fohlin (2007), pp. 121-125.
81 This was the opinion of the president of the Reichsbank in a letter to the Prussian minister of Commerce, 22 June 1899, in: GStAPK, I. HA Rep. 120, MfHuG C XI 1, n° 45 vol. 1.
82 Beer (1999), p. 142. However, these figures have to be treated carefully, because they also include money not used for securities trading and, additionally, not all of it went to the Berlin market.
83 A complete list with the names of all members is available from the author on request.
84 Edwards / Ogilvie (1996); Fohlin (2007); Lehmann-Hasemeyer (2014).

be called an oligopoly; however, they obviously did not act as a cartel for there is no evidence that they could systematically exploit their market power. In other words, there was quite strong competition among the member banks of this oligopolistic circle. Moreover, Lehmann refers to the wide-spread topic in contemporary literature according to which issuing houses were heavily concerned with their long-standing business reputation and, therefore, proved to be quite strict when it came to lead new firms to the market. Given our explanation of signalling strategies used by banks in the previous section, we can draw a similar conclusion for the activities of banks on the secondary market. More precisely, the largest banks who benefited most from the favourable microstructures of the Berlin Bourse, in general, also displayed the most cautious business behaviour. Eventually, competition should not only be reduced to price competition as it also includes careful mutual observation among market participants. The latter definitely was the case on the trading floor within the Berlin Bourse.

6. Conclusion

This article provided the first in-depth account on the organisational history of the Berlin Bourse based on archival evidence. It showed that the Berlin stock exchange was characterised by many peculiar institutional features which substantially distinguish Berlin from other trading places. Among the most important characteristics in this respect, we highlight the large influence of banks on the very practices of securities trading as well as a strong reliance on informal social hierarchies as a regulatory regime. In particular, the comparison to the London Stock Exchange revealed that the self-regulation of securities trading at the Berlin Bourse was much stronger based on hierarchical transactions than on market forces. Furthermore, both stock exchanges fulfilled rather different roles within the corresponding overall financial system. Whereas the London organisation strived to actually centralise securities trading within its doors, its Berlin counterpart mainly acted as a public venue where official prices were registered. Therefore, while it is certainly true that banks and markets do not mutually exclude each other, one should not deny the fundamental differences between bank- and market-based financial systems respectively. Also, it was not the size of the market which determined the form of microstructures, but the interests of the most important players involved in securities trading.

In addition, our analysis of the microstructures of the Berlin Bourse perfectly illustrates the close ties which existed between banks and capital markets in the German financial system and the resulting amalgamation of banking and stock-broking activities. Prior to the First World War, *"a strong banking sector was operating in tandem with a well-developed stock market."*[85] This metaphor of a 'tandem relationship' between large banks and financial markets has to be taken seriously. Thus, in order to grasp the actual functioning of imperial Germany's financial system, we have to take into consideration both sides – markets *and* banks. Berlin's famous large banks not only played a crucial role for industrial financing, but, at the same time, they also constituted the key players on the financial market. What is even more, their roles outside and inside the stock exchange were not carried out in isolation but mutually enforced each other. In sum, these large banks therefore acted as powerful information brokers at the centre of Germany's financial system.[86]

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85 Burhop / Lehmann-Hasemeyer (2016), p. 431.

86 See Da Rin (1996), for a general analysis of Germany's banking system through the prism of economics of information.

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