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MANAGERS, FIRMS AND (SECRET) SOCIAL NETWORKS: THE ECONOMICS OF FREEMASONRY

By Fabio Braggion

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Managers, Firms and (Secret) Social Networks: The Economics of Freemasonry *

Fabio Braggion†

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Abstract

This paper studies the relationships between managers' affiliations with Freemasonry and companies' performance. Using a unique data set of 410 companies quoted on the London Stock Exchange between 1895 and 1902, I find that Masonic managers were associated with greater access to credit in small and young companies whose securities where traded over the counter. These companies earned higher profits, but the effect is not statistically significant. On the other hand, large publicly quoted corporations that were managed by Freemasons did not obtain greater access to credit; they had lower profits and lower Tobin's Q. These findings help to understand how social networks are related to companies' performances. Although social networks help to resolve agency problems between lenders and borrowers in firms that have difficulties in obtaining debt finance, in larger publicly quoted companies they are associated with worse agency conflicts between managers and shareholders and with worse economic performance.

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†CentER and Tilburg University.

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1 Introduction

The importance of social networks in determining economic outcomes is increasingly acknowledged by economists. While studies have focused on various social networks such as neighborhood effects (Bertrand et al., 2000; Duflo and Saez, 2003; Ioannides and Loury, 2004; Bayer et al., 2005), friendships (Costa and Kahn, 2007), education (Kramarz and Thesmar, 2007; Cohen et al., 2007) and various sociological measures of centrality (Barnea and Guedj, 2007; Hochberg et al., 2007), no economic study has systematically examined the economic relevance of the most celebrated and discussed social network: Freemasonry. The reason lies in the availability of data: the oath to secrecy that every Freemason is expected to comply with prevents the disclosure of information on individuals' affiliation with the outside world. Although studies on Freemasonry that employ today's data are nearly impossible, they become feasible when analyzing past historical periods. Members of the fraternity have passed away and Masonic lodges are sometimes willing to release membership information. Using a unique data set of 410 companies quoted at the London Stock Exchange between 1895 and 1902, this paper studies the impact of managers' affiliations with Freemasonry on various measures of companies' performances such as access to credit, accounting profits, and market valuation.

Freemasonry is a form of social network particularly attractive for economic analyses especially when studying companies' access to credit. Two typical frictions that characterize the credit market are asymmetric information and contract enforceability. Social networks are an effective tool to resolve these issues by allowing individuals to gather information at a low cost, resolve enforcement problems, and increase trust among market participants in situations where trade is not anonymous and information does not flow freely. For instance, the repeated interaction of a club's members are an occasion to acquire information about potential borrowers, while peer pressure and social sanctions within the club may help to enforce contracts. In Freemasonry, the elements of knowledge, trust, and social sanctions have a greater importance when compared to other networks studied in the literature. Freemasonry is a secret club: it is well documented in the sociological literature that secrecy is associated

with stronger group cohesion and deeper feelings of "belongingness" to the network (Simmel, 1906; Halzerigg, 1969; Fine and Holyfield, 1996). Freemasons are not known to the outside world, but they display strong relationships among each other, gain a better knowledge of each other, and develop a higher degree of trust in and reliance on each other. Freemasons could be more willing to lend to other Freemasons because, for instance, loans granted within the network have a lower probability of default. As a result, it is easier for a Freemason to face market imperfections related to a lack of information or weak enforcement of property rights which are especially important in the credit market. This paper exploits the characteristics of this association and studies whether managers' affiliations with Freemasonry are associated with greater access to credit by the companies they managed.

In addition, the institutional characteristics of the London Stock Exchange in the late nineteenth and early twentieth century make the data employed in this study particularly interesting. Although a firm's admission to the London Stock Exchange was relatively easy (Michie, 1999), the type of market that company's securities could have faced was different. An important distinction was made between companies quoted and not quoted in the official list. If quoted in the official list, companies' securities were quoted on a daily basis and they could fully enjoy the liquidity and name recognition benefits of being traded in a large market. Companies quoted in the official list resembled modern corporations with a clear distinction between ownership and control and they had a broad shareholder base. Companies not quoted in the official list retained the characteristics of private firms, they were generally of smaller size and their shares were firmly controlled by the founding families. The securities issued by these firms had a much narrower market. Existing economic studies on social networks have focused on large publicly quoted corporations, in contrast my analysis compares the different effects of social networks on different classes of companies, paying particular attention to how networks relate to the performance of small and "quasi-private" companies versus larger public corporations. There are reasons to believe that network effects differ across firms. Studies on public corporations show that companies managed by CEOs that are members of various social networks are characterized by bad corporate governance practices: networks are associated with favoritism and nepotism worsening the

agency conflict between managers and shareholders (Barnea and Guedj, 2007; Kramarz and Thesmar, 2007). On the other hand, in private companies with a narrow shareholders base the agency problem between shareholders and managers is less severe: managers are usually strictly supervised by the founding shareholders or are the founding shareholders. In these companies, social networks should play less of a role in worsening corporate governance practices. On the other hand, social networks can be effective in affording private companies greater access to credit: these firms are usually less familiar to investors, they are smaller and have less collateral; hence they have more difficulty to access debt finance.

The results show that companies run by Masonic managers had higher leverage ratios, a proxy for access to credit. This effect is particularly strong for companies not quoted in the official list. Companies outside the official list that were managed by Freemasons were about 5% more leveraged, if leverage is measured as total debt to total assets, and 6% more leveraged if measured as long term debt (bonds and mortgages) to total assets. The result still holds when I restrict the analysis to small companies, young companies, and companies providing less collateral. These findings are consistent with the hypothesis that affiliation with Freemasonry improves access to credit for companies that have more difficulties in obtaining debt finance.

Companies quoted in the official list with Masonic managers did not display a greater access to credit; they had lower profits and lower Tobin's Q. These results are similar to those obtained by recent finance analysis (Barnea and Guedj, 2007; Kramarz and Thesmar, 2007; Kuhnen, 2007) and lend support to the notion that, in public corporations, social networks are related to bad corporate governance and worse performance. Furthermore, I find that in public companies the various networking activities engaged in by managers who were members of Freemasonry were detrimental to the companies' performance. My analysis finds that Masonic managers in companies quoted in the official list were more likely to have friends in other companies (i.e. they accumulated more outside directorships) and their companies were more likely to have a politician on the administration board. These networking activities resulted in both lower profits and lower market valuation: for instance, Freemasons' outside directorships were associated with a reduction of market valuation of about 7%, whereas

political connections were linked to 4% lower accounting profits. Following the literature (Kaplan and Reishus, 1990; Booth and Deli, 1996), one way to interpret these results is that Masonic managers were too busy in other activities and consequently spent less time at the company and paid less attention to its business.

Freemasons were an important factor in companies' performance. Their effect was more positive in quasi-private companies prone to experience more problems in accessing debt finance; in publicly quoted companies the separation between ownership and control may have given Masonic managers some scope to pursue wasteful activities.

This paper not only contributes to the small but growing literature that relates social networks either to firms' corporate governance or to mutual fund managers' behaviors (Barnea and Guedj, 2007; Cohen et al., 2007; Kramarz and Thesmar, 2007; Kuhnen, 2007). It also contributes to the literature on political connections (Fisman, 2001; Faccio, 2006a,b; Ferguson and Voth, 2007) to the extent that it examines the relationships between Masonic managers and politicians on company boards, as well as the literature on social capital (Guiso et al., 2004; Costa and Kahn, 2004).[1] Costa and Kahn (2004) do not focus on companies, but they examine the determinants of social capital of small groups, in the contexts of soldiers' desertions during the American civil war. Guiso et al. (2004) focus on the role of social capital in households' use of financial instruments in relatively large geographical entities such as regions and provinces. This work focuses on social capital that characterizes smaller voluntary associations. My analysis also complements the literature on the intellectual origins of modern economic growth, to the extent that it discusses the economic activities of a club that played an important role in the dissemination of pro-business attitudes during the eighteenth century (Mokyr, 2002, 2005; Elliot and Daniel, 2006).

This paper proceeds as follows. The next section provides some historical background on the British financial world at the turn of the twentieth century and presents the main features of Freemasonry, emphasizing the elements that are of interest for economists. Section 3 describes data and sources and presents the descriptive statistics for the main variables

[1] Social capital is defined as aspects of the social structure such as trust, networks, and conventions that encourage collaboration and coordination between friends and strangers (Coleman, 1990).

employed in the analysis. Section 4 uses the data to study the relationships between managers' affiliation with Freemasonry and various measure of companies' performance such as access to credit, accounting profits and Tobin's Q. Section 5 provides empirical evidence on Masonic managers' networking activities and their impact on companies' performance. Section 6 discusses some robustness checks. Section 7 concludes.

2 Historical Background

2.1 The Late Nineteenth Century British Financial World

Around 1900 London was the most important financial center in the world: the British stock market was larger relative to GDP than that of the US, and was the second largest exchange in the world (Rajan and Zingales, 2003). Government bonds and domestic and international railways constituted most of the floating nominal capital, with commercial and industrial securities around 10% of the nominal capital traded. Limited liability, joint stock enterprises were more common in Britain than in continental Europe. Britain in 1900 had about 30,000 joint stock companies, probably as many as all the rest of Europe and about half of the size of joint stock companies as existed in the US at the beginning of the twentieth century (Hannah, 2007b).

Companies' admission to the London Stock Exchange was relatively easy. Consequently, a wide range of companies, from quasi-private firms to more modern corporations could have their securities quoted on the Exchange. An important distinction was made between companies quoted and not quoted in the official list. If quoted in the official list, companies' securities were traded on a daily basis on the Exchange's floor and they could fully enjoy the benefits of being transacted in a large market. These companies resembled modern corporations with a clear distinction between ownership and control and a broad shareholder base. Companies not quoted in the official list had a quasi-private form, they were generally of smaller size and their shares were firmly controlled by the founding families. The securities issued by these firms generated a much more limited amount of trade and had a narrower

market.[2]

The reason for this distinction lay in the increasing popularity of the London Stock Exchange in the late nineteenth century entrepreneurial world. Michie (Michie, 1999 p. 95) reports that, between 1853 and 1913 the number of different securities quoted in London rose enormously. As a result, the Exchange increasingly discriminated in the admission to quotation on the ground of size and the expectation of the amount of trade that companies (and their securities) could generate. As mentioned by Michie (1999 p.95):

> "Many issues of securities were of small size and narrowly held, resulting in an inactive market. Despite the rise in membership it was unrealistic to expect dealers to be ready to buy and sell, on demand, every security quoted let alone those that had not even been granted the privilege".

Incorporation was a popular phenomenon, but it was not until 1948 (or even later) that Britain was equipped with legislation explicitly protecting minority shareholders and creditors from financial frauds. There were also no formal requirements for companies to provide clear and standardized annual reports. Despite these limitations, the late nineteenth century accounts certainly provided a great deal of information to investors. As mentioned by Hannah (Hannah, 2007, p. 17): "*The great majority of companies in fact published more and better information than was legally required*" and Sylla and Smith (1995 p. 190) report that British investors had "*The best information possessed by any investors anywhere*".

2.2 A Brief History of Freemasonry

Simmel (1906) defines secret societies as interactional units where the reciprocal relations among its members are governed by the protective function of secrecy. Members of secret

[2] Rather than being admitted to the trading floor, securities outside the official list were transacted through the "Challenge System". These securities were listed on the London Stock Exchange Telegraphic tape. A member of the Exchange could broadcast his interest to others and so stimulate a sale or a purchase. There is evidence that this system was used but there continued to be a large number of securities that had been given a quote but generated little buying or selling (Michie, 1999 p.95).

societies are concerned with the protection of ideas and activities to which they attach positive value; they seek this protection by controlling the distribution of information and creating condition of ignorance about their activities in the external environment. According to Simmel, in fact, the secret is the ultimate sociological form for the regulation of the flow and the distribution of information. Depending on the extent of the secrecy, secret societies take two forms: those in which the secret incorporates information about all aspects of the association, including its very existence; and those in which only some aspects remain secret, such as membership, regulations, or goals. Freemasonry belongs to the second type of society. Its existence was and is known, the basic principles are somewhat known and in some instances even some of its members are known to the outside world.[3]

Freemasonry describes itself as a system of morality, veiled in allegory and illustrated by symbols (Burt, 2003). The origins of Freemasonry lie in the religious fraternities that developed in all Europe and especially in Britain after the Black Death in 1348. The Black Death had caused a shortage of skilled masons, and the various local nobilty struggled to keep wages down when commissioning the construction works of their palaces and churches. The old Freemasonry (also known as operative masonry) was a sort of trade union that engaged in negotiating better working conditions and higher wages. The secrecy of their identity was maintained in order to protect the members from possible retaliation. It is generally accepted organized masonry first took hold in 1717 with the establishment of the Grand Lodge of England. By that time, Freemasonry had evolved from a form of trade union into in a more philosophical association concerned with protecting and promoting the ideals of the Enlightenment. Secrecy was still a typical feature of the fraternity.

Organizationally, Freemasonry consisted of a series of mainly locally focused lodges, co-ordinated in Britain by the Grand Lodge of England and Wales or the Grand Lodge of Scotland. A man interested in becoming Freemason had to apply to the fraternity in order to be considered. There was enough permeability so that non-Freemasons could have known a few members and expressed their interest. Similarly, it is possible that members contacted non-members and proposed to them an association with the fraternity. A candidate for

[3]Simmel's view of secret societies is summarized in nine propositions by Halzerigg (1969).

Freemasonry had to be a man of good reputation and integrity. He was required to be a free man, and generally older than twenty-one years old. He needed to be well recommended and regularly proposed to the lodge (Jones, p. 259). Formally, women are not accepted in the Freemasonry, although there are a few known cases of women who became members.

2.3 Economic Relevance

There are at least two motives for economists to be interested in Freemasonry. As a form of club, the social interaction among its affiliates contributes to resolving two of the typical problems of financial markets: asymmetric information and contract enforceability. Through regular club meetings, members can learn of the reliability of their peers and, if entrepreneurs, the quality of their business projects. As a result, club members are able to get loans at favorable conditions directly from their fellows or more easily receive endorsements for loan applications. Clubs' members also tend to trust each other more, because the peer pressure in their community is an effective means to punishing crimes or fraud especially in situations where courts are not effective in enforcing property rights.

The elements of knowledge and trust are particularly relevant for secret societies and Freemasonry. The sociological literature describes secret societies as characterized by a greater degree of reciprocal trust among their affiliates, compared to other forms of associations (Simmel, 1906; Halzerigg, 1969). The Masonic ethic is built on the ideal of trust among members: Freemasons call each other brothers and are expected to comply with various obligations, among them a pledge not to cheat or defraud the lodge or other members. Peer pressure certainly plays an important role as penalties for not respecting these obligations exist ranging from reprimand, suspension, or expulsion from the fraternity to, in some ancient texts, even physical punishments.[4] However, it is the high degree of confidence in each other's observance of the secret that constitutes part of a secret society's uniqueness: the secret and the solemn promise to not reveal it generate a strong team-building effect and consequently higher levels of trust among the members (Halzerigg, 1969). These elements

[4] Although it is believed that this physical punishment was just symbolical, representing how a mason ought to feel after misbehaving towards other members(Mackey, 2005).

make Freemasonry a particularly interesting association when studying social network effects in capital markets.

A second reason for economists to be interested in Freemasonry is related to the role that the fraternity historically assumed as a promoter of pro-business attitudes. Freemasons were at the heart of the intellectual origins of the industrial revolution and contributed to the diffusion of the Enlightenment and natural philosophy in Britain and continental Europe. Mokyr (2005) documents how the Enlightenment was an important driver of the industrial revolution. The diffusion of the Baconian ideals contributed to the dissemination of "useful knowledge", knowledge about natural phenomena and their regularities (Mokyr, 2002 p.3) and of the idea that the mankind can achieve material progress through controlling nature (Mokyr, 2005). As a result, this process facilitated the application of natural philosophy to the solution of technical problems and stimulated the technological developments of the eighteenth century. According to Mokyr (2005), clubs and scientific societies had a major positive impact on the dissemination of useful knowledge. Following a similar argument, Elliot and Daniel (2006) illustrate the importance of natural philosophy in Masonic rhetoric and the effort undertaken by members in spreading the Baconian ideals. Studying material from Masonic histories, lodge records provide evidence that scientific lectures were indeed given in some lodges and that Masonic lodges also promoted the diffusion of peer-refereed publications. In this perspective, this work sheds additional light on the contribution of Freemasonry to British economic history by studying how Freemasons behaved as entrepreneurs.

3 Data

3.1 Sample and Sources

The sample consists of 410 British companies that corresponds to 573 company-years covering the period 1895-1902. This sample is composed of two sub-samples that corresponds to two different periods of time: 1895-1897 (224 companies) and 1900-1902 (349 companies).

The sample covers a wide variety of manufacturing sectors: from chemicals to textiles, from electricity manufacturing to leather and rubber, from paper and publishing to iron and steel. I also consider three non-manufacturing industries: coal mining, railways, and electricity supply. Table I lists the sectors in the sample and the number of firms in each sector. The sample is not random: all the firms are public companies quoted on the London Stock Exchange and represents a sizable portion of the capitalization of the Exchange. Hannah (2007a) reports that the total capitalization of the London Stock Exchange on January 1^{st} 1900 was about £887 million: the total capitalization of the companies in my 1900-1902 sample is £555 million, 63% of the figure reported by Hannah. All of the major railways companies are in the sample. There were many smaller companies, but they were usually owned by the bigger, and they were excluded. Data for electricity supply companies are taken from *Garcke's Manual of Electrical Undertakings*, a yearly publication where annual reports of electricity undertakings were published. Among the electricity companies reported, I select joint stock limited liability companies rather than municipal corporations: 20 companies for 1895 and 24 companies for 1900. By far the majority of companies in the sample are either English or Welsh. Only five companies are Scottish: this is because information on Freemasonry membership is not available for Scottish individuals.[5]

Information about companies is taken from original balance sheets and various annual publications such as the *Stock Exchange Year Book* and the *Stock Exchange Official Intelligence*. The balance sheets of public companies were retrieved from the Guildhall Library, London. The information displayed on the balance sheets varies from company to company and from year to year. From the accounts it is possible to obtain data such as companies' debts, revenues and physical assets. The balance sheets also report the names of the directors and their honorific titles (Lord, Sir, Baronet), the address of the firm's headquarters, and the firm's works. Information about interlocking directorships were retrieved from an annual publication called *Directory of Directors*. Data on stock prices are obtained from the Investor Monthly Manual (IMM), a sister publication of the Economist. The IMM was

[5] The Grand Lodge of Edinburgh has data about the affilation of Scotsmen to Freemasonry. Unfortunately, I failed to reach an agreement with the Scottish Grand Lodge.

published between 1871 and 1930 and recorded prices, dividends and capitalization for railways and various industrial companies. Companies quoted in the official list appear in the London Stock Exchange Official list. I consult this for the years 1895 and 1900.

Personal information about directors and managers is obtained from various censuses of the population of England and Wales between 1861 and 1901, available on Ancestry.com. The censuses report data on year and place of birth of directors and their address. Thanks to the Grand Lodge of England and Wales, it is possible to verify the affiliation with Freemasonry for almost 600 directors and managers. Whenever a manager is indicated as Freemason, I also obtain information on the date of his initiation as a member, his internal career and if he eventually abandoned the fraternity.[6]

Out of 577 directors, 91 or 16% were reported as Freemasons. According to the information provided by the Grand Lodge of England and Wales about 1% of the British male population in 1900 were Freemasons. The number of Freemasons is therefore overrepresented. Table I also reports the representations of Freemasons by industry. Masonic managers were more common in traditional sectors such as Railways and Breweries where 34% and 33% of firms, respectively, were run by Freemasons. Bicycles and Motorcars held also a relatively high representation of Freemasons, with 20% of companies in this sector

[6]Collecting these data proved particularly lengthy. The main challenge consisted of identifying the right man in the Freemasonry membership lists. A typical example is a case where a director was called James Smith and his company was located in London. Assuming that London was James Smith's most likely place of residence hundreds of James Smith lived in London between the nineteenth and the twentieth century, and possibly many of them were members of the Freemasonry. In order to identify the James Smith in my dataset, it is necessary to check various census years of the population of England. The population census provides several details on an individual, such as the civil and ecclesiastical parish where he/she lived, his/her age, his/her place of birth, and his/her occupation. Occupation was the variable used to match an individual in the dataset with an individual in the census. For example, if James Smith was managing director of a Tobacco company, the census would have indicated his occupation as Director of Public Company in Tobacco Trade or Manager of Tobacco Trades. Once the individual was found, it was possible to retrieve information about his civil and ecclesiastical parish, along with the place of birth. This information allowed a precise identification of the James Smith in the sample, also enabling the Grand Lodge of England and Wales to search for a James Smith of interest in their records.

managed by members of fraternity. Iron and Steel displayed the lowest percentage: 2%.

3.2 Main Variables and Descriptive Statistics

In this section, I define the main variables used in the analysis and describe some descriptive statistics. A full list of variable definitions is provided in Appendix A.

For the sub-period 1895-97 the variable Freemason is equal to 1 if the manager of the company was a Freemason in 1895; for the sub-period 1900-1902 the variable Freemason is equal to 1 if the manager was a Freemason in 1900. I define as a manager either as the director who was explicitly named as managing director in the annual report or any individual who was explicitly indicated by the company as its manager: this constitutes 66% of the cases; in cases where the manager's name was not provided, I check if the surname of any of the directors coincided with the name of the companies (for instance: Henry Firmin was a director of Firmin & Sons) and assume that these directors were managers: (10%) of the cases. In all the other cases I assumed that the chairman of the company was the manager (24%). As shown in Table II about 19% of the companies in the sample have a Freemason as manager.[7]

Two variables measure other forms of association or social networks: Interlock and Politicians. The variable Interlock takes the value of 1 if the manager of a company was serving as director in at least one other company. 37% of the companies had a manager with at least one interlocking directorship.[8] The variable Politician has the value of 1 if there was at least one politician on the company board. Politicians can be either members of the House of the Commons or members of the House of Lords. Table II shows that 33% of the companies in the sample had at least one politician on the board.

Performance variables are leverage, taken as a proxy for access to credit, future profitabil-

[7]Some companies had multiple managing directors. In these cases I assumed that a company was run by a Masonic manager if at least one of managing directors was a Freemason. This explains why 16% of managers were Freemasons, but 19% of companies were run by a Freemason.

[8]The number of observations in this case drops to 460 since the *Directory of Directors* did not report information on all managers.

ity, and Tobin's Q. I measure leverage in three different ways. Leverage is first calculated as total long-term debt over total assets. Long-term debt is defined as the total value of bonds and mortgages indicated in the balance sheets. The value of bonds and mortgages is usually clearly stated both in the annual reports and in the Stock Exchange Official Intelligence. The second measure of leverage, Long-term plus Loans, adds long-term debt together with various loans indicated in the annual report and bank debt, whenever the company provided the information. Many companies indicated various forms of debts in their balance sheet with headings taking the name of "loans" or "various loans". These loans appear to be long/medium-run forms of corporate debt whose origins and conditions are unknown. Given the uncertain nature of their origin, they appear as the form of corporate debt that more than any other was obtained through informal channels or thanks to personal contacts. A similar argument applies to bank debt, as Capie and Collins (1999) report that on many occasions, and despite the indications given by banks' headquarters, bank debt was granted on the basis of personal relationships and trust between the local bank manager and the entrepreneur. As a result, Long-term plus Loans sums up the formal and the possibly informal components of long/medium-run corporate debt. The third measure of leverage is total debt over total assets. The average leverage ratios range between 16% in case of Long Term Debt to Total Liabilities and 25% when we consider Total Debt to Total Liabilities. These numbers are lower than those presented by Rajan and Zingales (1995) for G7 economies and more in line with the figures shown by Booth et al. for Emerging/Developing economies. The statistics lend support to the notion that, as in Emerging economies nowadays, a hundred years ago investor protection was relatively low and it was more troublesome for companies to obtain credit than compared to more recent years (Franks et al., 2005).

The second measure of performance is profitability measured as returns (profits) over equity. Profits are computed after taxes and after interest.[9][10] Current profits indicate

[9] Taxes were very low and not all the companies report interest payments. For a discussion on Corporate Tax Rates in the late nineteenth and early twentieth century Britain see Braggion and Moore (2007).

[10] Depreciation indicated in the balance sheets did not represent the true value of the depreciation. In general, depreciation was an instrument to accumulate secret reserves in good times (by setting it at a high value) and to distribute dividends in bad times (by setting it at a low value). The balance sheets often

profitability at the beginning of each period: 1895 or 1900. Future profitability stands for returns over equity either in 1896 or 1901. Average profitability ranges between 9 and 10%. This result is comparable to the figures presented by Booth et al. in the case of emerging economies and Faccio (2006a) on a sample of companies from various countries in both G7 and emerging economies. The third measure of performance is Tobin's Q: I am able to construct this measure only for a subsample of about 200 companies. Asset prices are in fact available only for a limited number of firms, especially those quoted in the official list. The computation of the Tobin's Q was done employing asset prices as in December 1901.[11] Tobin's Q is calculated as total value of the assets-book value of common equities plus market value of the equities divided by total value of the assets.

The quality of the data also allow for the construction of several control variables. Following the literature (La Porta et al., 2000), I construct a measure of investment opportunities available to all companies based on the firms' past growth. Past growth is defined as the total value of the assets in 1895 or 1900 minus the total value of the assets in 1894 or 1899 plus dividends paid in 1895 or 1900 divided by the total value of the assets in 1894 or 1899. These are the first differences in total values of the assets corrected by the fact that companies may have paid dividends and already subtracted the dividend payment from the book value of assets shown in the balance sheets. Tangibility is total fixed assets divided by the book value of the assets: the mean is 55% and the median is 57%, again a measure comparable with the evidence presented by studies on more recent data.

display the amount of depreciation that allow me to construct an alternative measure of profits after taxes, after interest and before depreciation (when the value was available). Results do not change and they are available upon request.

[11] Robustness checks are performed using also companies' average asset prices in 1901: results do not change.

4 Freemasons and Companies' Performance

4.1 Access to Credit

Here I study the impact of managers' membership of Freemasonry on companies' performance. I employ three measures of performance: the leverage ratio, as proxy for access to credit, future profitability and Tobin's Q.

The determinants of leverage have been extensively examined in finance studies (Harris and Raviv, 1991; Rajan and Zingales, 1995; Booth et al., 2001). I employ standard leverage regressions and I regress the measures of leverage on companies' characteristics such as size, age, current profitability, past growth (as a of proxy for investment opportunities) and tangibility. I also control for a year-1900 dummy, a dummy that takes the value of 1 if a company is quoted in the official list and, in some specifications, for industry dummies. The focus of the analysis is an additional dummy variable, Freemason, that takes the value of 1 if the manager was a Freemason and zero otherwise:

$$\left(\frac{Long\ term\ debt}{Total\ Assets}\right)_i = \alpha + \beta Freemason_i + \gamma' Controls_i + \varepsilon_i \quad (1)$$

$$\left(\frac{Long\ term\ debt+Loans}{Total\ Assets}\right)_i = \alpha + \beta Freemason_i + \gamma' Controls_i + \varepsilon_i \quad (2)$$

$$\left(\frac{Total\ Debt}{Total\ Assets}\right)_i = \alpha + \beta Freemason_i + \gamma' Controls_i + \varepsilon_i \quad (3)$$

where i is company-year in the sample and ε_i corresponds to the error term.

Despite using data over one hundred years old the availability and quality of information in the annual reports make my analysis fully comparable with studies that use data from more recent periods. Results on the leverage ratio Tobit and OLS regressions are presented in Table III. The results show that the coefficient on the dummy "Freemason" is positive and statistically significant in five out of six specifications.[12] A company where the manager

[12]The analysis was also employed a panel random effect techniques rather than pooled regressions. While

was a Freemason was about 3% more leveraged than other companies, where leverage is measured as Total Debt over Total Assets. The sample mean of Total Debt over Total Assets is 25%: on average, a company run by a Freemason had a value of about 28%. Results on the other control variables are strikingly similar to studies on more recent data. Larger companies display higher leverage ratios and Tangibility has a positive effect on leverage. The coefficient on present profitability is negative. This result is consistent both with the predictions of the pecking order theory, that profitable companies prefer to obtain finance through internal rather than external sources (Myers and Majluf, 1984) and with the hypothesis that poorly performing companies prefer to avoid the disciplinary effect of debt (Jensen, 1986; Rajan and Zingales, 1995). Also past growth has a negative coefficient, but it turns out to be statistically significant only in two specifications. Younger companies are more leveraged, but the economic effect appears to be quite small.

Table IV presents the results when the sample is split into companies quoted vs. companies not quoted in the official list. The results indicate that the Freemason variable has a strong, positive, and statistically significant impact on the leverage ratios of companies not quoted in the official list. (Table IV, columns 1-3). Freemasons yielded a higher leverage ratio of 5.7% in case of long-term debt, 6.6% when we consider long-term debt and loans, and 4.7% in the case of total debt. On the other hand, Masonic managers at companies in the official list were not associated with higher leverage ratios: the coefficient on the variable Freemason has either a positive or negative sign, it is small and never statistically significant. The difference between the coefficients associated with the dummy Freemason in the two samples is also statistically significant at either the 5% or the 10% level depending on the specification. Companies not quoted in the official list were semi-private companies,

making the strong assumption that the unobserved, time-constant firm effects are independent of all the other explanatory variables, this technique yields more efficient estimates (Petersen, 2007). With panel random effects, the coefficients on "Freemason" are, in fact, estimated more precisely, with a degree of statistical significance equal to 1% in most of the specifications. I do not present these results, but they are available upon request. Since the analysis considers only two time periods, the panel is quite unbalanced and many varialbles are quite persistent through time, a panel fixed effect regression is not a suitable technique for this analysis.

where equity was firmly controlled by the founder shareholders. They were smaller, they could offer less collateral and they were more subject to problems of asymmetric information especially in respect to debt-holders. In this environment social networks were especially important to obtain credit. To further explore this issue, I split the sample along other dimensions alternative to companies' listing status. In particular, I focus on company size, age, and tangibility. Results are displayed in Table V. Panel (a) presents results for companies in the lowest and in the highest 25% quartile of company size. Freemason is positive and statistically significant for the very small companies in the first 25% size quartile. On the other hand, Freemasons does not have a statistically significant impact on the top 25% size quartile as well as the other quartiles.[13] In unpresented results, when the sample is split into companies below and above the median company size, the variable Freemason is not statistically significant in both subsamples, confirming that Masonic managers were associated with greater access to credit especially for very small companies. In the case where the sample is divided between young companies (companies below the median age of eleven years) and old companies (companies above the median age), Freemason has a positive and statistically significant coefficient on young companies (Table V, panel (b)): young companies managed by Freemasons were between 5% and 7% more leveraged depending on the definition of leverage. Similarly, I find that Freemasons has a positive and statistically significant effect on companies that had less collateral (Table V, panel (c)). Finance theory suggests collateral can be useful to sort out borrowers with good investment projects from borrowers with bad investment projects (Besanko and Thakor, 1987a,b; Boot et al., 1991) and it may offer a safe compensation to lenders if courts are not efficient in enforcing creditor protection legislation (Kiyotaki and Moore, 1997; Albuquerque and Hopenhayn, 2004; Cooley et al., 2004). If relationships among Freemasons alleviate problems of asymmetric information and contract enforceability and they are characterized by a reciprocal high level of trust, affiliation with Freemasonry should be especially important in allowing a greater access to credit to companies that have less collateral. Trust, better knowledge of the borrower, and peer

[13] I present only the results for the bottom and top quartiles. For the second and third quartiles the variable Freemason does not have a statistically significant coefficient.

pressure should be enough to guarantee that loans will be repaid. The analysis shows that membership of Freemasonry appears to be an important instrument in solving asymmetric information and contract enforceability issues for these companies.

4.2 Future Profitability and Tobin's Q

As a second measure of performance I use profitability measured as returns over equities. I regress this measure on the variable Freemasons and various controls:

$$Future\ Profitability_i = \alpha + \beta Freemason_i + \gamma' Controls_i + \varepsilon_i \tag{4}$$

The controls are a company's size and age, and following Yermack (1996) the size of the administration board. The size of the board is both a proxy for the monitoring abilities of the boards over the manager (in principle, bigger boards should monitor better), but also a proxy for the degree of bureaucracy and a board's lenghty decision making (bigger boards are more bureaucratic). The sign on this variable can either be positive or negative: better monitoring means better corporate governance and so better performance; on the other hand, more lengthy decision making and more bureaucracy should have a negative effect on a company's profitability. The results are presented on Table VI. Over the whole sample, the variable Freemason has a negative sign statistically significant at the 10% level in the specification that does not control for industry dummies. When I split the sample between quoted and unquoted companies: Freemason has a positive but not statistically significant effect in companies not quoted in the official list, whereas it has a negative and statistically significant effect on companies quoted in the list. In the latter case, Masonic mangers were associated with returns over equities that were 2.9% lower than an average company. Since the average profitability for companies in the official list was 8%, companies run by Freemasons experienced a reduction in profits of about 35%. Larger companies tended to be less profitable, the size of the board of directors has a positive sign, but not statistically significant.

The third performance variable is Tobin's Q. In this case the regression is:

$$Tobin's\ Q_i = \alpha + \beta Freemason_i + \gamma' Controls_i + \varepsilon_i \quad (5)$$

Controls again are size, age of the company, and the size of the administration board. Moreover, I also control for current profitability. As the previous regressions, I also have specifications where I control for industry dummies. The results are displayed in Table VII. I present the results for the whole sample of companies for which asset prices are available and for the sub-sample of firms quoted in the official list.[14] In all the specifications the dummy Freemason has a negative and 5% or 10% statistically significant coefficient. The economic magnitude is also quite important: the Tobin's Q of an average company is about 10% lower if managed by a Freemason. The size of the board of directors has a positive coefficient statistically significant at 1% or 5% level. This result is consistent both with the notion that larger boards enhanced better monitoring, increasing companies' profitability and with the idea that more profitable companies increased the number of directors serving in the their boards.

The overall picture shows that despite having a better access to capital markets, companies run by Freemasons were doing no better than, in some cases, worse than their peers. A possible interpretation is that the extra resources were badly managed and employed in not very profitable investment projects. Especially for companies quoted in the official list, where there was a clearer separation of ownership and control, poor corporate governance and poor minority shareholders protection may have given some room for managers to indulge in wasteful activities.

4.3 Endogeneity

Managers' memberships of Freemasonry may be correlated with some unobserved factors related to abilities, ambitions and trustworthiness of the entrepreneurs. All these elements, unobservable to the econometrician, may have had an impact on companies' performance.

[14] Most of the firms with available information on asset prices were quoted in the official list, hence the sample sizes are similar.

In the analysis presented in the previous section, these concerns were partially taken into account. For instance, the leverage regressions control for several companies' characteristics, such as current profitability and growth opportunities, that should capture unobserved managerial abilities.[15] To further address this concern, I employ an endogenous treatment effects model as discussed in Maddala (Maddala, 1983, pp. 117-122). Managers' affiliation with Freemasonry is treated as endogenous and modeled with a probit regression where I relate the managers' probability of being Freemasons to companies and managers' characteristics. The probit regression allows the estimation of the each managers' probability of being a Freemason: these probabilities are then inserted in the performance regressions (1)-(5) replacing the dummy variable "Freemason". In these models it is recommended to employ one or more exclusion restrictions in the probit analysis: one or more variables that are believed to affect a manager's probability of being a Freemasons that have no impact on a company's performance. I consider two exclusion restrictions. The first one is a dummy variable that assumes the value of 1 if the manager worked in the same place where he was born. This variable captures the notion that an individual who stayed and worked in the same county where he was born was more likely to have deep and long-standing relationships with other individuals in his environment. As a result, the manager was more likely to have access to local social networks. On the other hand, the place of work, in relation to the place of birth, should not have a strong direct effect on access to credit or profitability.[16] The other

[15] Introducing manager's age, a proxy of manager's experience, in the performance regressions leaves results unchanged. Freemason is still positive and statistically significant in the leverage regressions and negative and statistically significant in the profitability analysis. Moreover, the variable manager's age never turns out to be statistically significant.

[16] In the context of rural-urban migration, Long (2005) uses a similar identification assumption. Living in a town different from the place of birth is considered a determinant of an individual's decision to migrate, but not a determinant of how well an individual performed in term of job attainment. Moreover, Long (2005) shows that there was neither positive nor negative selection for individuals coming from entrepreneurial families (i.e sons of entrepreneurs) who actually migrated into urban areas and individuals coming from entrepreneurial families who decided not to migrate. This result lends support to the idea that, at least in the case of upper classes, movers were not necessarily more gifted individuals than stayers and vice-versa.

exclusion restriction is a second dummy variable that assumes the value of 1 if a manager was born in London and zero otherwise. It is unlikely that being born in London gave an advantage to individuals in term of wealth or education: all managers related factors that may have directly affected companies' performance. Around 1851 (the average year of birth of the managers in the sample), London was already the highest income and wealthiest region in Britain, but many other regions well represented in my sample, such as Lancashire and West Anglia, displayed high income and wealth per capita as well (Rubinsten, 1981; Rubinstein, 1987; Crafts, 2005). Rubinstein (1987 p. 195-196) also discusses how many successful entrepreneurs working in late nineteenth century Britain did not attend prestigious schools such as Eton and Harrow and that they rarely had a college degree: they were more models of self-made men who got their education by directly working in the factory. It seems more likely that London, as a place of birth, had a direct effect on individuals' access to social networks, although the sign of this effect is uncertain. On the one hand, London was the center of networking activities in Britain: entrepreneurs born in London, for instance, may have been from families traditionally linked to Freemasonry, making them more likely members. On the other hand, competition with other networks could have made it less likely for individuals to be Freemasons: London offered infinite networking possibilities outside Freemasonry. Moreover, Money (1993) shows that the number of London lodges steadily declined during the second half of the eighteenth century and well into the nineteenth century, again making entrepreneurs born in London less likely to be associated with Freemasonry.[17]

The results of the analysis are in Table VIII (panels (a), (b), and (c)). Panel (a) relates the choice of being Freemason to all the variables considered in the second stage plus the two exclusion restrictions.[18] Managers working in the same county where they were born were about 12% more likely to be Freemasons which is statistically significant at the 1%

[17] A possible critique of this approach is that the two exclusion restrictions could be highly correlated: in principle it is possible that people born in London were less likely to leave the city. However, the correlation between the two variables, "Work in County of Birth" and "Born in London" is 31%: positive, but not tremendously high.

[18] I present here only the results on the leverage equation since the results on future profitability and Tobin's Q are very similar.

level (5% when I control for industry dummies). A manager born in London was about 7% less likely to be a Freemason, statistically significant at the 10% level in the specification without industry dummies; when I control for industry dummies the sign and the size of the variable is basically unchanged but I lose statistical significance.

The results of the leverage and profitability equations are in Table VIII panel (b) and (c). In 5 out of 6 specifications the Freemasons variable has a positive sign, statistically significant at the 1% level. The economic significance is similar to what was presented in the previous leverage and profitability analyses: the average probability of managers being Freemasons is 20%. A standard deviation increase of this figure would make companies about 4% more leveraged. Companies run by Freemasons were less profitable than other companies, but this effect is not statistically significant. On the other hand, Freemasons still has a negative and statistically significant effect on Tobin's Q. A standard deviation increase of managers' probability of being Freemasons decreases companies' Tobin's Q of about 7%.

5 Freemasons and other Social and Economic Networks

This section examines the relationships between Freemasonry and other social networks recently studied by the economics and finance literature. In particular, I study the relationships between Freemasonry and interlocking/outside directorships held by managers and between Freemasonry and politicians on companies' boards. The analysis addresses two issues. First, did Freemasonry interact with other social networks? In other words, were Freemasons an isolated club or were they willing to participate in other forms of social interaction? Second: did Freemasons' networking activities have an impact on companies' performance? An answer to the latter question may provide a channel useful to explain the association between Masonic managers and the poor economic performance of companies quoted in the official list. In these situations, Masonic managers could have been too busy participating in other networks and dedicated less time to the business of their company.

The finance literature has analyzed what factors lead CEOs or directors to take on outside directorships. On one hand, the accumulation of outside directorships may be correlated

with non-value maximizing behavior: CEOs, for instance, may seek prestige and extra compensation by serving on multiple boards. Naturally, if CEOs are too busy, they will dedicate less time to their own companies, with negative effects on its performance. On the other hand, the market for directorships may work efficiently and induce successful CEOs to serve on multiple boards while leaving less successful officers serving only one company (Kaplan and Reishus, 1990; Booth and Deli, 1996). From this perspective, serving on other boards could serve as a measure of CEO quality. In addition serving on other boards may enhance performance due to information sharing and exploitation of economies of scale and scope.

Another form of social network that has generated interest among economists is political connections. Political connections, i.e. the relationship between firms and members of the government or parliament, have been identified as a possible source of value for companies, especially in high corruption countries. Faccio (2006b), uses a cross-section of companies located in various countries to show that politically connected firms experience 1.4% excess returns on the announcement that a politician was appointed to their board or that companies' officers entered politics; a figure that increases to 4.3% in countries that rank highly on various measures of corruption. Although political connections may bring value, Faccio (2006a) also shows that politically connected firms perform worse than their peers in terms of accounting profits and display lower market to book ratios. Politically connected firms may suffer more than other companies from governance problems.

Table IX displays the results of the analysis on the probability that a Freemason director accumulated interlocking directorships. Columns (1) and (2) reports the marginal effects of the probit analysis results for managers using all the companies available in the sample. The regressions control for industry dummies, a time dummy and a dummy that indicates whether a company is quoted in the official list. I present two specifications: the first does not control for managers' personal characteristic such as age and place of birth; the second does.

A Freemason manager was 9% more likely to have an interlocking directorship although this figure is not statistically significant. Managers of bigger companies were more likely to have outside directorships, whereas current profitability, while having a negative sign, is not

statistically significant. Splitting the sample in companies quoted (columns 3 and 4) versus companies not-quoted in the official list (columns 5 and 6) highlights that managers of quoted companies were 27% more likely to serve another company: a value statistically significant at the 1% level in the specification that does not correct for managers' personal characteristics and 5% statistically significant in the specification that does correct for personal characteristics. On the other hand, for companies not quoted in the official list there was no relationship between affiliation with Freemasonry and outside directorships. The coefficients on the dummy Freemason are either positive or negative, depending on the specification, and they are never statistically significant.

Table X reports the likelihood that a company run by a Freemason will have a politician on the board. Again, I present the marginal effects of a probit analysis. In the whole sample, companies run by Freemasons were between 5.7% and 8.2% more likely to have a politician on the board, these figures are marginally statistically significant. When I split the sample into quoted versus unquoted companies, quoted companies, with Freemason managers, were 27% more likely to have a politician on the board, a figure statistically significant at the 1% level. On the other hand, companies not quoted in the official list show either no correlation between Freemasons and political connections or a negative correlation of about 12% (when managers characteristics are taken into account) which is statistically significant at the 10% level. Company size is positively associated with the likelihood of having a politician on the board (1% statistically significant); politicians were more likely to serve on more profitable companies, but the correlation is not statistically significant.

I now turn to the second questions: did Freemasons networking activities enhance companies' performances? I run a treatment effect model where, as a first stage, I will relate managers' probabilities of having an outside directorship or political connection to their eventual membership to Freemasonry. I impose Freemasonry affiliation as exclusion restriction in the model, in order to measure the part of interlocking directorships and politicians on board directly related to a manager's Freemasonry membership. In a second stage, I will evaluate the impact of the "pure-Freemasons" networking activities on performance. I will run this analysis only on companies quoted in the official list, as in this situation, Masonic

managers displayed a strong and positive relationship with outside directorships and political connections.

Results of the second stage are presented in Table XI. Interlocking directorships have a positive impact on total debt to total liabilities and a negative impact on profitability. The impact on leverage positive and statistically significant. An increase of one standard deviation of manager's probability of having at least an outside directorships increases leverage of about 6% (average leverage ratio is about 25%). Outside directorships related to Freemasonry have a negative effect on profitability: outside directorships reduced both returns over equities and Tobin's Q by 20% when compared to an average companies. Political connections related to Masonic managers have a negative and not statistically significant effect on leverage, but they have a negative impact on profitability: companies have returns over assets 20% lower than average companies when the probability of having an politician on board increases of a standard deviation. Political connections related to Freemasonry also reduce Tobin's Q: a standard deviation increase on the probability of having a politician on board reduced Tobin's Q of about 9%. The results of the analysis show that Freemasons' networking activities had a detrimental effect on companies' performances, lending support to the idea that interlocking directorships and politicians on the board were related to non-value maximizing activities. The entrepreneurial and financial environment of the period may help to interpret these results. The analysis was run for companies quoted in the official list, companies that resemble modern corporations, with a clear distinction between ownership and control. For these companies agency problems between shareholders and managers were particularly severe. The low degree of investor protection (as reported by Franks, Mayer and Rossi, 2005) may have given managers, and especially manager members of Freemasonry, enough freedom to pursue non-value-maximizing activities at the expense of profits. Why were Freemasons in companies outside the official list not associated with other networks? It could be that opportunities for networking were fewer for these companies, since they were not as visible as their official list counterparts. It is also possible that the founder/owner families of the companies had enough control and could prevent managers from wasting times and resources in networking activities.

6 Robustness

6.1 Quotation in the Official List and Unobserved Heterogeneity

The admission of a company to the official list was based on the size of the company and on the expectation that its securities would generate trade.

It may be possible that the inclusion (or not) in the official list may be correlated with some unobserved factors that could also affect a Freemason's impact on the various dependent variables considered in this study. For instance, companies in the official list might have been particularly prestigious. Both Freemasons and politicians sought to work in prestigious companies, consequently the correlation between Freemasons and politicians in the official list could be explained simply by a company's prestige.

To control for this possibility, I run a Heckman two step procedure, in the first stage I correlate the probability of being quoted in the official list to various characteristics, in the second I evaluate the impact of Freemasonry on the various dependent variables. In this case an exclusion restriction is needed. I assume that location, and in particular whether the company was located in the London area or not, affected the probability of being quoted in the official list, whereas it did not affect, for instance, the probability of having a politician on the board or the leverage ratios. The expectation of trade at the London Stock Exchange depended on the how well securities were known by London investors: it is reasonable to think that investors (London banks and local funds) had a broader knowledge of companies located in the London area. On the other hand, despite parliament being located in London, it is unlikely that London companies had an advantage in obtaining a Lord or politicians as member of their board. First of all, quite often companies had local politicians on their boards, for instance the Duke of Devonshire served as director in most of the companies located in his county (Thompson, 1963, p. 307). Second, we have evidence that companies that were foreign to the London environment appointed politicians on their boards in order to be better networked with the elites in the capital. Similarly, the London location is unlikely to have a strong correlation with leverage. The banking system was widespread throughout the country, there is no reason to think that trade credit was more important in London than

anywhere else. Provincial companies may have had more difficulties in maintaining contact with London investors, but they could have placed their equities and bonds issues on the provincial stock exchanges.

The results of the Heckman 2-step procedure are in Table XII panel (a) and (b). In panel (a) I show the first stage of the analysis: the marginal effects of a probit regression where the dependent variable is a dummy that assumes the value of 1 if a company is quoted in the official list and zero otherwise. Companies located in London were 20% more likely to be quoted in the official list, a value statistically significant at the 1% level. Interestingly, companies run by Freemasons were not necessarily more or less likely to be in the official list: the coefficient is positive but not statistically significant.

The results of the second stage on the dependent variables are presented in panel (b). The results are basically unchanged from those in section 4.1. Freemason has a positive effect on leverage for companies quoted in the official list. Masonic managers were associated with lower future profitability and with lower Tobin's Q.

6.2 Average Future Profitability and Controlling for Outliers

Future profitability is defined as return over equity in the years 1901-02. Return over equity can be very volatile, especially when working with historical data, in periods where accounting practices were not well defined and not standardized by legislation. To address this problem, I re-run the profitability regressions using as a dependent variable the average returns over equity for two years, 1901-02 and 1902-03. The main results are in Table XIII. Masonic managers are associated with lower profits in companies quoted in the official list. Companies run by Freemasons not quoted in the official list had higher profits, but this result is not statistically significant.

As a second check, I also control for any outliers. I run robust regressions that correct for outlier biases using Cook's D-Test. These regressions eliminate observations for Cook's D statistic greater than one and iteratively select weights for the remaining observations to reduce the absolute value of the residuals. The outcomes of this analysis are in Table XIV.

I use full sample data for the various measures of leverage ratio and future profitability: all the results are unchanged. For the other specifications results do not change, and they are available upon request.

7 Conclusion

This paper analyzes the relationships between managers' affiliation with Freemasonry and companies' economic performances in Britain between 1895 and 1902. Using a dataset on managers and companies quoted at the London Stock Exchange, I find that companies run by managers that were members of Freemasonry had greater access to credit, measured with different leverage ratios. Exploiting the institutional features of the London Stock Exchange, I distinguish between firms that had the form of modern publicly quoted companies with a clear distinction between ownership and control, versus small quasi-private companies whose control was in the hands of the founding shareholders. Masonic managers had a strong effect in increasing access to credit for quasi-private companies. These companies exhibited higher profits, but the effect is statistically and economically weak. On the other hand, publicly quoted companies run by Freemasons did not have higher leverage ratios and they experienced lower profits and lower Tobin's Q. Masonic managers who worked in public companies participated in other networks: they were more likely to accumulate outside directorships and their companies were more likely to have politicians on the board. These networking activities translated into lower profits: outside directorships related to Freemasonry reduced companies' profits by about 5%, whereas political connections were associated with 10% lower profits. The results are robust to various specifications and to a two-step procedure that corrects for endogeneity bias.

The findings of this paper give additional support to the hypothesis that social networks, rather than having positive effects on companies, are more likely to be related to managers' non-value-maximizing activities. This effect is particularly strong in public companies, where there is a clear distinction between ownership and control and where, in principle, agency problems between management and shareholders are more severe.

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Appendix A: Variable Definitions

Age: Year since date of incorporation of the company.

Size: Total Assets of the company as displayed in the balance sheet.

Growth: (Total Assets in 1901 (1896) minus Total Assets in 1900 (1895) plus Dividend payments in 1900 (1895))/Total Assets in 1900 (1895).

Current Profitability: Returns over equities in 1900 (1895)

Future Profitability: Returns over Equities in 1901 (1896)

Returns on Equities (ROE): Earnings divided by total equity.

Earnings: Earnings after interest, depreciation, and taxes.

Long Term Debt to Total Assets: Total of Mortgages and Bonds divided by Total Assets

Long Term Debt and Loans to Total Assets: Long Term Debt plus Loans and Bank Debt divided by Total Assets

Total Debt to Total Assets: Long Term, Loans, Bank Debt and Short Term Debt divided by Total Assets

Tangibility: Total Fixed Assets divided by Total Assets

Total Fixed Assets: Sum of Properties, Plants, and Equipments as reported in the Balance Sheets

Freemason: Dummy variable that assumes the value of one if the manager of a company in the sample was Freemason and zero otherwise.

Size of the Board: number of board members as indicated in the annual report

Born in London: Dummy variable that assumes the value of one if the manager of a company in the sample was born in London

Work in the sample county where born: Dummy variable that assumes the value of one if the manager of a company works in the same county where he was born

Manager's Age*:* Age of the Manager in 1900 (1895)

Politician*:* a member of the House of Commons or a Member of the House of Lords

Interlocking Directorship: Dummy variable that assumes the value of one if the manager of a company in the sample has at least an outside directorship in another company

Company Located in London Area: Dummy variable that assumes the value of one if the headquarters of a company in the sample is located in Middlesex, or Surrey, or Kent

Tobin's Q: {Book Value of Assets - Book Value of Common Equity + Market Value of Common Equity} divided by Book Value of Assets.

Table I

Industries and Freemasons Representation		
	% Companies run by Freemasons	Obs
Breweries	33	39
Bicycle and Motorcars	20	35
Electricity Supply	14	44
Engineering	17	106
Mines and Quarries	15	62
Iron and Steel	2	46
Paper and Publishing	10	31
Textile	20	80
Chemicals	22	77
Railways	34	53

Table II

Descriptive Statistics

Panel A: Full Sample				
	Mean	Median	Std. Deviation	# Obs
Size	2.77	0.27	12.52	573
Age	16	11	14.19	573
Tangibility	0.55	0.57	0.27	573
Past Growth	0.08	0.05	0.153	547
Freemason	0.19	0	0.40	574
Managing Director Interlocking	0.37	0	0.48	459
Politicians	0.33	0	0.47	573
Long Term Debt to Total Assets	0.16	0.15	0.15	554
Long Term 1 Debt to Total Assets	0.18	0.18	0.15	554
Total Debt to Total Assets	0.25	0.26	0.15	554
Current Profitability	0.09	0.06	0.20	573
Future Profitability	0.07	0.06	0.08	528
Tobin's Q	1.09	1.02	0.376	248

Panel B: Descriptive Statistics - Companies Quoted in the Official List				
	Mean	Median	Std. Deviation	# Obs
Size	6.21	0.71	18.82	235
Age	21	16	15.63	235
Tangibility	0.59	0.65	0.27	235
Growth	0.08	0.05	0.15	226
Freemason	0.21	0	0.41	235
Managing Director Interlocking	0.39	0	0.49	178
Politicians	0.50	1	0.50	234
Long Term Debt to Total Assets	0.17	0.19	0.15	230
Long Term 1 Debt to Total Assets	0.19	0.19	0.15	230
Total Debt to Total Assets	0.25	0.26	0.15	230
Current Profitability	0.10	0.06	0.29	235
Future Profitability	0.08	0.06	0.08	218
Tobin's Q	1.11	1.02	0.39	210

Panel C: Descriptive Statistics - Companies not Quoted in the Official List				
	Mean	Median	Std. Deviation	# Obs
Size	0.42	0.17	2.45	338
Age	12	10	12.01	338
Tangibility	0.52	0.52	0.28	338
Growth	0.08	0.05	0.17	321
Freemason	0.17	0	0.38	338
Managing Director Interlocking	0.35	0	0.48	281
Politician	0.21	0	0.41	337
Long Term Debt to Total Assets	0.15	0.13	0.15	324
Long Term 1 Debt to Total Assets	0.17	0.17	0.15	324
Total Debt to Total Assets	0.25	0.25	0.15	324
Current Profitability	0.08	0.06	0.11	338
Future Profitability	0.07	0.06	0.08	310
Tobin's Q	1.05	1	0.267	38

Table III

Access to Credit and Affiliation with Freemasonry: Full Sample Results

This table shows Tobit and OLS estimates of the effect of managers' memberships of Freemasonry on companies' leverage ratios. Columns (1) - (4): Tobit Analysis. Columns (5) - (6): OLS analysis. All regressions control for a year 1900 dummy and a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Regressions in columns (2), (4), and (6) control for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term Debt	Long Term and Loans	Long Term and Loans	Total Debt	Total Debt
Industry Dummies	No	Yes	No	Yes	No	Yes
log (Size)	0.045***	0.037***	0.034***	0.029***	0.034*	0.021***
	(0.007)	(0.007)	(0.007)	(0.07)	(0.017)	(0.006)
Company's Age	-0.002***	-0.003***	-0.002***	-0.002**	-0.001**	-0.001
	(0.001)	(0.001)	(0.0006)	(0.001)	(0.0005)	(0.001)
Current Profitability	-0.130*	-0.074	−0.047	-0.021	-0.058**	-0.048**
	(0.074)	(0.069)	(0.037)	(0.036)	(0.024)	(0.023)
Tangibility	0.180***	0.178***	0.201***	0.211***	0.076***	0.102***
	(0.033)	(0.036)	(0.030)	(0.033)	(0.030)	(0.032)
Past Growth	-0.075	-0.140**	-0.059	-0.102**	−0.001	-0.047**
	(0.057)	(0.060)	(0.051)	(0.052)	(0.042)	(0.023)
Freemason	0.038*	0.028	0.046**	0.034*	0.034**	0.027*
	(0.021)	(0.020)	(0.020)	(0.019)	(0.017)	(0.016)
Pseudo R^2/R^2					0.08	0.19
LR Chi-Squared	103.37	152.11	99.86	162.00		
# Obs	540	540	540	540	540	540

Table IV

Companies Quoted vs. Not Quoted in the Official List

Panel A: Tobit and Pooled OLS Analysis

This table shows Tobit and OLS estimates of the effect of managers' memberships of Freemasonry on companies' leverage ratios distinguishing between companies quoted in the official list versus companies not quoted in the official list. Columns (1)-(2) and (4)-(5): Tobit Analysis. Columns (3) and (6): OLS analysis. All regressions control for a year 1900 dummy and industry dummies. Estimates for companies not quoted in the official list, columns (1) – (3); estimates for companies quoted in the official list, columns (4) – (6). Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Not Quoted in the Official List			Quoted in the Official List		
	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term and Loans	Total Debt	Long Term Debt	Long Term and Loans	Total Debt
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	0.029***	0.021*	0.017*	0.042***	0.037***	0.025***
	(0.012)	(0.010)	(0.009)	(0.009)	(0.009)	(0.008)
Company's Age	−0.005***	−0.002*	−0.001	−0.003***	−0.003***	−0.001
	(0.001)	(0.001)	(0.001)	(−0.001)	(0.001)	(0.001)
Current Profitability	−0.122	−0.203**	−0.136*	−0.048	0.01	−0.027
	(0.115)	(0.102)	(0.070)	(0.065)	(0.037)	(0.017)
Tangibility	0.178***	0.219*	0.121***	0.175***	0.172***	0.051
	(0.047)	(0.042)	(0.038)	(0.057)	(0.054)	(0.055)
Past Growth	−0.152*	−0.042	0.002	−0.131	−0.190*	−0.038
	(0.079)	(0.064)	(0.051)	(0.096)	(0.096)	(0.070)
Freemason	0.057*	0.066**	0.047**	−0.003	−0.006	0.006
	(0.030)	(0.027)	(0.020)	(0.027)	0.026	(0.024)
R^2			0.19			0.30
LR Chi^2	77.58	91.69		95.20	98.75	
# Obs	311	311	311	229	229	229

Table V

Panel (a): Access to Credit and Company Size

This table shows OLS and Tobit estimates of the effect of managers' memberships of Freemasonry on companies' leverage ratios when the sample is divided between companies with company size below the 25% quartile level and above the 75% quartile level. Columns (1), (2), (4), and (5): Tobit estimates. Columns (3) and (6): OLS estimates. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Lowest 25% Quintile			Highest 25% Quintile		
	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term and Loans	Total Debt	Long Term Debt	Long Term and Loans	Total Debt
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	−0.018	−0.013	−0.015	0.076	0.046	−0.003
	(0.036)	(0.029)	(0.021)	(0.112)	(0.011)	(0.012)
Company's Age	−0.006***	−0.002	−0.001	−0.003***	−0.003***	−0.001
	(0.002)	(0.002)	(0.001)	(0.0009)	(0.0009)	(0.001)
Current Profitability	−0.055	−0.131	−0.195**	−0.108	−0.013	−0.033
	(0.179)	(0.143)	(0.097)	(0.081)	(0.031)	(0.023)
Tangibility	0.142**	0.208***	0.064***	0.046	0.049	−0.024
	(0.080)	(0.062)	(0.055)	(0.057)	(0.056)	(0.087)
Past Growth	−0.209	−0.161	−0.096	−0.291***	−0.335***	−0.201**
	(0.150)	(0.118)	(0.072)	(0.091)	(0.090)	(0.095)
Freemason	0.088*	0.073**	0.080***	0.035	0.026	0.029
	(0.045)	(0.035)	(0.029)	(0.027)	0.027	(0.030)
R^2			0.29			0.32
LR Chi^2	41.62	58.42		79.54	74.60	
# Obs	135	135	135	135	135	135

Table V

Panel (b): Access to Credit and Company Age

This table shows OLS and Tobit estimates of the effect of manager's memberships of Freemasonry on companies' leverage ratios when the sample is divided between companies with company age above and below its median value. Columns (1), (2), (4), and (5): Tobit estimates. Columns (3) and (6): OLS estimates. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and industry dummies. Standard errors clustered by firm are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Below Median Age			Above Median Age		
	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term and Loans	Total Debt	Long Term Debt	Long Term and Loans	Total Debt
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	0.037***	0.039***	0.027**	0.038***	0.023***	0.017**
	(0.013)	(0.012)	(0.011)	(0.009)	(0.008)	(0.012)
Company's Age	0.009***	0.008**	0.007**	−0.003***	−0.002**	−0.001
	(0.004)	(0.003)	(0.003)	(0.001)	(0.0009)	(0.001)
Current Profitability	−0.103	−0.088	−0.040	−0.072	−0.011	−0.042*
	(0.133)	(0.123)	(0.097)	(0.076)	(0.034)	(0.023)
Tangibility	0.146***	0.172***	0.123***	0.218***	0.257***	0.072
	(0.051)	(0.048)	(0.038)	(0.049)	(0.044)	(0.051)
Past Growth	−0.066	−0.014	0.075	−0.134	−0.124*	−0.045
	(0.089)	(0.082)	(0.088)	(0.084)	(0.072)	(0.045)
Freemason	0.070*	0.062**	0.051***	−0.011	0.008	0.011
	(0.031)	(0.029)	(0.022)	(0.025)	0.023	(0.022)
R^2			0.21			0.29
LR Chi^2	63.92	73.89		136.80	129.89	
# Obs	286	286	286	254	254	254

Table V

Panel (c): Access to Credit and Tangibility

This table shows OLS and Tobit estimates of the effect of managers; memberships of Freemasonry on companies' leverage ratios when the sample is divided between companies with tangibility above and below its median value. Columns (1), (2), (4), and (5): Tobit estimates. Columns (3) and (6): OLS estimates. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and industry dummies. Standard errors clustered by firm are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Below Median Tangibility			Above Median Tangibility		
	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term and Loans	Total Debt	Long Term Debt	Long Term and Loans	Total Debt
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	0.037***	0.030**	0.018*	0.034***	0.026***	0.022***
	(0.013)	(0.012)	(0.010)	(0.010)	(0.009)	(0.007)
Company's Age	−0.003**	−0.0018	0.001	−0.003***	−0.002**	−0.002**
	(0.001)	(0.0012)	(0.001)	(0.001)	(0.001)	(0.001)
Current Profitability	−0.075	−0.020	−0.066***	−0.122	−0.129	−0.125
	(0.076)	(0.038)	(0.023)	(0.142)	(0.129)	(0.124)
Tangibility	0.321***	0.331***	0.245***	0.097	0.097	0.008
	(0.073)	(0.068)	(0.069)	(0.102)	(0.092)	(0.087)
Past Growth	−0.157**	−0.125*	−0.028	−0.070	−0.034	0.021
	(0.076)	(0.070)	(0.049)	(0.096)	(0.079)	(0.072)
Freemason	0.042	0.069***	0.046**	0.019	0.013	0.021
	(0.032)	(0.029)	(0.023)	(0.025)	(0.023)	(0.021)
R^2			0.26			0.21
LR/Wald Chi^2	75.09	81.95		79.58	72.52	
# Obs	270	270	270	270	270	270

Table VI

Freemasons and Future Profitability

This table shows OLS estimates of the effect of managers' memberships of Freemasonry on future profitability. Columns (1) and (2): Full Sample. Columns (3) and (4): Companies not Quoted in the Official List. Columns (5) and (6): Companies Quoted in the Official List. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Columns (2), (4), and (6) control for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample		Companies not Quoted in the Official List		Companies Quoted in the Official List	
	(1)	(2)	(3)	(4)	(5)	(6)
	Future Profitability	Future Profitability	Future Profitability	Future Profitability	Future Profitability	Future Profitability
Industry Dummies	No	Yes	No	Yes	No	Yes
log (Size)	−0.008***	−0.003	−0.002	−0.002	−0.014***	−0.005
	(0.003)	(0.003)	(0.004)	(0.005)	(0.04)	(0.004)
Company's Age	0.0005*	0.001***	0.001	0.0007	0.001*	0.001**
	(0.0003)	(0.0004)	(0.001)	(0.0005)	(0.0004)	(0.0005)
Size of the Board	−0.009	0.008	−0.004	−0.002	−0.014*	0.013
	(0.003)	(0.007)	(0.016)	(0.005)	(0.004)	(0.008)
Freemason	−0.016*	−0.012	−0.0038	0.002	−0.029***	−0.029***
	(0.010)	(0.009)	(0.015)	(0.015)	(0.009)	(0.011)
R^2	0.02	0.08	0.005	0.06	0.06	0.14
# Obs	549	549	325	325	224	224

Table VII

Freemasons and Tobin's Q

This table shows OLS estimates of the effect of managers; memberships of Freemasonry on Tobin's Q. Columns (1) and (2): Full Sample. Columns (3) and (4): Companies Quoted in the Official List. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Columns (2) and (4) control for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample		Companies Quoted in the Official List	
	(1)	(2)	(3)	(4)
Industry Dummies	No	Yes	No	Yes
log (Size)	−0.023	−0.008	−0.033	−0.016
	(0.021)	(0.021)	(0.024)	(0.026)
Company's Age	0.002	0.005*	0.002	0.006*
	(0.002)	(0.03)	(0.002)	(0.003)
Size of the Board	0.073	0.072	0.139***	0.147**
	(0.051)	(0.052)	(0.060)	(0.061)
Current Profitability	0.345**	0.325*	0.357**	0.321*
	(0.162)	(0.168)	(0.174)	(0.174)
Freemason	−0.109*	−0.108*	−0.134**	−0.132*
	(0.061)	(0.064)	(0.065)	(0.068)
R^2	0.10	0.14	0.13	0.19
# Obs	249	249	211	211

Table VIII

Panel (a)

Treatment Effects Model: Probit Analysis Results

This table shows the marginal effects of probit estimates on the probability that a manager was a member of Freemasonry. The dependent variable takes the value of 1 if the manager was a Freemason in 1895 or 1900 and zero otherwise.All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Column (2) controls for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	(1)	(2)
Industry Dummies	No	Yes
log (Size)	−0.013	−0.027
	(0.016)	(0.018)
Company's Age	0.001	0.001
	(0.001)	(0.002)
Current Profitability	−0.156	−0.050
	(0.171)	(0.076)
Tangibility	0.183**	0.184**
	(0.076)	(0.082)
Past Growth	−0.248*	−0.334**
	(0.123)	(0.134)
Born in London	−0.074*	−0.068
	(0.042)	(0.044)
Work in the same county where born	0.127***	0.103**
	(0.042)	(0.042)
Pseudo R-Squared	0.07	0.11
# Obs	468	468

Panel (b)

Leverage and Treatment Effects

This table shows treatment effects-maximum likelihood estimates of the effect of managers' memberships of Freemasonry on companies' leverage ratios. All regressions control for a year 1900 dummy and a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Regressions in columns (2), (4) and (6) control for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Treatment Effects Model					
	(1)	(2)	(3)	(4)	(5)	(6)
	Long Term Debt	Long Term Debt	Long Term and Loans	Long Term and Loans	Total Debt	Total Debt
Industry Dummies	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*
log (Size)	0.034***	0.029***	0.032***	0.030***	0.026***	0.028***
	(0.006)	(0.006)	(0.007)	(0.006)	(0.008)	(0.008)
Company's Age	−0.002***	−0.003***	−0.002***	−0.003***	−0.002***	−0.002**
	(0.001)	(0.0006)	(0.0006)	(0.0007)	(0.0008)	(0.0008)
Current Profitability	−0.024	−0.011	−0.024	−0.017	−0.037	−0.043
	(0.022)	(0.018)	(0.024)	(0.022)	(0.024)	(0.030)
Tangibility	0.111***	0.106***	0.114***	0.114***	0.024**	0.044
	(0.034)	(0.036)	(0.033)	(0.033)	(0.037)	(0.036)
Past Growth	−0.014	−0.041	0.014	−0.014	0.066	0.059
	(0.048)	(0.045)	(0.047)	(0.040)	(0.049)	(0.043)
Pr(Freemason)	0.181***	0.131*	0.223***	0.163***	0.278***	0.224***
	(0.081)	(0.077)	(0.058)	(0.062)	(0.048)	(0.057)
Wald Chi^2	145.23	220.01	121.82	191.29	75.13	104.75
# Obs	468	468	468	468	468	468

Panel (c)

Freemasons and Profitability: Treatment Effects

This table shows treatment effects-maximum likelihood estimates of the effect of managers' memberships of Freemasonry on companies' future profitability and Tobin's Q. All regressions control for a year 1900 dummy and a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Regressions in columns (2) and (4) control for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample			
	(1)	(2)	(3)	(4)
	Future Profitability	Future Profitability	Tobin's Q	Tobin's Q
Industry Dummies	No	Yes	No	Yes
log (Size)	−0.01***	−0.001**	−0.026	−0.022
	(0.003)	(0.04)	(0.023)	(0.026)
Company's Age	0.001*	0.001**	0.002	0.005
	(0.0003)	(0.0005)	(0.002)	(0.003)
Size of the Board	0.006	0.010	0.123*	0.122*
	(0.008)	(0.009)	(0.074)	(0.073)
Current Profitability			0.275**	0.257*
			(0.135)	(0.156)
Pr(Freemason)	−0.018	−0.024	−0.676***	−0.709***
	(0.029)	(0.028)	(0.143)	(0.126)
Wald Chi^2	9.15	73.23	31.04	58.08
# Obs	478	478	222	222

Table IX

Interlocking Directorships and Affiliations with Freemasonry

This table shows the marginal effects of probit estimates on the probability that a Freemason manager had at least one outside directorship. The dependent variable takes the value of 1 if the manager had an outside directorship in 1895 or 1900 and zero otherwise. Columns (1) and (2): Full Sample. Columns (3) and (4): Companies quoted in the Official List. Columns (5) and (6): Companies not quoted in the Official List. All regressions control for a year 1900 dummy, a dummy that assumes the value of one if the company was quoted in the official list and zero otherwise and for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample		Not Quoted in the Official List		Quoted in the Official List	
	(1)	(2)	(3)	(4)	(5)	(6)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	0.082***	0.082***	0.076**	0.082**	0.092**	0.090**
	(0.023)	(0.025)	(0.032)	(0.037)	(0.037)	(0.040)
Company's Age	0.003	0.034	0.002	0.004	0.005	0.003
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Current Profitability	−0.386	−0.184	−0.275	0.023	-0.629	-0.523
	(0.353)	(0.337)	(0.424)	(0.372)	(0.487)	(0.496)
Freemason	0.090	0.103	−0.025	0.003	0.279***	0.266**
	(0.063)	(0.069)	(0.077)	(0.087)	(0.093)	(0.102)
Born in London		0.037		0.096		-0.041
		(0.069)		(0.090)		(0.106)
Director's Age		0.001		−0.001		0.004
		(0.002)		(0.002)		(0.003)
# Obs	577	495	332	280	242	214

Table X

Political Connections and Affiliations with Freemasonry

This table shows the marginal effects of probit estimates on the probability that a company run by a Masonic manager had at least one politician on board. The dependent variable takes the value of 1 if the company had at least one politician on the administration board in 1895 or 1900 and zero otherwise. Politician is either a member of the House of Commons or a Member of the House of Lords. Columns (1) and (2): Fulll Sample. Columns (3) and (4): Companies quoted in the Official List. Columns (5) and (6): Companies not quoted in the Official List. All regressions control for a year 1900 dummy and for industry dummies. Columns (1) and (2) also control for a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample		Quoted in the Official List		Not Quoted in the Official List	
	(1)	(2)	(3)	(4)	(5)	(6)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	
log (Size)	0.125***	0.121***	0.204***	0.201***	0.065**	0.058**
	(0.026)	(0.027)	(0.043)	(0.046)	(0.026)	(0.028)
Company's Age	0.001	0.001	−0.003	−0.003	0.003	0.005*
	(0.002)	(0.003)	(0.003)	(0.004)	(0.03)	(0.003)
Current Profitability	0.113	0.108	0.524*	0.465	−0.259	−0.519**
	(0.080)	(0.082)	(0.322)	(0.302)	(0.220)	(0.266)
Past Growth	−0.088	−0.187	−0.290	−0.316	0.021	−0.071
	(0.135)	(0.159)	(0.331)	(0.353)	(0.130)	(0.153)
Freemason	0.087	0.052	0.287***	0.275**	−0.067	−0.124*
	(0.059)	(0.060)	(0.084)	(0.088)	(0.056)	(0.057)
Born in London		−0.057		−0.118		−0.011
		(0.062)		(0.110)		(0.064)
Manager's Age		−0.004**		−0.002		−0.0035*
		(0.002)		(0.003)		(0.002)
Wald Chi^2	98.53	94.97	50.92	54.16	38.16	38.22
# Obs	546	483	225	204	306	267

Table XI

Freemasons' Networking Activities and Companies' Performances

This table shows treatment effects-maximum likelihood estimates of the effect of managers' interlocking directorship and companies' political connections on leverage ratios, future profitability, and Tobin's Q. All regressions control for a year 1900 dummy and a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Interlocking Directorships			Political Connections		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total Debt	Future Profitability	Tobin's Q	Total Debt	Future Profitability	Tobin's Q
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
log (Size)	0.012	−0.003	0.010	0.027***	0.003	0.051
	(0.014)	(0.006)	(0.048)	(0.010)	(0.004)	(0.034)
Company's Age	−0.002*	0.001*	0.009	−0.0015	0.001**	0.004
	(0.001)	(0.0005)	(0.006)	(0.0009)	(0.0005)	(0.003)
Past Growth	−0.027			−0.041		
	(0.092)			(0.069)		
Tangibility	0.009			0.054		
	(0.079)			(0.055)		
Current Profitability	−0.008		0.228	−0.024		0.428*
	(0.021)		(0.155)	(0.018)		(0.188)
Board Size		−0.003	0.119		0.017*	0.185***
		(0.007)	(0.084)		(0.010)	(0.065)
Pr(Interlocking Directorship)	0.220**	−0.042*	−0.721***			
	(0.097)	(0.022)	(0.205)			
Pr(Political Connections)				−0.017	−0.061***	−0.429***
				(0.043)	(0.020)	(0.159)
Wald Chi^2	66.28	28.04	31.68	120.00	54.14	24.70
# Obs	170	165	155	225	220	210

Table XII

Panel (a): Quotation in the Official List and Selection

First Stage Results

This table shows the marginal effects of probit estimates on the probability that a company was quoted in the official list. The dependent variable takes the value of 1 if the company was quoted in the official list either in 1895 or 1900 and zero otherwise. All regressions control for a year 1900 dummy, and for industry dummies. Column (1) refers to the first stage of the leverage analysis; column 2 refers to the first stage of the future profitability analysis. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	(1)	(2)
	Leverage	Future Profitability
Industry Dummies	Yes	Yes
log (Size)	0.335***	0.314***
	(0.048)	(0.42)
Company's Age	0.008**	0.007**
	(0.031)	(0.003)
Current Profitability	0.246	
	(0.271)	
Tangibility	−0.030	
	(0.144)	
Past Growth	−0.147	
	(0.192)	
Size of the Board		−0.009
		(0.090)
Company Located in London Area	0.270***	0.241***
	(0.073)	(0.068)
Freemason	0.091	0.092
	(0.083)	(0.075)
Wald Chi^2	70.81	81.55
# Obs	540	549

Panel (b): Quotation in the Official List and Selection

Second Stage Results

This table shows the maximum likelihood estimates of the effect of managers' memberships of Freemasonry on companies' leverage ratios, future profitability, and Tobin's Q when controling for endogenous selection of companies in the official list. Columns (1)-(2): Companies not quoted in the Official List. Columns (3)-(5): Companies quoted in the Official List. All regressions control for a year 1900 dummy and for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Not Quoted in the Official List		Quoted in the Official List		
	(1)	(2)	(3)	(4)	(5)
	Total Debt	Future Profitability	Total Debt	Future Profitability	Tobin's Q
Industry Dummies	Yes	Yes	Yes	Yes	Yes
log (Size)	0.048**	0.013	0.032***	0.004	−0.063
	(0.019)	(0.010)	(0.012)	(0.009)	(0.054)
Company's Age	−0.0002	0.001**	−0.001	0.001**	0.005*
	(0.001)	(0.0005)	(0.001)	(0.0005)	(0.003)
Current Profitability	−0.125*		−0.025		0.316*
	(0.077)		(0.016)		(0.177)
Tangibility	0.104**		0.0433		
	(0.041)		(0.053)		
Past Growth	−0.01		−0.041		
	(0.054)		(0.070)		
Board Size		−0.045		0.005	0.147**
		(0.019)		(0.010)	(0.061)
Freemason	0.052***	0.0036	0.007	−0.027*	−0.139*
	(0.020)	(0.014)	(0.023)	(0.014)	(0.070)
Wald Chi^2	90.84	181.93	125.37	195.27	34.93
# Obs	314	231	226	218	211

Table XIII

Average Future Profitability

This table shows OLS estimates of the effect of manager's membership of Freemasonry on average future profitability. Column (1): Full Sample. Column (2): Companies not Quoted in the Official List. Column (3): Companies Quoted in the Official List. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Full Sample	Companies not Quoted in the Official List	Companies Quoted in the Official List
	(1)	(2)	(3)
Industry Dummies	Yes	Yes	Yes
log (Size)	−0.001	0.005	−0.006
	(0.004)	(0.005)	(0.004)
Company's Age	0.001***	0.001*	0.001*
	(0.0004)	(0.0007)	(0.0004)
Size of the Board	0.007	0.006	−0.006
	(0.007)	(0.017)	(0.004)
Freemason	−0.002	0.012	−0.021**
	(0.010)	(0.016)	(0.010)
R^2	0.07	0.07	0.17
# Obs	491	293	198

Table XIV

Controlling for Outliers

This table shows robust regression estimates of the effect of manager's membership of Freemasonry on leverage, average profitability, and Tobin's Q. All regressions control for a year 1900 dummy, a dummy that assumes the value of 1 if the company was quoted in the official list and zero otherwise and for industry dummies. Standard errors clustered by firms are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	(1)	(2)	(3)
	Total Debt	Future Profitability	Tobin's Q
Industry Dummies	Yes	Yes	Yes
log (Size)	0.021***	0.002	−0.002
	(0.006)	(0.002)	(0.015)
Company's Age	−0.001	0.0005**	−0.001
	(0.001)	(0.0002)	(0.001)
Current Profitability	−0.045		2.512***
	(0.033)		(0.147)
Tangibility	0.109***		
	(0.029)		
Past Growth	−0.022		
	(0.044)		
Board Size		0.001	0.065**
		(0.006)	(0.035)
Freemason	0.027*	−0.009	−0.068*
	(0.016)	(0.006)	(0.041)
F Statistic	6.96	2.88	21.87
# Obs	540	549	248