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The German-Jewish Economic Elite (1900 – 1930)

ABSTRACT:

In the early 20th century, a dense corporate network was created among large German corporations, with about 16 percent of the members of this corporate network of Jewish background. At the centre of the network (big linkers) about 25 percent were Jewish. The percentage of Jews in the general population was less than one percent in 1914. What comparative advantages did the Jewish minority enjoy that enabled them to succeed in the competition for leading positions in the German economy? Three hypotheses are tested: (1) The Jewish minority was integrated in a dense network of solidarity, which provided it with comparative advantages in competing with non-Jewish entrepreneurs (hypothesis: embeddedness); (2) The Jewish minority had a high

level of education that enabled it to gain access to positions of leadership in big companies during a period in which science and technology became very important for industrial production (hypothesis: human capital); (3) The Jewish minority possessed experience in banking and the financing of large projects since the Middle Ages which gave Jewish bankers comparative advantages in entrepreneurial financing (hypothesis: Jewish private bankers). Our data do not support any of these hypotheses. The observed correlation between Jewish background and network centrality cannot be explained by a higher level of education, a higher level of social capital, or a higher proportion of Jewish managers engaged in (private) banking.

The spirit of capitalism: Sombart versus Weber¹

The question of what role the Jewish minority played in the development of capitalism during the late 19th and early 20th century was controversial in scholarly literature already before the First World War. Werner Sombart saw Jews as the «founders of modern capitalism» and emphasized their «great importance for modern economic life, one that far surpassed all other influences». He argued that the Protestant ethic had been influenced by the Jewish religion and that it would therefore be more accurate to speak of an elective affinity between the Jewish religion and the spirit of capitalism: «[...] those elements of Puritan dogma that appear to me to be truly important for the development of the capitalism spirit [were] borrowed from ideas within the realm of the Jewish religion».²

Max Weber rebuffed Sombart's critique. He argued instead that it was not possible to attribute the characteristic form of capitalistic rationality to the Jewish religion or

¹ The research for this article was supported by the *Deutsche Forschungsgemeinschaft*. The grant is gratefully acknowledged. I am also grateful for the helpful comments of an anonymous referee of this Journal.

² Werner Sombart, *Die Juden und das Wirtschaftsleben*, München 1911, v, vii (translated from the German original. The English translation is incomplete: Werner Sombart, *The Jews and Modern Capitalism*, London 1913). Sombart's book was sharply criticized already by his contemporaries: Lujo Brentano, *Die Anfänge des modernen Kapitalismus*, München 1916, 190-199; Ernst Troeltsch, *Die Bedeutung des Protestantismus für die Entstehung der modernen Welt*, in: id., *Schriften zur Bedeutung des Protestantismus für die moderne Welt*, 1906-1913, *Kritische Gesamtausgabe*, Bd. 8, Berlin 2001, 199-316, here 273-278.

Jewish traditions: «On the whole, yet with the ever inevitable qualifications, the contrast can be said to be that Jewish capitalism was speculative pariah-capitalism, while the Puritan was the bourgeois organization of work.» «Therefore, hardly a Jew is to be found among the creators of the modern economic organization, the entrepreneurs of big business. This type of person was Christian and only conceivable in the realm of Christianity.»³

Barkai considers Sombart's book to be a «sorry piece of work» and maintains «that the course of industrialization in Germany would hardly have been significantly different had not a single Jew existed there».⁴ Yet, in the empirical part of his analysis, Barkai does present findings that confirm the data collected by Sombart. One such example deals with the higher tax revenue generated by Jews as compared with Protestants. More recent research also confirms the large percentage of Jews sitting on the supervisory boards of major German firms – a finding that Sombart also pointed out earlier.⁵ Barkai comes to the conclusion that the economic advantage enjoyed by the Jewish minority at the time cannot be denied.⁶ He attributes this finding to the concentration of Jews in big cities (particularly in Berlin)⁷ and in the professions (law, medicine).⁸

Rahden shows that before the First World War more than half of the Jewish population in the German city of Breslau belonged to the bourgeoisie. About 25 percent of the male Jewish population earned more than 10,000 Marks per year (the highest income class).⁹ And, because of the three-class suffrage system (*Dreiklassenwahlrecht*) in Prussia, Jews were able to exercise considerable influence upon community politics in Breslau.

In this article we test the hypothesis that there was a relatively high percentage of Jews among the German economic elite with more recent data. We have compiled a database which contains the entire top executive personnel of major German firms in the period between 1896 and 1938. Our analysis of the corporate networks shows that in Germany prior to the First World War, about 16 percent of the board members were

³ Max Weber, *Wirtschaftsgeschichte: Abriß der universalen Sozial- und Wirtschaftsgeschichte*, Berlin 1981 [1923], 307 (translated from the German original. The English translation is incomplete: Max Weber, *General Economic History*, New York 1961.) For a critical review of the concept of a «pariah people», cf. Werner Cahnman, *Pariahs, Strangers and Court-Jews: A Conceptual Clarification*, in: *Sociology of Religion* (1974), 155-166; Hans Liebeschütz, *Max Weber's Historical Interpretation of Judaism*, in: *Leo Baeck Institute Yearbook* (1964), 41-68, here 52.

⁴ Avraham Barkai, *Jüdische Minderheit und Industrialisierung*, Tübingen 1988, 3f.

⁵ Tax revenue: Sombart, *Die Juden* (cf. n. 2), 219ff., Tables I, II, III; Barkai, *Jüdische Minderheit* (cf. n. 4), 140, 149, 154. Supervisory board: Sombart, *Die Juden* (cf. n. 2), 134ff.; Werner Mosse, *Jews in the German Economy: The German-Jewish Economic Elite 1820-1935*, Oxford 1987, 252f.

⁶ Barkai, *Jüdische Minderheit* (cf. n. 4), 60.

⁷ Before the First World War about 24 percent of all German Jews lived in Berlin, about 46 percent of Jews in the United States lived in New York. Source: *American Jewish Year Book* (1920/ 21), 372 (statistics of Jews). Available at: <http://www.ajcarchives.org/main.php?GroupingId=10054> [last access 17 July 2011].

⁸ Cf. chapters on the professions in Siegmund Kaznelson, *Juden im deutschen Kulturbereich*, Berlin 1959; Kurt Zielenziger, *Juden in der deutschen Wirtschaft*, Berlin 1930..

⁹ Source: Till van Rahden, *Jews and Other Germans: Civil Society, Religious Diversity, and Urban Politics in Breslau, 1860-1925*, Madison 2008, 31-34, 41-50, Table 5 on 248; Table 13 on 256; similar findings for Hamburg in Helga Krohn, *Die Juden in Hamburg 1848-1918*, Hamburg 1974, 78-81.

of Jewish background. At the centre of the network (people we term «big linkers») about 25 percent were Jewish.¹⁰ The percentage of Jews in the general population was less than 1 percent in 1914.

In their study on «Diversity in the Power Elite» Zweigenhaft and Domhoff report that in the United States 3.4 percent of the top managers of large corporations were of Jewish origin at the beginning of the 20th century;¹¹ this percentage increased to 4.3 percent by 1925. Tedlow et al. have identified the religious affiliation of the CEOs of the 200 largest U.S.-firms in 1917.¹² About two thirds of the top-managers were Episcopalian or Presbyterian, seven percent were Roman Catholic, and 4.6 percent were Jewish. In 1920, about 3.5 percent of the U.S.-population was of Jewish origin. For Britain, Jeremy, using the *Dictionary of Business Biography*, was able to identify the religious affiliation of 428 businessmen in the late 19th/early 20th century in Britain.¹³ About two percent of them were of Jewish origin. Jews made up 0.7 percent of the general population in Britain.¹⁴

When we compare the religious affiliation of the economic elite in the United States, Great Britain, and Germany, it seems that a relatively high proportion of the top managers of the largest corporations in Germany was of Jewish background. How can we explain this relative overrepresentation? More specifically, how could a minority that was subject to numerous forms of discrimination throughout the entire 19th century still fill a significant percentage of the top managerial posts in German big business?¹⁵ What comparative advantages did the Jewish minority enjoy that enabled it to compete successfully in the struggle for top positions in big business? And was this comparative advantage context-sensitive? Did it favour the Jewish community in one country more than in another one?

Neither Max Weber nor the critics of Sombart¹⁶ made a serious attempt to *explain* the economic success of the Jewish minority in Germany before the First World War. In his work on the Protestant Ethic, Max Weber merely cites tax statistics showing that

¹⁰ «Big linkers» are defined as those directors in the corporate network who hold three or more board positions in different firms (Frans Stokman/Frans Wasseur, *National Networks in 1976: A Structural Comparison*, in: John Scott (ed.), *Social Networks: Critical Concepts in Sociology*, Vol. III., New York 1976, 336-356, here 352ff.).

¹¹ Richard Zweigenhaft /William Domhoff, *Diversity in the Power Elite*, Lanham 2006, 22.

¹² Richard Tedlow et al., *The American CEO in the Twentieth Century: Demography and Career Path*, Cambridge 2003, Research Paper 03-21, 56.

¹³ David Jeremy, *Important Questions About Business and Religion in Modern Britain*, in: id. (ed.), *Business and Religion in Britain*, 1988, 1-26, here 16ff.

¹⁴ For Britain see also Yousef Cassis, *Financial Elites in Three European Centres: London, Paris, Berlin 1880s-1930s*, in: *Business History* (1991), 53-71, here 58; William Rubinstein, *Men of Property: The Very Wealthy in Britain Since the Industrial Revolution*, London 1981, 150.

¹⁵ Jacob Katz, *From Prejudice to Destruction: Anti-Semitism 1700-1933*, Cambridge 1980; Reinhard Rürup, *Emancipation and Crisis*, in: Leo Baeck Institute Yearbook (1975), 13-25, here 19ff. describes the «modern anti-Semitism in the 1870s» in Germany as a movement that «was directed not against under-privileged marginal groups but against an influential, powerful Jewry at the very centre of that society».

¹⁶ Werner Mosse, *Judaism, Jews and Capitalism: Weber, Sombart and Beyond*, in: Leo Baeck Institute Year Book (1979), 3-15, here 3 comes to the conclusion that the question which factors could explain the «disproportionate prominence of Jews [...] remains an open one». See Paul Mendes-Flohr, *Werner Sombart: The Jews and Modern Capitalism*, in: Leo Baeck Institute Yearbook (1976), 87-107.

the Jewish minority was more successful economically than the Protestant majority.¹⁷ Rahden describes the economic success of the Jewish minority in Breslau, but he does not try to find an explanation for this success,¹⁸ and Barkai's contention «that the course of industrialization in Germany would hardly have been significantly different had not a single Jew existed there» is far from consistent with historical fact.¹⁹

Both Weber and Sombart assume that the origins of capitalism can be traced to a religiously grounded ethic. Where they differ is on the genealogy of this ethic: for Weber, an elective affinity exists between the «spirit of capitalism» and the Protestant Ethic. Furthermore, he maintains that this ethic is incompatible with many laws and religious rules of the Jewish religion. For Sombart, the Protestant Ethic is only a variation – in a certain sense a product of evolution – stemming from the original Jewish religion.

However, Sombart's effort to attribute the economic success of the Jewish minority to the *religious ideas of Judaism* can be seen as a failure. Mosse argues that «the growing Jewish involvement in money-lending and usury was the result neither of Jewish religious attitudes nor of a special Jewish preference for this particular pursuit, but predominantly of outside forces», i.e. Christian economic policy.²⁰ Therefore, alternative explanations will be examined here, explanations developed in economics and economic sociology. Three hypotheses are presented in the following section:

- (1) The Jewish minority was integrated in a dense network of solidarity, which provided it with comparative advantages in competing with non-Jewish entrepreneurs (hypothesis: embeddedness).
- (2) The Jewish minority had a high level of education that enabled it to gain access to positions of leadership in big companies during a period in which science and technology became very important for industrial production (hypothesis: human capital).
- (3) The Jewish minority possessed experience in banking and the financing of large projects (e.g. war financing) since the Middle Ages. This expertise, handed down from one generation to the next, gave Jewish bankers comparative advantages in entrepreneurial financing (hypothesis: Jewish private bankers).

Explanations and hypotheses

Embeddedness

In an article on «embeddedness», Granovetter argues that we do not compete on the market as single individuals. Instead, we are «embedded» in social relations within which trade relationships can be permanently organized. «The embeddedness argument stresses

¹⁷ Average capital tax per 1,000 persons of each denomination for 1895: Protestants: 954,900 Mark; Catholics 589,800 Mark; Jews: 4 Mill. Mark. Source: Max Weber, *Die protestantische Ethik I.*, Hamburg 1973, 78, note 4).

¹⁸ Rahden, *Jews and Other Germans* (cf. n. 9).

¹⁹ Barkai, *Jüdische Minderheit* (cf. n. 4), 4. In the volume of collected essays by Kaznelson, *Juden im deutschen Kulturbereich* (cf. n. 8), there is a detailed depiction of Jewish contribution to culture, science, and business in Germany.

²⁰ Mosse, *Judaism, Jews and Capitalism* (cf. n. 16), 6.

the role of concrete personal relations and structures (or networks) of such relations in generating trust and discouraging malfeasance.»²¹ Granovetter's essay inspired a series of empirical studies in which it was shown that firms «embedded» in a relatively dense network of relations have competitive advantages.²²

It is true that for many years the Jewish minority lived in the Diaspora in dense social networks, the cohesion of which can be attributed to various causes: *religion, external threat, and endogamy*.

The Jewish *religion* was the grounds on which a traditional community grew, one to which each member was bound and to whom each member was beholden (solidarity). The religion guaranteed the identity of the Jewish minority in the Diaspora.²³ In his study on suicide, Durkheim draws a connection between the internal cohesion of a group (mechanical solidarity) and the suicide rate (SR). His explanation for the significantly higher SR among Protestants (compared with Catholics) is that the Protestants have weakened the bonds of community through their higher degrees of education, intellectualism, and individualism. The weaker the (mechanical) solidarity of a group, the higher their SR. Curiously, the SR among Jews is clearly lower than that of Catholics and was at the lowest level in many countries that Durkheim studied.²⁴ If we view the SR as an indicator of the internal cohesive strength of a group, then we must conclude that Jews, compared with the other religious communities, had the strongest social cohesion.

Over the centuries, Jews frequently lived as a *Gastvolk* and were exposed as such to discrimination, exclusion, and persecution to the point of physical extermination in numerous pogroms. Simmel points out that a group living in a hostile environment creates a strong internal social cohesion. The existence of an external enemy forces the group to create social solidarity and often enhances its internal ability to organize itself. Durkheim makes a similar argument: «Their need of resisting a general hostility has forced them [i.e. Jews] into strict union among themselves. Each community became a small, compact and coherent society with a strong feeling of self-consciousness and unity.»²⁵ The external threat enhanced the internal solidarity of the group. The group members were able to accumulate social capital that was important for economic success.

²¹ Mark Granovetter, *Economic Action and Social Structure: The Problem of Embeddedness*, in: *American Journal of Sociology* (1985), 481-550, here 490; see James Coleman, *Social Capital in the Creation of Human Capital*, in: *American Journal of Sociology* (1988), (Supplement), S95-S120, here S98 on trust in the diamond trade.

²² See, for example, Brian Uzzi, *The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect*, in: *American Sociological Review* (1996), 674-698; id., *Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness*, in: *Administrative Science Quarterly* (1997), 35-67: Firms that are linked to banks pay lower interest rates for credit.

²³ Steven Cohen, *American Modernity and Jewish Identity*, New York 1983.

²⁴ Emile Durkheim, *Suicide*, Glencoe (1951) [1897], 154, Table XVIII. The statistical data that Durkheim used for his analysis refer approximately to the same period that is under consideration here.

²⁵ Sources: Georg Simmel, *Soziologie: Untersuchungen über die Formen der Vergesellschaftung*, Berlin 1968 [1908], 238; Durkheim, *Suicide* (cf. n. 24), 160. Both authors were themselves of Jewish origin and experienced many forms of discrimination during the course of their academic careers which was used as first-hand experience in their writings. See also Lewis Coser, *The Functions of Social Conflict*, New York 1956, 87-110; Jean-Paul Sartre, *Réflexions sur la question Juive*, Paris 1960, 123.

Mosse, too, refers repeatedly to the solidarity within the Jewish family which helped advance the careers of many entrepreneurs and managers.²⁶

Endogamy is also an institution that strengthens group cohesion, and many authors have emphasized it as one of the main structural characteristics of Jewish communities. Mosse notes that until the early twentieth century, endogamy was an absolute commandment in the Jewish upper class: «Endogamy was almost universal».²⁷

Supple studied German-Jewish investment bankers in New York in the late 19th century.²⁸ He comes to the conclusion that the investment banks were not only linked to one another through business relations, but also through marriage and blood relatives. Jacob Schiff, for instance, was not just the CEO and partner of the investment bank Kuhn & Loeb, but also was related through marriage to the family of Salomon Loeb. His son married a daughter of Sigmund Neustadt, a partner of the investment bank Hallgarten & Co. Paul Warburg also married a daughter of Salomon Loeb, and Felix Warburg married the daughter of Jacob Schiff. In his biography of Jacob H. Schiff, Cohen concludes: «German Jewish bankers owed much of their success to the bonds of kinship.»²⁹ In Germany, private banks were also closely related to one another. Köhler points out that private bankers could increase their equity and extend their business relations through marriage alliances (dowry). «The clear majority of Jewish private bank families limited their marriage circles to their own denominational group.»³⁰

Hypothesis 1: The German-Jewish economic elite created a very dense and stable corporate network within which it was able to accumulate social capital. The density of the Jewish network was higher than that of the non-Jewish economic elite. The empirical evidence for this hypothesis is summarized in Table 5 (below).

²⁶ Source: Werner Mosse, *The German-Jewish Economic Elite 1820-1935*, Oxford 1989, 27, 35, 75. For the concept of social capital see Coleman, *Social Capital* (cf. n. 21).

²⁷ Mosse, *The German-Jewish Economic Elite* (cf. n. 26), 40, 93, 110.

²⁸ Barry Supple, *A Business Elite: German-Jewish Financiers in Nineteenth-Century New York*, in: *Business History Review* (1957), 143-178.

²⁹ Naomi Cohen, *Jacob H. Schiff: A Study in American Jewish Leadership*, Hannover/London 1999, 6. As examples of this, see the family trees in Stephen Birmingham, *Our Crowd: The Great Jewish Families of New York*, New York 1967, X. During the World Economic Crisis (end of the 1920s) German Jewish private bankers were able to provide their customers with bank credits because they had access to US-financial capital through their kinship-bonds in New York. Ingo Köhler, *Wirtschaftsbürger und Unternehmer: Zum Heiratsverhalten deutscher Privatbankiers im Übergang zum 20. Jahrhundert*, in: Dieter Ziegler (ed.), *Großbürger und Unternehmer*, Göttingen 2000, 116-143. Within this network configuration (bridging two continents) the Jewish bankers controlled «structural holes»: Ronald Burt, *Structural Holes: The Social Structure of Competition*, Cambridge 1992.

³⁰ Köhler, *Wirtschaftsbürger* (cf. n.29), 138. In a study on the marriage practices in New Haven, Connecticut, Kennedy (1952) reported that, between 1870 and 1940, 80 percent of the Protestants, 84 percent of the Catholics, and 94 percent of the Jews married «endogamously». Ruby Kennedy, *Single or Triple Melting Pot? Inter-marriage in New Haven, 1870-1950*, in: *American Journal of Sociology* (1952), 56-59. It needs to be qualified that endogamy in a *minority* representing only 3-4 percent of the entire population appears to have a much stronger impact on the social closure of this group.

Human capital

As the 19th century drew to a close, we observe the increasing use of science and technology in industrial production and the professionalization of managers in the big companies. The growing importance of training manifested itself in a rising percentage of entrepreneurs/managers holding a university degree.

The Jewish minority had nurtured a tradition of erudition and education, which was rooted in the religious laws of Judaism. Botticini and Eckstein have referred to these traditions of the Jewish minority:³¹ The ability to read the sacred scriptures (Torah, Talmud), for example became one of the main religious requirements in Judaism after the destruction of the Second Temple. «The new religious leadership changed Judaism from a religion based on sacrifice to a religion whose main rule required each male Jewish individual to be able to read the Torah and to teach his sons the Torah» (p. 924). In the regions where Jews settled (Diaspora), many synagogues had already been established by the end of antiquity. These synagogues served not only as religious gathering places but also as schools in which basic cultural skills and knowledge were taught.³²

Religious commandments indirectly prompted an investment in human capital. As a result, the (male) Jewish minority could read (and often also write), while the majority population in which they lived was overwhelmingly illiterate. Botticini and Eckstein show how the ability to read the Torah in Hebrew provided the Jews with a comparative advantage in high-skill occupations.³³

With regard to the Protestant ethic, Becker and Wößmann develop similar arguments.³⁴ They claim that one of Luther's main demands was that each believer should be able to read the Bible. This was one reason why he translated the Bible into German in the first place. The authors point out that Luther «demanded that every town should have both a boys' and a girls' school where every child should learn to read the Holy Scriptures, in particular the Gospel» (p. 8). In an econometric analysis, they examine the connection between Protestantism (work ethic), education, and economic prosperity in the 452 Prussian districts of the late nineteenth century. They show that education, not Protestantism, had the greatest explanatory power for economic prosperity.

This does not exclude the content of faith from the analysis, but it does limit its influence to an indirect one. Investment in human capital explains economic prosperity, but this investment was an unintended consequence of following religious laws. The culture

³¹ Maristella Botticini/Zvi Eckstein, *Jewish Occupational Selection: Education, Restrictions, or Minorities?*, in: *Journal of Economic History* (2005), 922-948.

³² For Durkheim, *Suicide* (cf. n. 24), 168 the higher level of education among Jews was a weapon in the fight against discrimination.

³³ Botticini/Eckstein, *Jewish Occupational Selection* (cf. n. 31), 940; also Barry Chiswick, *Jewish Immigrant Wages in America in 1909*, in: *Explorations in Economic History* (1992), 274-289; illiteracy: Jacob Toury, *Soziale und politische Geschichte der Juden in Deutschland 1847-1871*, Düsseldorf 1977, 171, Tab. 56; Jerry Muller, *Capitalism and the Jews*, Princeton 2010, 9: «[...] the Jews' premodern commercial experience, together with their emphasis on literacy, predisposed them to do disproportionately well in modern capitalist societies».

³⁴ Sascha Becker/Ludger Wößmann, *Was Weber Wrong? A Human Capital Theory of Protestant Economic History*, Universität München 2007: <ftp://repec.iza.org/RePEc/Discussionpaper/dp2886.pdf> [last access July 2011].

of education in the religions offers one explanation for the «elective affinity between Judaism and ascetic Protestantism».³⁵

In Prussia, about 8.6 percent of Gymnasium pupils were Jewish in 1869, and Jewish students also made up 8.6 percent of the student body at Prussian universities in 1886/87. Yet Jews only represented about 1.3 percent of the Prussian population as a whole in 1885. A relatively high percentage of the Jewish minority had earned a degree of higher learning. These people created a pool from which big companies could recruit their qualified executive personnel.³⁶

Hypothesis 2: The Jewish economic elite had a higher level of formal education compared to the non-Jewish members of the network (human capital). The empirical evidence for this hypothesis is summarized in Table 4 (below).

Jewish private bankers

In the literature on the economic significance of the Jewish minority, reference is often made to the prominent role of Jews in the banking sector.³⁷ In the late 19th century, a high percentage of private bankers in Germany were of Jewish descent. They played an important role in financing the railroads. Because they maintained transnational networks, they were particularly helpful in acquiring loans and bonds from foreign financial centres (Paris, London).³⁸

The importance of Jewish bankers can be traced back to historical path dependence, just as can their role in the jewelry and diamond trades. As early as the Middle Ages, Jews acted as agents in financial and credit transactions. In the era of Absolutism, they served as court factors (court Jews) at many royal courts in Germany.³⁹ In this function,

³⁵ Wolfgang Schluchter, *Altisraelitische religiöse Ethik und okzidentaler Rationalismus*, in: id. (ed.), *Max Webers Studie über das antike Judentum*, Frankfurt 1981, 11-77, here 14.

³⁶ Source: *Gymnasium in Prussia*: Toury, *Geschichte der Juden in Deutschland* (cf. n. 33), 172, Tab. 57; Universities: Monika Richarz, *Der Eintritt der Juden in die akademischen Berufe*, Tübingen 1974, 93ff.; Arthur Ruppin, *Der Anteil der Juden am Unterrichtswesen in Preussen*, Berlin 1905, 43; Weber, *Die protestantische Ethik I.* (cf. n. 17), 78f., note 7, quotes figures that confirm the findings for Prussia.

³⁷ Simon Kuznets, *Economic Structure and Life of the Jews*, in: Louis Finkelstein (ed.), *The Jews: Their History, Culture, and Religion*, Vol. II, New York 1960, 1597-1666, here 1600f.: «The minority, rather than be dispersed, tends to be concentrated in selected industries, selected occupations, and selected classes of economic status».

³⁸ Rolf Walter, *Jüdische Bankiers in Deutschland bis 1932*, in: Werner Mosse/Hans Pohl (eds.), *Jüdische Unternehmer in Deutschland im 19. und 20. Jahrhundert*, Stuttgart 1992, 79-99; Harald Wixforth/Dieter Ziegler, *The Niche in the Universal Banking System: The Role and Significance of Private Bankers Within German Industry 1900-1933*, in: *Financial History Review* (1994), 99-119; Boris Barth, *Weder Bürgertum noch Adel: Zur Gesellschaftsgeschichte der deutsch-jüdischen Hochfinanz vor dem Ersten Weltkrieg*, in: *Geschichte und Gesellschaft* (1999), 94-122; Cassis, *Financial Elites in Three European Centres* (cf. n. 14); Daniel Bernstein, *Wirtschaft – Finanzwesen*, in: Siegmund Kaznelson (ed.), *Juden im deutschen Kulturbereich*, Berlin 1959, 720-759; Arthur Prinz, *Juden im Deutschen Wirtschaftsleben*, Tübingen 1984, 180ff.

³⁹ Selma Stern, *The Court Jew*, New Brunswick 1985; Barth, *Weder Bürgertum noch Adel* (cf. n. 38), 98; Walter, *Jüdische Bankiers* (cf. n. 38), 79-84; Wilhelm Treue, *Das Bankhaus Mendelssohn als Beispiel einer Privatbank im 19. und 20. Jahrhundert*, *Mendelssohn-Studien* (1972), 29-80.

they were responsible for furnishing and financing the luxury goods for the court. A series of important private banks were founded by former court Jews, including the banks Mendelssohn (Berlin), M.M. Warburg (Hamburg), and Rothschild (Frankfurt).

Bankers have to possess very specific knowledge about the money trade and methods of financing. As a rule, such competence was not gained at universities, but at on-the-job training in family businesses and in allied banking houses.⁴⁰ In the family, economic capital, human capital, and social capital were all passed down to the following generation. Social relations to businesses, to politics, and to foreign financial centres were absolutely essential for the success of a private bank. This network of relations provided Jewish private bankers with a niche, in which they remained competitive with big universal banks.⁴¹

Hypothesis 3: The percentage of the Jewish economic elite that held top-executive positions in the financial sector (particularly private banks) was significantly higher than the percentage of non-Jewish elite members who were engaged in finance and banking. The empirical evidence for this hypothesis is summarized in Table 4 (below).

Classification: Who is Jewish?

Before it can be determined whether Jews were «overrepresented» in the German economic elite, we must know what persons may be classified as Jewish. Three criteria are usually mentioned in the literature: religion, culture, and ethnic affiliation.⁴²

The religious criterion refers to those people who still had a relatively strong connection to the Jewish religious community. These people, however, probably constituted a minority within the economic elite. The criterion «culture» on the other hand identifies those people who had already distanced themselves from the religious aspect of Judaism, but still maintained strong social ties to the Jewish community and felt an affinity for Jewish traditions. The final criterion, ethnic affiliation, is broadest and in effect reduces Judaism to one of lineage. This last conceptualization of «Jewishness» plays an important role particularly in the extensive literature on forced displacement and annihilation of Jews in Germany. Nazi racial legislation, of course, defined «Jews» according to ethnic affiliation, and therefore this criterion remains inevitably the main focus of this literature.⁴³ Everyone who was classified as «Jewish» by the Nazi regime was threatened directly with extermination.

For the early 20th century, the criterion of ethnic affiliation might seem too broad, since some people would be classified as «Jews» who, for example, were second-generation

⁴⁰ Example: Paul Wallich (Berliner Handelsgesellschaft) passed an apprenticeship with banks in Hamburg, London, Paris, and New York. Barth, *Weder Bürgertum noch Adel* (cf. n. 38), 100.

⁴¹ Wixforth/ Ziegler, *The Niche in the Universal Banking System* (cf. n. 38).

⁴² Kuznets, *Economic Structure* (cf. n. 37), 1597f. enumerates four criteria: common history; same religion; feeling of belonging to one group; feeling of distinctiveness, often intensified by a discriminatory policy.

⁴³ See Dolores Augustine, *Die wilhelminische Wirtschaftselite: Sozialverhalten, soziales Selbstbewußtsein und Familie*, Berlin 1991, 52; Martin Münzel, *Die jüdischen Mitglieder der deutschen Wirtschaftselite 1927-1955*, Paderborn 2006, 123-134.

baptized Christians and held the religious and cultural traditions of Judaism at a great and often quite critical distance.⁴⁴ It could be argued that assimilated Jews should no longer be classified as «Jews». However, historical experience has shown that, even after several generations, many baptized Jews were still being identified as Jews, and this is true not only in Germany, but also in other countries.

In his analysis of the situation of Jews, Jean Paul Sartre provides an explanation for this phenomenon. He describes a social process of labelling and attribution (stigmatization). «The Jew is in the situation of the Jew because he lives amid a society that considers him Jewish.»⁴⁵ The social classification of an *individual* is based on the attribution of collective characteristics. The mechanism of «attribution» thus means that baptized and assimilated Jews were often still classified and treated as «Jews».⁴⁶

None of these criteria are unproblematic, nor is any of them completely satisfactory. Given the methodological problems associated with applying criteria relating to religious practice and/or culture, we have identified members of the Jewish economic elite within the framework of our study on the basis of their *ethnic descent*. This means that *assimilated Jews who had been baptized as Christians are also classified as Jews* in our sample.

We assume that assimilated and baptized «Jews» represented a relatively high percentage of the Jewish economic elite. It can be assumed that their economic success may have been due in part to their decision to uphold only certain elements of Judaism (education, solidarity), but otherwise assimilated themselves culturally in their environment.

The network of the corporate elite

Even before the First World War, top managers from big German firms had created a dense network in which they held key positions in several companies. For example, Eugen Gutmann, who was CEO of *Dresdner Bank* from 1872 to 1920, sat on the supervisory board of ten other major firms in 1914. Oscar Oliven, a board member at *Ludwig Loewe & Co. AG* from 1904 to 1929, held a supervisory board seat at twelve other companies. These supervisory boards of big companies became places where the members of the corporate elite met each other regularly in an ever-changing combination.

⁴⁴ On the later descendants of the Mendelssohn family (cadet branch), Mosse, *The German-Jewish Economic Elite* (cf. n. 26), 25 reports: «[...] the Mendelssohn-Bartholdys spared no pains to distance themselves from their Jewish origins». See also Walther Rathenau, *Höre Israel!*, in: *Die Zukunft* (1897), 454-462 (published under the pseudonym W. Hartenau).

⁴⁵ Original: «Le Juif est en situation de Juif parce qu'il vit au sein d'une collectivité qui le tient pour Juif» (Sartre, *Réflexions sur la question Juive* (cf. n. 25), 88). See Kathleen Crittenden, *Sociological Aspects of Attribution*, in: *Annual Review of Sociology* (1983), 425-446 for a summary of the sociological literature on attribution.

⁴⁶ Eugen Gutmann, CEO of the *Dresdner Bank*, was a baptized Jew. See Dieter Ziegler, *Eugen Gutmann: Unternehmer und Großbürger*, Working paper: Eugen Gutmann Gesellschaft (2003). Available at: <http://www.eugen-gutmann-gesellschaft.de/upload/ziegler.pdf> [last access July 2011]. In a letter to Hugo Stinnes, August Thyssen wrote in February 1904 that Eugen Gutmann cannot be nominated for a seat on the supervisory board of the Gelsenkirchener Bergwerk AG: «[Gutmann] is Jewish and therefore perhaps unacceptable for Gelsenkirchen». Source: Manfred Rasch/Gerald Feldman, *August Thyssen und Hugo Stinnes: Ein Briefwechsel 1898-1922*, München 2003, 241. Our data set for the sample year 1914 shows that Eugen Gutmann was elected to the supervisory board of *Gelsenkirchen*.

Table 1 shows the ten top executives who held the most posts in the network in 1914. Among these ten men, six were bankers and eight were of Jewish origin. Table 1 illustrates the central topic of this article, namely the relative overrepresentation of a minority at the centre of the corporate network.

Table 1: The German corporate network 1914 (big linkers)

Name	Firm	Pos
C. Fürstenberg (B,J)	Berliner Handelsgesellschaft	22
C. Klönne (B)	Deutsche Bank	22
W. Rathenau (J)	AEG	19
L. Hagen (B, J)	Bankhaus A. Levy (Köln)	15
M. Klitzing (B)	Bank für Handel und Industrie	14
W.Müller (B,J)	Dresdner Bank	14
E. Rathenau (J)	AEG	14
A. Salomonsohn (B,J)	Disconto-Gesellschaft	13
O. Oliven (J)	Loewe & Co. AG	12
E. Gutmann (B,J)	Dresdner Bank	10

Note: B: Banker; J: Jewish origin; Pos: number of positions in the corporate network (management/supervisory boards).

The Sample

For the sample, we have included all major German stock companies in the years 1896, 1914, 1928, 1933, and 1938. Also included were large family-owned firms and private banks that were not run as stock companies.⁴⁷ For each company, all members of the management/supervisory board were included in the database. Therefore, we have the names of all high-level executive personnel in large German firms.

With the help of this data, we can reconstruct the corporate elite network and present it either in the form of a matrix or graphically as an ego-network. Table 8 shows an ordered sub-matrix taken from the elite-matrix for 1914.⁴⁸ The figures indicate how often a pair of persons met each other on the various supervisory boards during a year. For example, in 1914 Eugen Gutmann and Oscar Oliven sat together on six different supervisory boards, while Carl Fürstenberg and Emil Rathenau served simultaneously on eight different boards.

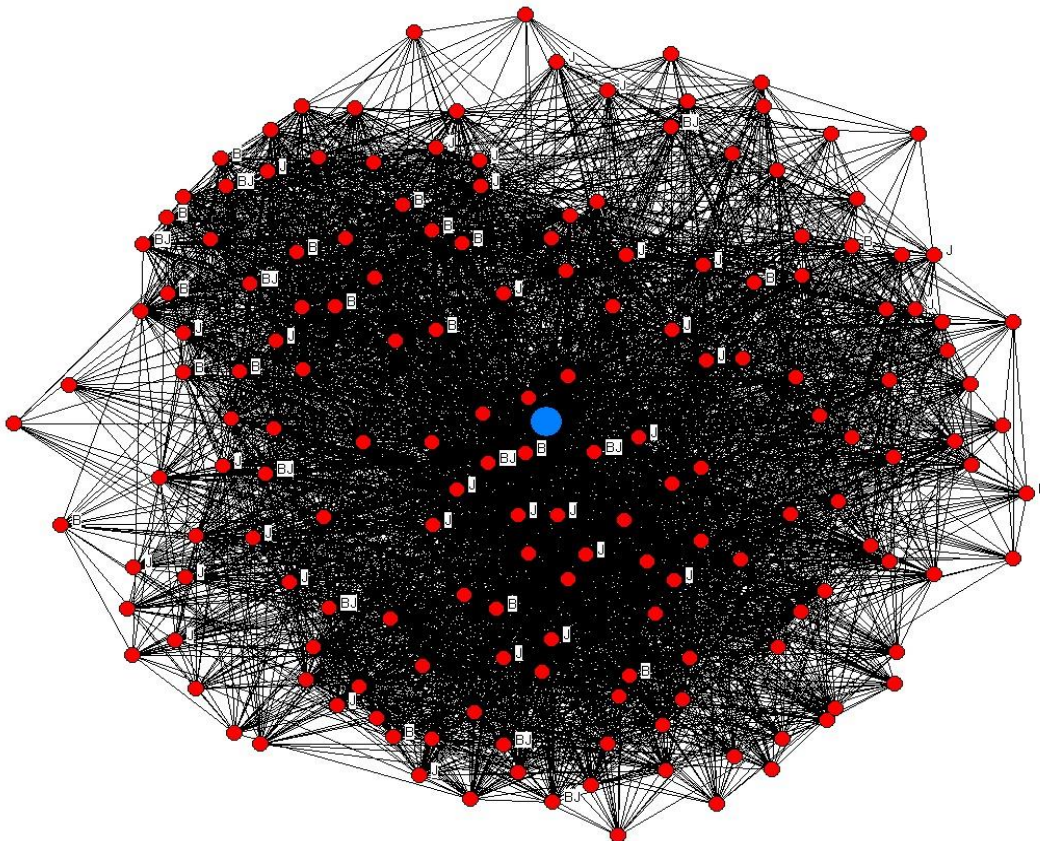
Figure 1 shows a graphical representation of the ego-network of one of the most prominent industrial leaders of Jewish origin during the Weimar Republic, Paul

⁴⁷ The list of firms included in the sample is found at: <http://www.uni-trier.de/index.php?id=3881> [last access July 2011]. The list is also available upon request from the author.

⁴⁸ Cf. section «matrices and logistic regressions» at the end of this article.

Silverberg.⁴⁹ In 1928 he sat on the supervisory board of 25 big German firms. By holding so many seats, Silberberg regularly met 171 other members of the corporate elite (big linkers), who are symbolized by the smaller circles in Figure 1. This figure illustrates that a very dense corporate network existed in Germany in which Jewish as well as non-Jewish members were integrated.

Figure 1: Ego-network of Paul Silverberg (1928)



Note: The ego-network shows Silverberg's contacts in 1928; N=171; cluster coefficient: 0.32; J: Jewish members of the ego-network; BJ: bankers of Jewish origin; B: bankers. Paul Silverberg is located in the middle of the network (larger circle). Distances between nodes (circles) cannot be interpreted. All persons meet each other directly on management/supervisory boards (path length 1). The ego-network is limited to members of Core A (cf. Table 2, below).

Nested Samples

The corporate elite network can be imagined as a series of concentric circles: on the outermost edge are people who hold only a few positions and therefore play a marginal role in the network. In the inner circle are the multiple directors who hold quite a few seats and meet many other people who also have many different positions.

Table 2 illustrates the funnel-shaped structure of four samples. Figures are explained for the year 1914: Sample 1 contains every person who held a position on the management/supervisory boards of the 346 largest German firms (N=3103). Sample 2 consists of all persons who held at least two positions in the network (N=1262). Sample 3 consists of all people who had four or more positions in the network (N=251). We call this

⁴⁹ On Paul Silverberg see Reinhard Neebe, *Großindustrie, Staat und NSDAP 1930-1933: Paul Silverberg und der Reichsverband der Deutschen Industrie in der Krise der Weimarer Republik*, Göttingen 1981; Boris Gehlen, *Paul Silverberg (1876-1959): Ein Unternehmer*, Stuttgart 2007. Silverberg emigrated to Switzerland in 1933.

subsample Core A. Finally, sample 4 consists of the key actors of the network: these big linkers not only hold many positions but also share board seats simultaneously with many other people who themselves hold many positions. These people make up the «inner circle» of the network.⁵⁰

Table 2: Nested Samples

Samples	1914	1928	1938	Ø (%)
1 All board members (N)	3103	5174	3256	100
2 2+ positions	1262	1922	1688	42.2
3 Core A	251	398	350	8.7
4 Core B	70	106	79	2.2
Firms	346	377	361	

Note: Core A: All persons holding four or more positions in the corporate network (degree centrality).

Core B: Persons who have a high degree centrality (4+ positions) and simultaneously a high Bonacich centrality.⁵¹

The last line of Table 2 shows the number of firms included in the sample for each year (1914: N=346). The last column of this table (Ø %) indicates the percentage of people who were part of each of the respective subsamples in all three of the sample years (average). For example, the «inner circle» includes on average only 2.2 percent of all board members.

Table 2 presents a series of increasingly smaller subsamples. People with at least two mandates create a subset from Sample 1; Core A (4+ positions) creates a subset from Sample 2; people who belong to the «inner circle» (Core B) create a subset from Sample 3. Thus, Table 2 contains a series of nested samples.

In constructing the subsamples, no personal criteria of the board members were used, only network criteria. The board members were grouped in the various subsamples according to the number of positions and/or their centrality in the network. In the next step, we ask whether personal criteria – such as education or nobility – can explain why a person belongs to Core A or to Core B.

For all of the people included in Sample 2, we have collected the following data: education (highest degree), Jewish origin, member of the aristocracy, honorary title in business (*Kommerzienrat*), banker (executive director of a bank). In the next section, it will be explained with the aid of a regression analysis which influence the variable «Jewish origin» had on determining whether a person belonged to Core A. Further, it will be clarified whether the influence of the variable «Jewish origin» can be reduced to the variables «banker» and «education» (spurious correlation). If this is the case, the main effect of the variable «Jewish origin» was not due to the person's religious/ ethnic affiliation, but rather to the fact that he is banker and/or holds a university degree.

⁵⁰ Michael Useem, *The Inner Circle*, New York 1984.

⁵¹ Phillip Bonacich, *Power and Centrality: A Family of Measures*, in: *American Journal of Sociology* (1987), 1170-1182.

Jewish origin: results of logistic regressions

First let us briefly explain the independent variables of the regression model.

- *Symbolic capital* (honorary titles): In the German Empire, many entrepreneurs and businessmen were awarded the title «*Kommerzienrat*». The purpose was to honor entrepreneurs and managers for their business achievements and thereby win the loyalty of the corporate elite for the political system of Imperial Germany.⁵²

- *Nobility*: We classified aristocratic titles as symbolic capital, regardless of the distinction between nobility by birth or by appointment after 1871. The competition within the bourgeoisie for aristocratic titles and honorary titles (*Kommerzienrat*) is a central argument in the discussion on the «feudalization» of entrepreneurs in the German Empire.⁵³

- *Educational capital*: In the available handbooks, the information on the university degrees held by board members is relatively complete and correct. Therefore, it is possible to note for each person whether they held a university or doctoral degree. We interpret the percentage of such people as the degree of professionalization of the network.

- *Ethnic Affiliation*: Since we could not identify the Jewish members within the empirical framework of our project, we based our classification here on work by Martin Münzel, who has published a comprehensive dissertation on the topic of the forced displacement of the Jewish corporate elite.⁵⁴ In Table 3 and in the logistic regressions, all people are classified as «Jewish members» who fall under the category of *ethnic affiliation* (cf. section «Who is Jewish?», above).

- *Bankers*: People are classified as «banker» if they held the position of a managing/executive director of a bank or were a partner of a bank in the period from 1914 to 1938. It has been shown in various studies that bank directors hold board positions in many firms and, therefore, stand at the centre of the network.⁵⁵

Multiple directors who held several positions in the corporate network were elected to these positions in each of the firms.⁵⁶ Therefore, multiple directors went through a

⁵² It is obvious that this variable is not truly «independent» because of reverse causality: Members of the economic elite were honored with this title *because* they held so many positions in the network.

⁵³ Karin Kaudelka-Hanisch, *Preußische Kommerzienräte in der Provinz Westfalen und im Regierungsbezirk Düsseldorf 1810-1918*, Dortmund 1993; Hartmut Kaelble, *Wie feudal waren die deutschen Unternehmer im Kaiserreich?*, in: Richard Tilly (ed.), *Beiträge zur quantitativen vergleichenden Unternehmensgeschichte*, Stuttgart 1985, 148-171.

⁵⁴ Münzel, *Die jüdischen Mitglieder der deutschen Wirtschaftselite* (cf. n. 43). I would like to thank Martin Münzel, who offered the information from his database (board directors of Jewish origin).

⁵⁵ For Germany see Dieter Ziegler, *Die Aufsichtsräte der deutschen Aktiengesellschaften in den zwanziger Jahren*, in: *Zeitschrift für Unternehmensgeschichte* (1998), 194-215; Paul Windolf, *Corporate Networks in Europe and the United States*, Oxford 2002, 67-76; Caroline Fohlin, *Finance Capitalism and Germany's Rise to Industrial Power*, Cambridge 2007, 65-81; for the United States: Beth Mintz/Michael Schwartz, *The Power Structure of American Business*, Chicago 1985, 194.

⁵⁶ The shareholders (general meeting) elect the members of the supervisory board. The members of the supervisory board elect the members of the management board (German corporate law).

selection process (ballot) in each firm. Table 3 shows which personal factors played a role in this selection.

Each entry in the first row pertains to persons who have at least two positions in the network; the second row to those with four or more positions (big linkers, Core A); and the third row to the centre of the network (Core B). If we move from the periphery to the centre of the network the percentage of Jewish members in 1914 rises from 16.0 to 40.0, the percentage of aristocrats from 13.2 to 24.3, and the percentage of honorary titleholders from 36.1 to 47.1. Compared with the subsample 2 (2+ positions), the percentage of Jewish members at the centre of the network is 2.5 times higher and the percentage of bankers is 2.0 times higher. The university degree did not yet have an impact in 1914.

Table 3: Selection criteria - Who belonged to the centre of the network?

1914	Jew	Nobility	Title	Education	Banker
2+ positions	16.0	13.2	36.1	31.4	14.2
Core A	25.1	21.1	47.4	34.7	21.5
Core B	40.0	24.3	47.1	30.0	28.6
1928					
2+ positions	12.7	8.9	23.6	44.1	13.4
Core A	24.6	11.8	30.7	57.8	15.3
Core B	31.1	16.0	26.4	63.2	22.6
1938					
2+ positions	3.1	8.2	17.4	46.8	8.6
Core A	2.9	9.4	24.0	58.6	11.1
Core B	1.3	10.1	20.3	62.0	13.9

Note: Title: honorary title (*Kommerzienrat*); education: university degree.

Figures give percentages. Example for 1914: 16.0 percent of persons belonging to sample 2 (2+ positions) are of Jewish origin; 25.1 percent of those belonging to Core A are of Jewish origin; 40 percent of those belonging to Core B are of Jewish origin.⁵⁷ Size (N) of the different samples is given in Table 2.

In 1914, 30 percent of the members at the centre of the network had a university degree; in 1928 the figure was 63.2 percent. In 1914, 47.1 percent of the central network members held honorary business titles, while in 1928 the figure was only 26.4 percent.

⁵⁷ Augustine analyzed the entrepreneurs and managers of Imperial Germany who were listed in the *Jahrbuch der Millionäre, 1912-1914* (Yearbook of Millionaires). She shows that of the 482 entrepreneurs for whom there is data, 25.1 percent were of Jewish origin. This percentage corresponds fairly precisely to the percentage of Jewish members in Core A of our sample. Source: Augustine, *Die wilhelminische Wirtschaftselite* (cf. n. 43), 36-38; 348, Table 2.18; Dolores Augustine, *Die soziale Stellung der jüdischen Wirtschaftselite im Wilhelminischen Berlin*, in: Werner Mosse/Hans Pohl (eds.), *Jüdische Unternehmer in Deutschland im 19. und 20. Jahrhundert*. Stuttgart 1992, 225-246.

The percentage of aristocrats dropped from 24.3 to 16.0 percent. These figures show that the rules of inclusion changed between 1914 and 1928: symbolic capital had not yet lost its importance completely, but its impact on the selection process had weakened considerably. Education, however, became more important and indicated the increasing professionalization of the network. Lawyers, economists, and engineers increasingly displaced barons and *Kommerzienräte* at the centre of the network.⁵⁸

In the section «Explanations» above, it was argued that the high percentage of Jewish members among the corporate elite could be attributed to their higher level of education and their concentration especially in the financial sector. If this hypothesis were correct, we could assume that Judaism «in itself» had no or only minor explanatory power for the overrepresentation of Jewish members among the corporate elite. Indeed, the variables «banker» and «education» would then be much more important in explaining this, and the relationship between centrality in the network and Judaism would only be a spurious correlation. We can test this idea with the help of our dataset.

We performed a logistic regression, the details of which are found in Table 4. The dependent variable for all regressions is membership in Core A. The results of this analysis are briefly summarized:

1. In 1914, the variables *nobility*, *banker* and *honorary title* are highly significant in explaining which people belonged to Core A of the network. The variable *university degree* is not significant.⁵⁹ These findings confirm those already presented in Table 3. Controlling for the variables education (university degree) and *banker* the variable *Jewish origin* remains significant. The results of Model 1 show that the relationship between Jewish origin and membership in Core A is *not* a spurious correlation. The variable *Jewish origin* has a strong influence on the selection process, and this independently of the variables *university degree* and *banker*.

2. In the second step, interaction variables were introduced into the model. They measure the influence of combinations of factors, such as Jewish members who were also bankers or Jewish members who held a university degree. If Judaism only produces a spurious correlation, then it should lose part of its significance in model 2. This did not happen. The two interaction variables proved to be not significant. When they are introduced into the regression equation, the effect of the variable *Jewish origin* slightly increases (from 0.56 to 0.61). Thus, the influence of the variable *Jewish origin* cannot be attributed to a combination of factors (e.g. Jewish*Banker; Jewish*Degree).

3. In 1928, the variables *nobility* and *honorary title* lose their explanatory power: they are no longer (or only barely) significant. The variable *Jewish origin* is now highly significant, and this holds even when the two interaction variables are introduced. The combination

⁵⁸ The reduction in the importance of symbolic capital (*Kommerzienrat*, nobility) is, in part, a *cohort effect*: After 1919 (Weimar Republic), such honorary titles were no longer awarded. Ennoblement no longer existed.

⁵⁹ In the regression analysis the variable «education» is coded as a dummy variable: university degree = 1; no higher education = 0. More detailed information about the university degrees of Jewish and non-Jewish members of the sample is available upon request from the author.

*Jewish origin*degree* even has a negative sign: people with this combination actually had a smaller chance of belonging to the centre of the network. The interaction between Judaism and banker has the expected positive sign, but is hardly significant ($\alpha \leq 0.10$). This weak interaction effect does not allow us to attribute the overrepresentation of Jews in the economic elite to a high proportion of Jewish bankers.

4. In 1938, the variable *Jewish origin* has a highly significant negative coefficient. This is not surprising in light of the small number of Jews who were still surviving in the network. For this reason we did not calculate any interaction effects.

Table 4: Logistic regressions

Independent variables	1914		1928		1938
	Model 1	Model 2	Model 1	Model 2	Model 1
Jewish origin	0.56 ²	0.61 ²	0.93 ³	1.12 ³	-1.75 ³
Nobility	0.85 ³	0.83 ³	(0.27)	(0.28)	(-0.16)
Honorary title	0.46 ²	0.48 ²	0.21	0.23 ¹	0.29 ¹
University degree	(0.17)	0.27	0.71 ³	0.82 ³	0.43 ²
Banker	0.94 ³	0.79 ³	0.48 ²	0.32 ²	0.58 ²
Positions	0.82 ³	0.82 ³	0.43 ³	0.43 ³	0.31 ³
Jew * degree	-	(-0.48)	-	-0.64 ¹	-
Jew * banker	-	(0.53)	-	0.86 ¹	-
Nagel R²	0.167	0.171	0.161	0.167	0.155
N	1262		1922		1687
Core A	251		398		350

Notes: The dependent variable is membership in Core A: person is a member of Core A = 1; person is not a member of Core A = 0 (dichotomous variable).

Levels of significance: ³: $\alpha \leq 0,000$; ²: $\alpha \leq 0,01$; ¹: $\alpha \leq 0,10$.

Coefficients in parentheses: Standard error of the logistic β -coefficient is equal to or larger than the β -coefficient.

Nagel R² = Nagelkerke R² measures the strength of the relationship between the dependent and the independent variables. Nagelkerke R² varies between 0 and 1.

N: Total sample size. Core A: Number of individuals belonging to Core A.

Positions: For each individual in the sample of 1914 the number of positions this individual held in 1896 was coded. For 1928 the number of positions an individual held in 1914 was coded.

Model 1: Main effects of the independent variables. Model 2: Main effects + interaction effects. An example of how the probability of belonging to Core A varies with different combinations of personal characteristics is given in Table 9 at the end of this article.

The number of positions held by a person in the previous period has a strong explanatory power in all regressions. In the equation for 1914, we introduced the number of positions that a person held back in 1896; in the equation for 1928, the number of positions a person held in 1914. The high significance of this variable points to the importance of social capital. People who held many positions in the network – that is, possessed

a great deal of social capital – had a greater chance of surviving in the network. This also means, however, that the overrepresentation cannot be attributed to Jewish family traditions that might have enabled positions within the network to be inherited. The net effect of the variable *Jewish origin* is not influenced by such family traditions.⁶⁰

In sum, it can be said that the impact of the variable *Jewish origin* could not be reduced merely to the level of education or to the profession of banker. On the contrary, the regression analyses show that a causal relationship exists between the Jewish background of a director and the likelihood of his being a member of Core A. In the next section, we undertake another attempt to find an explanation for this relationship.

Did a Jewish network exist?

In his study of German-Jewish investment bankers in New York in the late 19th century, Supple emphasizes the importance of endogamy for this community.⁶¹ He describes the situation of the Jewish corporate elite in New York as a closed network only sparsely connected to the surrounding society: «[...] families had coalesced into a homogeneous elite within but distinct from the larger society of New York City». The Jewish economic circles developed within New York society (inclusion), but they still remained distinct and separate from it (exclusion).⁶² This ambivalence between inclusion and exclusion is the framework for the network analysis presented in this section. Let us consider two hypotheses:

First, if the Jewish corporate elite protected their business interests to a great extent through marriage and family relations, and if the marriage circles were limited largely to their own denominational group (endogamy), then it can be assumed that the networks are also «endogamous» to a certain degree and can be defined according to denominational affiliation. The reference to a «homogeneous elite within but distinct from the larger society» can be reformulated into the hypothesis that the Jewish corporate elite built a very dense network inwardly, but was only loosely linked to the outside environment. This hypothesis is also known as «homophily in social networks».⁶³ We consequently expect the two networks (i.e. Jewish and non-Jewish) to be largely separated from one another (i.e. few bridges between the two).

Second, if especially the members of the Jewish corporate elite were linked through very close business and family contacts, the dominance of the Jewish big linkers that was proven in Tables 1 and 3, could be a statistical artefact. The center of the network

⁶⁰ The interaction effect *Jew*position* is not significant in any of the three sample years. Results are not reported here.

⁶¹ Supple, *A Business Elite* (cf. n. 28), 145.

⁶² On this, see also Sven Beckert, *The Monied Metropolis: New York City and the Consolidation of the American Bourgeoisie, 1850–1896*, New York 2001, 265f.: «Elite anti-Semitism had sharpened by the late nineteenth century, and its strongest articulation was the partial exclusion of Jewish New Yorkers from the social world of which they once had been a part.» See Thomas Sowell, *Ethnic America*, New York 1981, 69-99.

⁶³ The homophily principle means «that people's personal networks are homogeneous with regard to many sociodemographic, behavioral, and intrapersonal characteristics: ethnicity, age, religion, education, occupation, gender». Miller McPherson et al., *Birds of a Feather: Homophily in Social Networks*, in: *Annual Review of Sociology* (2001), 415-444, here 415.

(Core A and B) was created on the basis of network criteria. If, however, the Jewish members of the corporate elite were particularly skilful networkers, then it is not surprising that they are quite prevalent at the centre of the network. In this section, we will try to attribute the factor "Judaism" to the particularly dense social relations within the Jewish community. Therefore, we expect the number of contacts per person in the Jewish network to be significantly higher compared to the non-Jewish network (social cohesion, solidarity). In the following paragraphs we present the empirical evidence for these hypotheses.

In 1928, a total of 398 board members belong to Core A. For these individuals, we can create a network matrix that shows how often they met each other at board meetings of different firms. The matrix has 398 lines and 398 columns; it documents the connections among these 398 board members. Table 8 at the end of this article illustrates the structure of such a matrix.

We can sort this matrix both by column and by line according to the categories of Jewish and non-Jewish. In 1928, Core A has 98 Jewish members and 300 non-Jewish members. Once sorted, the Jewish members are found in the first 98 lines/columns and the non-Jewish members in the following 300 lines/columns. In this way, four sub-matrices are created: the sub-matrix A contains only Jewish members and shows how the 98 Jewish members are interconnected among themselves ($J \leftrightarrow J$). The sub-matrix D contains only the non-Jewish members and shows how the 300 non-Jewish members are interconnected among themselves ($NJ \leftrightarrow NJ$). These two sub-matrices are square, that is they have the same number of lines and columns.

Sub-matrix B has 98 lines (containing the Jewish members) and 300 columns (containing the non-Jewish members). This rectangle-matrix shows the connections among Jews and non-Jews ($J \leftrightarrow NJ$). In a similar fashion, sub-matrix C has 300 lines (containing the non-Jewish members) and 98 columns (containing the Jewish members). This rectangle-matrix shows the connections among non-Jews and Jews ($NJ \leftrightarrow J$).

The results listed in the upper left-hand corner of Table 5 are from sub-matrix A and show the ties only between Jewish members of the corporate elite (intra-ethnic interlocking), while the results listed in the lower right-hand corner are from sub-matrix D and show ties only between non-Jewish members. The upper right-hand corner and the lower left-hand corner show the results of sub-matrices B and C. We can call the sub-matrices A and D endogamous/homophilous matrices and sub-matrices B and C exogamous/heterophilous ones.

We assume that the economic circles between Jews and non-Jews are separated (only few ties in the sub-matrices B and C); we also assume that Jews in sub-matrix A have significantly more contacts compared to non-Jews in sub-matrix D (social cohesion).

The matrices were calculated for the years 1914 and 1928. We explain the results for the year 1928. Matrix A ($J \leftrightarrow J$) contains 3442 ties between 98 Jewish members of the network. The density equals 21.4, which means 21.4 percent of the possible ties did indeed exist.⁶⁴ On average, a single Jewish member had 35.1 ties to other Jewish members. A high proportion of ties are multiple ties (40.8 percent). This means that the *same*

⁶⁴ For an introduction in network analysis see John Scott, *Social Network Analysis*, London 2000.

Table 5: Ties among Jewish and non-Jewish members of the network

A. J ↔ J	1914	1928	B. J ↔ NJ	1914	1928
All ties	1492	3442	All ties	2035	5918
Multiple ties (%)	37.0	40.8	Multiple ties (%)	21.6	30.3
Density	24.1	21.4	Density (%)	13.5	14.0
Ø number of ties	23.7	35.1	Ø number of ties	32.3	60.4
Dimension	63x63	98x98	Dimension	63x188	98x300
C. NJ ↔ J	1914	1928	D. NJ ↔ NJ	1914	1928
All ties	2035	5918	All ties	3874	14604
Multiple ties (%)	21.6	28.6	Multiple ties (%)	14.8	28.0
Density (%)	13.5	14.0	Density	9.4	11.7
Ø number of ties	10.8	19.7	Ø number of ties	20.6	48.7
Dimension	188x63	300x98	Dimension	188x188	300x300

J↔J: Ties among Jewish members of the networks

J↔NJ: Ties among Jewish and non-Jewish members

NJ↔J: Ties among non-Jewish and Jewish members

NJ↔NJ: Ties among non-Jewish members of the network

Analysis has been carried out for all members of Core A.

1914: $\sum 63J + 188NJ = 251$; 1928: $\sum 98J + 300NJ = 398$.

Ø: Average number of ties per person. All ties are undirected

All (sub)matrices are non-dichotomous. Density has been computed for dichotomous matrices.

pairs of directors met each other at board meetings of *different* firms. For instance, E. Gutmann and O. Oliven met at the supervisory board of six different firms; D.J. Hoeter and M. Klitzing met at the supervisory board of four different firms (cf. Table 8).

Matrix D (NJ ↔ NJ) shows that the 300 non-Jewish members had 14,604 ties among themselves, with an average of 48.7 ties per person. Thus it is clear that the Jewish members were not the only network virtuosos; non-Jews were too. In this regard, there is no difference between the two network groups: Jews and non-Jews were both part of «Germany Inc.» and operated within the model of cooperative capitalism.⁶⁵

We come to the conclusion, therefore, that the high percentage of Jewish members at the centre of the network (Core A) cannot be attributed to different strategies of interlocking. Jews and non-Jews alike were network specialists within cooperative capitalism.

Matrices B (J ↔ NJ) and C (NJ ↔ J) contain ties between Jewish and non-Jewish members, in other words, the «exogamous» contacts (heterophilous network). In 1928, the 98 Jewish members had an average of 60.4 ties to non-Jewish members, while the 300 non-Jewish members had an average of 19.7 ties to Jewish members. Thus, it also becomes clear that the two network groups were densely linked to one another. The description that Supple proposes – «within but distinct» – does not offer us an accurate

⁶⁵ Paul Windolf, Coordination and Control in Corporate Networks: United States and Germany in Comparison, 1896–1938, in: *European Sociological Review* (2009), 443-457.

picture of this interlocking structure. The Jewish members were not an isolated faction of the network, but were integrated by way of many «exogamous» ties into the network of «Germany Inc.» Their liquidation after 1933 was a process that had a large non-Jewish audience.

The large difference between the average number of contacts of Jews to non-Jews (60.4)⁶⁶ compared to non-Jews to Jews (19.7)⁶⁷ is due to different group size. In a society in which the Jewish minority makes up only one percent of the population, every Jew may have had several non-Jewish friends, but not every non-Jew had the opportunity to have a Jewish friend.⁶⁸ The effects of group size on the network structure will be explored in more detail in the next section.

The example of Paul Silverberg can be used to illustrate the inclusion of Jewish members in the network of the German corporate elite (cf. Figure 1 above). In 1928, Silverberg held 25 supervisory board mandates. These mandates brought him into contact with 171 persons who belonged to Core A of the network. Of these 171 persons, 40 were Jewish members (23.4 percent). This corresponds almost exactly with the percentage of Jewish members represented overall in Core A (24.6 percent). In this sense, the network of Paul Silverberg is «representative.»

Homophily

Figures in Table 5 have shown that Jews and non-Jews were integrated into a dense corporate network that was typical for cooperative capitalism in Germany. However, we did not take into account different group size. Jewish members, remember, made up only a quarter of Core A. Group size strongly influences the distribution of ties within a heterogeneous population. It shapes the networks by influencing the opportunity structure for contacts.⁶⁹

Let us assume, for a moment, that the religious/ethnic affiliations of the members of the economic elite were hidden behind the «veil of ignorance».⁷⁰ The variable religious/ethnic affiliation would then have no influence on the nomination of board members and, hence, no influence on the distribution of ties between members of Core A. We would expect ties to be randomly distributed.

A random graph model sets an edge between each pair of nodes with equal probability, i.e., each member of the network has an equal chance of being connected to any

⁶⁶ Sub-matrix B: $5918/98 = 60.4$ contacts per Jew to non-Jews.

⁶⁷ Sub-matrix C: $5918/300 = 19.7$ contacts per non-Jew to Jews.

⁶⁸ See Peter Blau, *Inequality and Heterogeneity*, New York 1977, 23, 42: «[...] For any dichotomy of society, the mean number of intergroup associates is an inverse function of group size.» On average, each member of the smaller group has more contacts to members of the larger group. Blau provides in his book a formalized theory of the effects of group size on *intergroup* relationships.

⁶⁹ Group size is a demographic characteristic of networks that influences the «baseline homophily». Baseline-homophily is that part of in-group contacts that is due to group size. McPherson et al., *Birds of a Feather* (cf. n. 63), 419. In Table 6 (below), the baseline-homophily for Jews and non-Jews is given in line «expected».

⁷⁰ John Rawls, *A Theory of Justice*, Cambridge 1997 [1971], 136.

other member of the network.⁷¹ The default parameters are the number of nodes and the density of the graph. These parameters are given by the size and density of Core A. In 1914, Core A has 251 members (= nodes), who are connected to each other by a total of 9436 ties. The density of this matrix is 15.04 percent.⁷² If religious/ethnic affiliations had no influence on the nomination of board members, one would expect the *same* density in *all* sub-matrices. In Table 6 the line „expected” gives the number of ties that would be expected under a random graph model. This base-line model only takes into account the different group size. The line „observed” shows the number of ties we actually observed in the data matrix. Panel A gives results for 1914, Panel B for 1928. We explain the figures for 1914.

If the number of ties in 1914 were influenced only by relative group size, one would expect the 63 Jewish members in this sub-matrix to be connected to each other by 587 ties. We *observed* 1,492 ties in the empirical data set. The ratio expected/observed amounts to 2.54. This means that the Jewish members have 2.54 times more contacts to each other than one would expect under a random graph model. Sub-matrix (NJxNJ) gives the expected number of ties for the 188 non-Jewish members: 5,287. We *observed* 3874 ties in the data set. The ratio expected/observed amounts to 0.73. This means that the non-Jewish members have significantly less contacts to each other than one would expect under a random graph model.

Table 6: Expected and observed ties (homophily)⁷³

Panel A: 1914	Jews	Non-Jews	Panel B: 1928	Jews	Non-Jews
Jews (N=63)	Exp. 587	Exp. 1781	Jews (N=98)	Exp. 1798	Exp. 5560
	Obs. 1492	Obs. 2035		Obs. 3442	Obs. 5918
	Ratio 2.54	Ratio 1.14		Ratio 1.91	Ratio 1.06
Non-Jews (N=188)	Exp. 1781	Exp. 5287	Non-Jews (N=300)	Exp. 5560	Exp. 16964
	obs. 2035	Obs. 3874		Obs. 5918	Obs. 14604
	Ratio 1.14	Ratio 0.73		Ratio 1.06	Ratio 0.86

Notes: Exp.: expected number of ties; obs.: observed number of ties. Ratio: observed/expected.
 All ties 1914: 9436; all ties 1928: 29882. All (sub)matrices are non-dichotomous.
Expected density in all cells for 1914: 15.04 percent; for 1928: 18.91 percent.

Table 6 shows that the Jewish network members had a significantly higher ingroup-density than one would expect under a random graph model (homophily). This ingroup-attachment was relatively strong in 1914 (ratio: 2.54), and somewhat weaker in 1928 (ratio: 1.91). How can we explain this homophily-effect?

⁷¹ Garry Robins et al., *An Introduction to Exponential Random Graph (p*) Models for Social Networks*, in: *Social Networks* (2007), 173-191, equation 2 (Bernoulli random graph distributions).

⁷² $9436/(251 \times 250) = 0.1504$; density: 15.04 percent

⁷³ Table 6 presents the number of ties in each cell (frequencies). With a little algebra frequencies can be transformed into density. Example for the matrix JxJ (1914): $587/(63 \times 62) = 0.1504$ (15.04 percent). The underlying structure of Table 6 is a Chi²-Table with four cells.

Already before the First World War some large German companies were labelled «Jewish» firms. These firms had a relatively large number of Jewish directors sitting on their supervisory/management board. Among these «Jewish» firms were, for instance, *AEG*, *Metallgesellschaft*, and *Dresdner Bank*.⁷⁴ If the Jewish members of the German economic elite were *concentrated* in a few large firms, one would expect a very high density among the members of this group: Almost all of them would then be interconnected.

We were able to identify the religious affiliation of a total of 1,112 board members in our data set 1900 to 1938. We computed the number of Jews, Protestants, and Catholics sitting on the management/supervisory board for each firm in our sample. Table 7 shows the concentration ratio in percent for the five, ten, and twenty firms with the largest number of Jews, Protestants, and Catholics. In 1928, 7.2 percent of all Jewish board members had board positions in the five firms with the largest number of Jews on their board; 9.1 percent of all Protestant board members had board positions in the five firms with the largest number of Protestants on their board, etc. Table 6 shows that it is hardly possible to identify Jewish, Protestant, or Catholic firms. Members of all three religious groups were represented on the boards of most large German firms.⁷⁵ Some firms had a larger number of Jews (*AEG*, *Metallgesellschaft*), while other firms had a larger number of Protestants (*Deutsche Bank*, *Vereinigte Stahlwerke*).

Our data set also shows that more than two thirds of the large corporations in our sample had at least one Jewish member sitting on their board. In 1914, the exact figure was 65.3 percent, in 1928 it was 73.7 percent. These figures demonstrate again the high degree of *integration* of the Jewish minority in the German corporate network.

Table 7: Concentration of Jewish, Protestant, Catholic board members

1928	Jews	Prot.	Cath.
CR 5 (%)	7.3	9.1	10.3
CR 10 (%)	12.9	15.7	17.4
CR 20 (%)	22.1	24.6	28.7

Note: CR: concentration ratio in percent of the five/ten/twenty firms with the largest number of Jewish, Protestant, Catholic board members.

We come to the conclusion that, on average, Jews had significantly more contacts to other Jewish members than one would expect under a random graph model. However, this strong ingroup-attachment does not mean that Jews were an isolated minority within the corporate network. We have shown that Jews had, on average, more contacts to non-Jews than to their coreligionists. Furthermore, we have demonstrated that board membership for Jews was not limited to a small number of «Jewish» firms. Jews in fact had board membership in more than two-thirds of the large German corporations.

⁷⁴ See Münzel, *Die jüdischen Mitglieder der deutschen Wirtschaftselite* (cf. n. 43), 345, 371, 394.

⁷⁵ Cf. Table 10 at the end of this article.

Discussion and conclusion

In the previous sections we reconsidered some explanations that are given in the literature for the relative overrepresentation of the Jewish minority in the German economic elite.

We first tested the hypothesis that the members of the Jewish economic elite had, on average, a higher level of education than the non-Jewish members, and that this greater investment in human capital brought them comparative advantages in the competition for top positions in the large German corporations. We also assumed that a high proportion of the Jewish economic elite was employed in the financial sector (banking). If these hypotheses had been correct, then the variable *Jewish origin* could be replaced by the two variables *education* and *banker*. The observed correlation between *Judaism* and *centrality* in the corporate network would be a spurious correlation, since human capital and employment in the banking sector would have been the actual causal factors.

The results of the regression analyses showed that this hypothesis of an indirect causality is not confirmed by the data. The high percentage of Jews at the centre of the network of big businesses cannot be attributed to the higher level of education or to the fact that they were directors at influential banks. The analysis of the interaction effects did show that neither of these variables, when coupled with *Jewish origin*, was significant in explaining economic success.

We then tested the hypothesis that the comparative advantage of Jews could be attributed to the community in which they lived. This community, anchored in religion and tradition, created an internal cohesion that was only strengthened by external threats. This idea of *social embeddedness* plays an important role in institutional economics and economic sociology. Networks of trust, in which contractual partners are protected against opportunism, create comparative advantages.

In a previous section, we asked whether, among big German firms, a «Jewish» network of particularly high density and closure developed in the early twentieth century. The network analysis produced the following findings:

- Even before the First World War, a dense corporate network existed in Germany. Both Jewish and non-Jewish managers were integrated into this institution of cooperative capitalism («Germany Inc.»).
- Jewish members did not create a network of their own that was separate from the overarching corporate network. Instead, Jewish and non-Jewish members had contact with one another through their seats on the supervisory boards of big firms. Both groups were integrated into this network. These results were modified, but not invalidated when group size was taken into account. Even though there was a clear tendency for homophily Jews had, on average, more contacts to non-Jews than to their own group members.

The second attempt to attribute the factor *Judaism* to other variables was also unsuccessful. We did not succeed in explaining the observed correlation between Judaism and economic success through an indirect causality, namely through the variables *community* and *social embeddedness*.

Therefore, we have exhausted the possibilities of an empirically based explanation that seeks to find the reasons for the economic success of Jews not in «Judaism» of whatever

kind, but in variables used in other contexts in sociology and economics (human capital, social embeddedness).

However, at least three reservations can be raised against the interpretation of the data presented here. These are put in the form of alternative hypotheses to be taken into consideration.

First, it can be argued that the variable *education* only measures formal educational degrees, but not the educational culture nurtured in the Jewish family and proven to be decisive particularly for success in elite positions. This line of argument could be supported by Bourdieu's concept of habitus and of cultural capital that is acquired in socialization processes taking place within the family.⁷⁶

Second, the variable *social embeddedness* was operationalized as the number of contacts to other members of the corporate elite (where contact takes place through supervisory board seats). One could, however, argue that the extensive family relations of Jews were far more decisive for their career (endogamy). In other words, it was not the network of the corporate elite that was important, but the networks that people had *before* they become members of the corporate elite, meaning those tutorial networks that accompanied their careers.

The last point of criticism refers to the motivation that drives people to achieve economic success. Max Weber has shown that – through a particular reshaping of the original doctrine of predestination – economic success becomes a sign of being chosen. This is why it is so important for Puritans to be able to show noticeable economic success. Possibly, the discrimination and humiliation in this world that the Jews in the Diaspora experienced daily were stronger motivating factors than any expectations Puritans had with respect to their salvation.

None of these alternative hypotheses can be tested with the data available to us. But they do temper the interpretation of the data presented here.

Matrices and logistic regressions

In this section, additional information is provided for the density of the corporate network and the logistic regressions. The submatrix in Table 8 contains twenty persons who were members of Core B in 1914 (highest density of the matrix). The numbers indicate how often a pair of persons met each other on the various supervisory boards during a year. For example, E. Gutmann and J. Stern sat together on six different supervisory boards. A. Blaschke and O. Oliven met each other during a year on five different supervisory boards. The matrix is symmetric.

⁷⁶ Pierre Bourdieu, *The Forms of Capital*, in: John Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education*, New York 1986, 241-258.

Table 8: Submatrix (1914)

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 E.Gutmann		3	6	6	4	3	2	5	5	2	4	3	2	3	1	1	1	2	1	2
2 W.Rathenau	3		4	4	4	5	8	4	2	3	2	1	2	1	2	4	5	3	2	3
3 J.Stern	6	4		5	5	5	3	4	4		3	1	1	1	1	2	2	2	2	2
4 O.Oliven	6	4	5		5	2	3	5	5	3	3	1	2	3	1	2	1	5	1	3
5 M.Klitzing	4	4	5	5		3	3	5	3	5	4	2	2		2	2	1	3	2	3
6 C.Fürstenberg	3	5	5	2	3		8	2	3	1	1	1	3	2	3	3	4	1	3	1
7 E.Rathenau	2	8	3	3	3	8		3	2	2	1	1	2	1	2	4	3	2	2	2
8 A.Blaschke	5	4	4	5	5	2	3		3	1	3	1	3		2	2	1	3	1	3
9 E.Arnhold	5	2	4	5	3	3	2	3		1	2	1	1	3	1	1	1	1	2	1
10 W.Müller	2	3		3	5	1	2	1	1		2	2	1	4	2	1	1	1	1	1
11 D.J.Hoeter	4	2	3	3	4	1	1	3	2	2		2	2	1	1			1	1	1
12 H.Fischer	3	1	1	1	2	1	1	1	1	2	2		2	1	1	1	1	1	2	1
13 A.Salomonsohn	2	2	1	2	2	3	2	3	1	1	2	2			3	2	1	2	1	2
14 L.Hagen	3	1	1	3		2	1		3	4	1	1			1		1		2	
15 S.A.Oppenheim	1	2	1	1	2	3	2	2	1	2	1	1	3	1		1	2	1	1	1
16 H.Landau	1	4	2	2	2	3	4	2	1	1		1	2		1		3	2	2	2
17 F.Deutsch	1	5	2	1	1	4	3	1	1	1		1	1	1	2	3		1	2	1
18 J.Hamspohn	2	3	2	5	3	1	2	3	1	1	1	1	2		1	2	1		1	3
19 M.Kempner	1	2	2	1	2	3	2	1	2	1	1	2	1	2	1	2	2	1		1
20 D.Heinemann	2	3	2	3	3	1	2	3	1	1	1	1	2		1	2	1	3	1	

Table 9 provides additional information on the logistic regressions which have been computed. The following equation specifies a logistic regression:⁷⁷

$$\text{logit}(p) = \ln(\text{odds}) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Odds = $p/(1-p)$; p : probability that $Y = 1$ (person is a member of Core A); α : intercept; β_k : logistic regression coefficients.

The *dependent* variable of a logistic regression is the natural log of the odds. The equation shows how the natural log of the odds that $Y = 1$ varies as a function of the linear predictor: $\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$.

Table 9: Logistic equations (Model 1)

	Year	Inter	Jew	Nob	Hon	Degree	Bank	Pos	ln(odds)	Odds	Prob
1	Jew 1914	-2.35	0.56	0	0	0.17	0.94	1.64	0.96	2.61	0.72
2	Jew 1914	-2.35	0.56	0	0	0.17	0	1.64	0.02	1.02	0.50
3	Non-Jew 1914	-2.35	0	0	0.46	0.17	0.94	1.64	0.86	2.36	0.70
4	Non-Jew 1914	-2.35	0	0	0.46	0.17	0	1.64	-0.08	0.92	0.48
5	Baseline 1914	-2.35	0	0	0	0	0	0	-2.35	0.1	0.09

Note: $\ln(\text{odds}) = \text{logit}(p)$; Inter = intercept ; prob: probability.

Table 9 shows how the probability (prob) of belonging to Core A varies, depending on a combination of different characteristics of a person (Jew versus non-Jew; banker versus non-banker). In line 1 in Table 9, the $\ln(\text{odds})$ is computed for a person with the following characteristics: Jew (1), no nobility (0), no honorary title (0), university degree (1), banker (1), two positions in the corporate network in 1896. Logistic coefficients are taken from Table 4, Model 1 (1914). The following equation illustrates the computation:

Intercept	+	Jew	+	Nobility	+	Honor. Title	+	Uni. Degree	+	Bank	+	Positions 1896	=	ln(odds)
-2.35	+	0.56x1	+	0	+	0	+	0.17x1	+	0.94x1	+	0.82x2	=	0.96

We can convert the $\ln(\text{odds}) = 0.96$ by taking the exponent of this value:

$$e^{0.96} = 2.61 = \text{odds. Probability of belonging to Core A} = 0.72.^{78}$$

In line 3 in Table 9, the $\ln(\text{odds})$ is computed for a person with the following characteristics: non-Jew (0), no nobility (0), honorary title (1), university degree (1), banker (1), two positions in the corporate network in 1896. The following equation illustrates the computation:

⁷⁷ Cf. James Jaccard, *Interaction Effects in Logistic Regressions*, London 2001.

⁷⁸ Prob = odds/(1+ odds): $2.61/(1+2.61) = 0.72$.

Intercept	+	Jew	+	Nobility	+	Honor. Title	+	Uni. Degree	+	Bank	+	Positions 1896	=	ln(odds)
-2.35	+	0	+	0	+	0.46x1	+	0.17x1	+	0.94x1	+	0.82x2	=	0.86

$e^{0.86} = 2.36 = \text{odds}$. Probability of belonging to Core A = 0.70.

This computation shows that a Jew with no honorary title has approximately the same probability of belonging to Core A compared with a non-Jew with an honorary title (0.72 versus 0.70) - *ceteris paribus*.

Line 5 in Table 9 shows the baseline model for 1914. The baseline model refers to a person who has none of the listed characteristics: non-Jew, no nobility or honorary title, no university degree, non-banker, no positions in the corporate network back in 1896. The probability that this person belongs to Core A = 0.09.

Table 10 shows the number of Jews, Protestants, and Catholics for the five firms with the highest number of directors of each denomination on the management/supervisory board. For instance, in 1928 the *Metallgesellschaft* had the highest number of Jewish management/supervisory board members; the *Deutsche Bank* had the highest number of Protestant members.

Table 10: Religious denomination of board members (1928)

Jews	N	Protestants	N	Catholics	N
Metallgesellsch.	19	Deutsche Bank	32	RWE	8
Deutsche Bank	18	Verein. Stahlw.	23	Deutsche Bank	6
AEG	16	Allianz	22	Verein. Stahlw.	6
Dresdner Bank	15	Gelsenkir. Bergw.	22	Discontogesell.	6
VIAG	15	Discontogesell.	22	Aach.& München. Vers.	6

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