

# **The German-Jewish Economic Elite (1900 – 1933)**

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## Summary

In the early twentieth century, a dense corporate network was created among the large German corporations ("Germany Inc."). About 16% of the members of this corporate network were of Jewish background. At the center of the network (big linkers) about 25% were Jewish. The percentage of Jews in the general population was less than 1% 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 economic elite had a better education compared to the non-Jewish members of the network (human capital). (2) Jewish members had a central position in the corporate network, because many of them were engaged in finance and banking. (3) Jewish members created a network of their own that was separate from the overarching corporate network (social capital). The density of this Jewish network was higher than that of the non-Jewish economic elite (embeddedness). Our data do not support any of these hypotheses. The observed correlation between Jewish background and economic success 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.

## 1. The spirit of capitalism: Sombart versus Weber

The question which role the Jewish minority played in the development of capitalism during the late nineteenth and early twentieth century was a controversial issue 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."<sup>1</sup>

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 Jewish traditions: "... for the Puritans, the Jew was the epitome of all things abominable because he participated in irrational and illegal businesses, such as war usury, tax and office farming, etc, like the court minions." "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" (Weber 1981, p. 307).

Barkai (1988) considers Sombart's book to be a "sorry piece of work" and summarized his criticism by quoting David Landes: this book "should have been dismissed out of hand as a pseudo-scholarly hoax, a pedantic effort to confer ... an academic respectability on arrant nonsense...."<sup>2</sup> Barkai maintains "that the course of industrialization in Germany would hardly have been significantly different had not a single Jew existed there" (p. 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

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<sup>1</sup> Sombart (1911, pp. V, VII). Also Roth (2005, p. 25) and Schluchter (1981, p. 4). The English translation of Sombart's book *Die Juden und das Wirtschaftsleben* is incomplete and in part incorrect. Quotes taken from the original German text are cited here as Sombart (1911) and have been translated for this article; those from the English translation are cited as being from Sombart (1913). This is also true for Weber's *Wirtschaftsgeschichte*. Weber (1981) refers to the original German book, Weber (1961) to the English translation.

<sup>2</sup> Quote cited in Barkai (1988, p. 3). On a very harsh critique of Sombart's book see Brentano (1916, p. 159, 197-99).

firms – a finding that Sombart also pointed out earlier.<sup>3</sup> Barkai (1988, p. 60) comes to the conclusion that the economic advantage enjoyed by the Jewish minority at the time cannot be denied. He attributes this finding to the concentration of Jews in the big cities (particularly in Berlin)<sup>4</sup> and in the professions (law, medicine).<sup>5</sup>

Rahden (2008) 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% of the male Jewish population earned more than 10,000 Marks per year (the highest income class).<sup>6</sup> Because of the three-class-suffrage (*Dreiklassenwahlrecht*) in Prussia, Jews were able to exercise considerable influence upon community politics in Breslau.

We take the Sombart-Weber controversy as a starting point and test the hypothesis of a relatively high percentage of Jews among the German economic elite with more recent data. We have collected 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% of the board members were of Jewish background. At the center of the network (big linkers) about 25% were Jewish. The percentage of Jews in the general population was less than 1% in 1914.

In their study on "Diversity in the Power Elite," Zweigenhaft and Domhoff (2006, p. 22) report that in the United States 3.4% of the top managers of large corporations were of Jewish origin at the beginning of the twentieth century; this percentage increased to 4.3% by 1925. Tedlow et al. (2003, p. 56) have identified the religious affiliation of the CEOs of the 200 largest U.S.-firms in 1917. About two thirds of the top-managers were Episcopalian or Presbyterian, 7% were Roman Catholic, and 4.6% were Jewish. In 1920, about 3.5% of the U.S.-population was of Jewish origin. Jeremy (1988, pp. 16-18) used the Dictionary of Business Biography. He was able to identify the religious affiliation of 428 businessmen in the late nineteenth/early twentieth century in Britain. About 2% of them were of Jewish origin. Jews made up 0.7% of the general population in Britain.<sup>7</sup>

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

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<sup>3</sup> Tax revenue: Sombart (1911, pp. 219-21, Table. I, II, III); Barkai (1988, pp. 140, 149, 154). Supervisory board: Sombart (1911, pp. 134-36); Mosse (1987, pp. 252-53).

<sup>4</sup> Before the First World War about 24% of all German Jews lived in Berlin, about 46% of Jews in the United States lived in New York. Source: American Jewish Year Book 22 (1920/21), p. 372 (statistics of Jews). Available at: <http://www.ajcarchives.org/main.php?GroupingId=10054>

<sup>5</sup> Cf. chapters on the professions in Kaznelson (1959); Zielenzinger (1930).

<sup>6</sup> Source: Rahden (2008, pp. 31-34, Table 5 on p. 248; pp. 41-50, Table 13 on p. 256).

<sup>7</sup> For Britain see also Cassis (1992, p. 26); Rubinstein (1981, p. 150).

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 nineteenth century still fill a significant percentage of the top managerial posts in German big business?<sup>8</sup> 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 favor the Jewish community in one country more than in another one?

## 2. Religious ideas

Max Weber argues that the origins of capitalism cannot be derived from the accumulation of mercantile capital or from technical innovations. Merchant capitalism and technological progress also existed in other parts of the world (e.g. China, North Africa). Capitalism, as it developed in the countries of the Occident, is based on a specific *ethos*, which Weber calls the Protestant Ethic. This ethic is manifested in religiously justified maxims on how to conduct one's life. Among these are the "restless work in a vocational calling" and the pursuit of economic gain as a sign of "chosenness" (Weber 2002, p. 66).

Max Weber does *not* maintain that the Reformation preached the "spirit of capitalism." On the contrary: "... the cultural influences of the Reformation were to a great extent the unforeseen and even *unwanted* results of the [theological] labor of the Reformation figures. Indeed, the cultural influences stood often quite distant from, or precisely in opposition to, all that the religious reformers had in mind" (Weber 2002, p. 48). Still, these very maxims on the way to live, so crucial for the development of capitalism, are ultimately grounded in the religious ideas of the Protestant sects.

Sombart (1913, pp. 251-59) also bases his explanation on religious ideas, however, in his case on the religious faith of *Jews*. He tries to prove, for example, that wealth in the Jewish religion is not tabooed, but is seen instead as the reward for a life led according to religious law.

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.<sup>9</sup> For Sombart, the Protestant Ethic is only a variation – in a certain sense a product of evolution – stemming from the original Jewish religion.

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<sup>8</sup> For discrimination against Jews during the 19th century see Katz (1980); Rürup (1999).

<sup>9</sup> Weber "viewed the innovation-averse economic ethos of the Jews as 'traditional' and noted their absence among the heroic entrepreneurs in the early stages of capitalism" (Kalberg 2002, p. xxiii).

Sombart attempts to refute Max Weber's book on the Protestant Ethic both theoretically and empirically. First he argues that the religious ideas on which the development of capitalism is based are not rooted in the Protestant Ethic, but in the religious laws and traditions of the Jewish religion. Furthermore, he maintains that the Jewish minority is the motor driving the development of capitalism.

Sombart's book was sharply criticized already by his contemporaries.<sup>10</sup> They accused him of having mistakenly interpreted and often grotesquely distorting the content of the Jewish religion. Moreover, they demonstrated that Sombart trifled with historical fact and was not familiar with many sources of Jewish history.

However, neither the critics of Max Weber nor those of Sombart ever 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 the Jewish minority was more successful economically than the Protestants.<sup>11</sup> Rahden (2008) describes the economic success of the Jewish minority in Breslau, but he does not try to find an explanation for this success,<sup>12</sup> 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.<sup>13</sup>

Sombart's effort to attribute the economic success of the Jewish minority to the *religious ideas of Judaism* can be seen as a failure. 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 in the age of scientification of production (hypothesis: human capital).

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<sup>10</sup> Cf. Brentano (1916, pp. 190-99); Troeltsch (1911, pp. 70-71).

<sup>11</sup> Average capital tax per 1000 persons of each denomination for 1895: Protestants: 954,900 Mark; Catholics 589,800 Mark; Jews: 4 Mill. Mark. Source: Weber (1973, p. 78, Fn 4).

<sup>12</sup> Rahden (2008, p. 133) argues that the Jews were not economically successful because of their higher level of education. He reverses the causality: Because Jews were economically successful, they could afford to pay for the university education of their offspring. However, this argument begs the question. Why were Jews so successful that they were able to pay for the higher education of their children?

<sup>13</sup> Barkai (1988, p. 4). In the volume of collected essays by Kaznelson (1959), there is a detailed depiction of Jewish contribution to culture, science, and business in Germany.

(3) The Jewish minority had 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. The high percentage of private bankers of Jewish descent offers an explanation for the central position of the Jewish minority in corporate networks (hypothesis: Jewish private bankers).

### 3. Explanations and hypothesis

#### *Embeddedness*

In an article on "embeddedness," Granovetter (1985) argues that we do not compete on the market as single individuals. Instead, we are "embedded" in social relations in which trade relationships can be permanently organized. "The embeddedness argument stresses the role of concrete personal relations and structures (or networks) of such relations in generating trust and discouraging malfeasance."<sup>14</sup> 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.<sup>15</sup>

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. Here we leave it to two contemporaries to document the Jewish community otherwise described in so many studies.<sup>16</sup>

Heinrich Heine called the Torah the "portative Fatherland" of the Jews and thereby emphasized the identity-giving function of the Jewish religion.<sup>17</sup> The Torah and Talmud shaped the collective identity of a group, which had no "fatherland" in the form of a nation-state but lived as an ethnic minority in the Diaspora, spread over dozens of countries as a *Gastvolk*, a guest people. Religion strengthened the internal social cohesion of the group and was an important institution for the minority's survivability.

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<sup>14</sup> Granovetter (1985, p. 490); cf. Bernstein (1992) and Coleman (1988, p. S98) on the diamond industry.

<sup>15</sup> See, for example, Uzzi (1996; 1997): Firms that are linked to banks pay lower interest rates for credits.

<sup>16</sup> Cf. Birmingham (1967); Kaplan (2003).

<sup>17</sup> Heine (1982, p. 43). In Heine's *Geständnisse* there is also a reference to the elective affinity between Protestantism and Judaism. Heine claims that the "Protestant Scots" follow a religion that "is just a pork-eating Judaism" (p. 45). Only parts of Heine's *Geständnisse* are available in an English translation ("Confessions").

In his study on suicide, *Durkheim* draws a connection between the internal cohesion of a group (mechanical solidarity) and the suicide rate (SR). He examines three forms of communal relationships: religion, family, and community. 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 has the lowest level in many countries that Durkheim studied.<sup>18</sup> If we view the SR as an indicator of the internal cohesive strength of a group, then we must conclude that the Jews, compared with the other religious communities, have the strongest social cohesion.

Over the centuries, Jews have 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 (= Jews) to strict union among themselves. Each community became a small, compact and coherent society with a strong feeling of self-consciousness and unity."<sup>19</sup> The external threat enhanced the internal solidarity of the group. The group members were able to accumulate social capital that is important for economic success. Mosse refers repeatedly in his book to the solidarity within the Jewish family, which helped advance the careers of many entrepreneurs and managers.<sup>20</sup>

*Endogamy* is an institution that also strengthens group cohesion. Many authors emphasized it as one of the main structural characteristics of Jewish communities. To a degree, archaic marriage rules are reproduced in it.<sup>21</sup> Mosse (1989) notes that until the early twentieth century, endogamy was an absolute commandment in the Jewish upper class: "Endogamy was almost universal" (pp. 40, 93, 110).

Supple (1957) studied German-Jewish investment bankers in New York in the late nineteenth century. He comes to the conclusion that the investment banks were not

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<sup>18</sup> Durkheim (1951, p. 154, Table XVIII). The statistical data that Durkheim used for his analysis refer approximately to the same period that is under consideration here.

<sup>19</sup> Sources: Simmel (1968, p. 238); Durkheim (1951, p. 160). Both authors are themselves of Jewish origin and experienced many forms of discrimination during the course of their academic careers, which is used as first-hand experience in their writings. See also Coser (1956, pp. 87-110); Sartre (1960, p. 123).

<sup>20</sup> Source: Mosse (1989, pp. 27, 35, 75). For the concept of social capital see Coleman (1988); trust: Fukuyama (1995).

<sup>21</sup> See the analyses by Lévi-Strauss (1967, p. 302) on the institutions of the "mariage entre cousins croisés (bilatéraux)" and "mariage avunculaire" (between uncle and niece). On "Jewish cousinhood" in Great Britain, see Scott and Griff (1984, pp. 121-23.).

only linked to one another through business relations, but also through marriage and blood relatives. Jacob Schiff was not only the CEO and partner of the Investment bank Kuhn & Loeb, but also related through marriage to the Family 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 (1999, p. 6) concludes: "German Jewish bankers owed much of their success to the bonds of kinship."<sup>22</sup> In Germany, private banks were also closely related to one another. Köhler (2000, p. 138) 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."<sup>23</sup>

*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. We test this hypothesis in section 7 (Table 5).

### *Human capital*

As the nineteenth century drew to a close, we observe the increasing use of scientific findings in industrial production and the professionalization of managers in the big companies. The growing importance of training manifests itself in a rising percentage of entrepreneurs/managers holding a university degree.

The Jewish minority had nurtured a tradition of erudition and education, which is rooted in the religious laws of Judaism. Bottocini and Eckstein (2005) have referred to these traditions of the Jewish minority: The ability to read the sacred scriptures (Torah, Talmud) 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 sacrifices 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. 3). 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

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<sup>22</sup> As examples of this, see the family trees in Birmingham (1967, p. 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 (Köhler 2000). Within this network configuration (bridging two continents) the Jewish bankers controlled "structural holes" (Burt 1992).

<sup>23</sup> In a study on the marriage practices in New Haven, Connecticut, Kennedy (1952) reported that, between 1870 and 1940, 80% of the Protestants, 84% of the Catholics, and 94% of the Jews married "endogamously." It needs to be qualified that endogamy in a *minority* representing only 3-4% of the entire population appears to have a much stronger impact on the social closure of this group.

gathering places but also as schools in which basic cultural skills and knowledge were taught.<sup>24</sup>

Religious commandments indirectly prompted an investment in human capital. As a result, the (male) Jewish minority could read (and often also write),<sup>25</sup> while the majority population in which they lived was overwhelmingly illiterate. The authors show "how the ability to read the Torah in Hebrew provided the Jews with a comparative advantage in high-skill occupations."<sup>26</sup>

With regard to the Protestant ethic, Becker and Wößmann (2007) develop similar arguments. 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 econometrical 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, has the greatest explanatory power for economic prosperity.

This does not exclude the content of faith from the analyses, 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 of education shaped in both religions offers one explanation for the "elective affinity between Judaism and ascetic Protestantism" (Schluchter 1981, p. 14).

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 the 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

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<sup>24</sup> For Durkheim (1951, p. 168) the higher level of education among Jews is a weapon in the fight against discrimination ("... to be better armed for the struggle"). Still, neither explanation excludes the other (religious law, weapon of defense). In fact, the two could even mutually enhance each other.

<sup>25</sup> "At eleven years of age he (= Salomon Maimon) had so complete a mastery of the Talmud that he became much sought after as a possible husband" (Sombart 1913, p. 132).

<sup>26</sup> Botticini and Eckstein (2005, p. 21). Cf. also Chiswick (1992). Illiteracy: Toury (1977, p. 171, Tab. 56); Muller (2010, p. 9): "... the Jews' premodern commercial experience, together with their emphasis on literacy, predisposed them to do disproportionately well in modern capitalist societies."

degree of higher learning. These people created a pool from which big companies could recruit their qualified executive personnel.<sup>27</sup>

*Hypothesis 2:* The Jewish economic elite had a higher level of formal education compared to the non-Jewish members of the network (human capital). - We test this hypothesis in section 6 (Table 4).

### *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.<sup>28</sup> In the late nineteenth century, a high percentage of private bankers in Germany were of Jewish descent. They played an important role in financing the railroads. They entertained transnational networks and were therefore particularly helpful in acquiring loans and bonds from foreign financial centers (Paris, London).<sup>29</sup>

The importance of Jewish bankers can be traced back to a historical path dependence, just as can their role in the jewelry and diamond trade.<sup>30</sup> 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.<sup>31</sup> In this function, 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.<sup>32</sup> In the family, economic capital, human capital, and social capital was passed down to the following generation. Social relations to businesses, to politics, and to foreign financial centers 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 (Wixforth and Ziegler 1994).

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<sup>27</sup> Source: *Gymnasium* in Prussia: Toury (1977, p. 172, Tab. 57); Universities: Richarz (1974, pp. 93-96); Ruppin (1905, p. 43). Weber (1973, pp. 78-79, Fn 7) quotes figures that confirm the findings for Prussia.

<sup>28</sup> "The minority, rather than be dispersed, tends to be concentrated in selected industries, selected occupations, and selected classes of economic status" (Kuznets 1960, pp. 1600-01). Cf. also Ó Gráda (2006, pp. 61-71).

<sup>29</sup> Walter (1992); Wixforth and Ziegler (1994); Barth (1999); Cassis (1991); Bernstein (1959); Prinz (1984, pp. 180-183).

<sup>30</sup> For the notion of "path dependence" see Pierson (2000).

<sup>31</sup> Stern (1985); Barth (1999, p. 98); Walter (1992, pp. 79-84).

<sup>32</sup> Example: Paul Wallich (Berliner Handelsgesellschaft) passed an apprenticeship with banks in Hamburg, London, Paris, and New York (Barth 1999, p. 100).

*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. We test this hypothesis in section 6 (Table 4).

#### **4. Classification: Who is Jewish?**

Before it can be determined whether Jews were "overrepresented" in the German economic elite, we must know what persons were classified as Jewish. Three criteria are usually mentioned in the literature: religion, culture, and ethnic affiliation.<sup>33</sup>

The religious criterion refers to those people who still had a relatively strong connection to the Jewish religious community. For reasons that will be explained later, these people probably constitute a minority within the economic elite. The criterion "culture" 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 criterion ethnic affiliation reduces Judaism to one of lineage. It plays an important role particularly in the extensive literature on forced displacement and annihilation of Jews in Germany. The Nazi race laws defined "Jews" according to ethnic affiliation, and therefore this criterion remains inevitably the main focus of this literature.<sup>34</sup> Everyone who was classified as "Jewish" by the Nazi regime was threatened directly with extermination.

From the perspective of the early twentieth century, the ethnic criterion appears to be too broad. People are classified as "Jews" who, for example, were second-generation baptized Christians and held the religious and cultural traditions of Judaism at a great and often quite critical distance.<sup>35</sup> 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 assimilated Jews found themselves still being identified as Jews.

In his analysis of the situation of Jews, Jean Paul Sartre describes a social process of labeling and attribution (stigmatization). "The Jew is in the situation of the Jew because he lives amid a society that considers him Jewish."<sup>36</sup> The social classification of an *individual* is based on the attribution of collective characteristics.

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<sup>33</sup> Kuznets (1960, pp. 1597-98) enumerates four criteria: common history; same religion; feeling of belonging to one group; feeling of distinctiveness, often intensified by a discriminatory policy.

<sup>34</sup> See Augustine (1991, p. 52); Münzel (2006, pp. 123-34).

<sup>35</sup> On the later descendants of the Mendelssohn family (cadet branch), Mosse (1989, p. 25) reports: "... the Mendelssohn-Bartholdys spared no pains to distance themselves from their Jewish origins." See also Walther Rathenau's work "Höre Israel" (1897).

<sup>36</sup> Original : "Le Juif est en situation de Juif parce qu'il vit au sein d'une collectivité qui le tient pour Juif" (Sartre 1960, p. 88).

This was the way admission officials at Harvard, Yale, and Princeton proceeded after the First World War. In order to solve the "Jewish problem," that is, to prevent too many Jews from enrolling at the elite universities, they required, among other things, that college applicants submit a passport photograph.<sup>37</sup> Based on a "Jewish nose," meaning on the basis of an arbitrarily selected physiognomic feature, applicants were classified as "Jewish" and their college applications turned down. The mechanism of "attribution" causes baptized and assimilated Jews to be still classified and treated as "Jews" several generations later.<sup>38</sup>

The members of the Jewish economic elite were identified within the framework of our study on the basis of their *ethnic descent*. This means that *assimilated and baptized Jews are also classified as Jews* in our sample. We assume that assimilated and baptized Jews represent a relatively high percentage of the Jewish economic elite.

The Torah and Talmud contain numerous laws regulating the daily life of Jews, including many regarding the preparation of meals. These laws forbid pious Jews to eat with non-Jews. It was said of Baron Amschel Rothschild (1773-1855) "that he lived strictly according to Jewish law and ate no morsel at a stranger's table, even though it were the Emperor's" (Sombart 1913, p. 196).

Supervisory board members of Jewish origin, who often sat on the boards of ten or more big German businesses in the early twentieth century, could no longer have lived according to this "Jewish law" and turned down every invitation to dine with non-Jews. It can be assumed that their economic success was due in part to their decision to uphold only certain elements of Judaism (education, solidarity), but otherwise assimilated themselves culturally in their environment.<sup>39</sup>

## **5. 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. Eugen Gutmann, who was CEO of *Dresdner Bank* from 1872 to 1920, sat on the supervisory

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<sup>37</sup> Karabel (1984). On this, see also Karabel (2005, chap. 4): "Yale Confronts the 'Hebrew Invasion'." In 1921, 13% of the first-year students (freshmen) were Jews. See also Synnott (1986, p. 239).

<sup>38</sup> Examples: Although the partners of the Mendelssohn Bank (Berlin) had been baptized Christians for several generations, the bank was still considered "Jewish" and was "aryanized" in 1939 (Treue 1972). Eugen Gutmann, CEO of the Dresdner Bank, was a baptized Jew (Ziegler 2003). 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: Rasch and Feldman (2003, p. 241).

<sup>39</sup> Cf. Dienemann (2000); for the U.S.: Sowell (1981, pp. 69-99); for France: Albert (1992).

board of eleven other major firms in 1914.<sup>40</sup> Oscar Oliven, a board member at *Ludwig Loewe & Co. AG* from 1904 to 1929, also held a supervisory board seat at eleven 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.

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 center 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
E. Gutmann (B,J)	Dresdner Bank	12
O. Oliven (J)	Loewe & Co. AG	12

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

### *The Sample*

In the sampling, 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.<sup>41</sup> 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 big German firms.

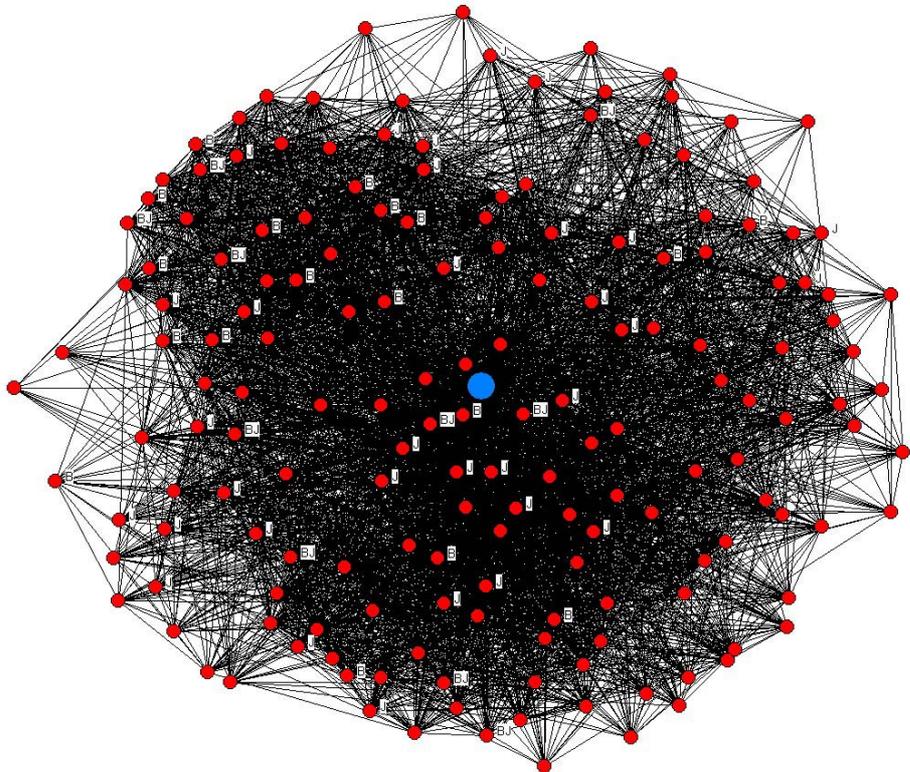
With the help of this data, we can reconstruct the corporate elite network and present it either in the form of a matrix or graphically as an ego-network. Table A1 (Appendix) shows an ordered submatrix taken from the elite-matrix for 1914. The figures indicate how often a pair of persons met each other on the various supervisory boards during a year. For example, in 1914 Eugen Gutmann and Oscar Oliven sat together on six

<sup>40</sup> Cf. Ziegler (2003).

<sup>41</sup> A list of the handbooks and sources used can be found at: <http://www.uni-trier.de/fileadmin/fb4/prof/SOZ/APO/20-020.pdf> [p. 222]. The list of firms included in the sample is found at: <http://www.uni-trier.de/fileadmin/fb4/prof/SOZ/APO/UnternehmenDUSAF.xls>. Tables 2-5 are revised versions of material published in Windolf (2009a).

different supervisory boards, while Carl Fürstenberg and Emil Rathenau served simultaneously on eight different boards.

**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).

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 Silverberg.<sup>42</sup> In 1928 he sat on the supervisory board of twenty-five 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.

### *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.

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<sup>42</sup> On Paul Silverberg see Neebe (1981); Gehlen (2007). P. Silverberg emigrated to Switzerland in 1933.

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 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 (Useem 1984).

**Table 2: Nested Samples**

<b>Samples</b>	<b>1914</b>	<b>1928</b>	<b>1938</b>	<b>Ø (%)</b>
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 4 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 (Bonacich 1987).

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 on average who were part of each of the respective subsamples in all three of the sample years. For example, the "inner circle" includes on average only 2.2% 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" were not due to this person's religious/ethnic affiliation, but to the fact that he is banker and/or holds a university degree.

## 6. 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 of this title 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.

- 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.<sup>43</sup>

- 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 the work by Martin Münzel (2006), who has published a comprehensive dissertation on the topic of the forced displacement of the Jewish corporate elite.<sup>44</sup> In Table 3 and in the logistic regressions, all people are classified as "Jewish members" who fall under the category of *ethnic affiliation* (see section 4).

- Bankers: People are classified as "bankers" 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 are represented in many firms and therefore stand at the center of the network.<sup>45</sup>

Multiple directors who held several positions in the corporate network were elected to these positions in each of the firms.<sup>46</sup> Therefore, multiple directors go through a selection process (ballot) in each firm. Table 3 shows which personal factors played a role in this selection.

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<sup>43</sup> Kaudelka-Hanisich (1993); Kaelble (1985).

<sup>44</sup> I would like to thank Martin Münzel, who offered the information from his database so that people of Jewish origin could be identified.

<sup>45</sup> For Germany see Ziegler (1998); Windolf (2002, pp. 67-76); Fohlin (2007, pp. 65-81); for the United States: Mintz and Schwartz (1985).

<sup>46</sup> 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).

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 center of the network (Core B). If we move from the periphery to the center 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 center 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.

In 1914, 30% of the members at the center of the network had a university degree; in 1928 the figure was 63.2%. In 1914, 47.1% of these same network members held honorary business titles, while in 1928 the figure was only 26.4%. The percentage of aristocrats drops from 24.3 to 16.0%. 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, becomes more important and indicates the increasing professionalization of the network. Lawyers, economists, and engineers were pushing barons and *Kommerzienräte* away from the center of the network.<sup>47</sup>

**Table 3: Selection criteria - Who belongs to the center of the network?**

<b>1914</b>	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
<b>1928</b>					
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
<b>1938</b>					
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% of persons belonging to sample 2 (2+ positions) are of Jewish origin; 25.1% of those belonging to Core A are of Jewish origin; 40% of those belonging to Core B are of Jewish origin.<sup>48</sup> Size (N) of the different samples is given in Table 2.

<sup>47</sup> 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.

<sup>48</sup> 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% were of Jewish origin. This percentage corresponds fairly precisely to the percentage of Jewish members in Core A of our sample. Source: Augustine (1991, pp. 36-38; p. 348, Table 2.18); Augustine (1992).

In section 3 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 would be 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 results of this analysis are briefly summarized:

- 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.<sup>49</sup> 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*.

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 "in itself" 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 (Jewish\*Banker; Jewish\*Degree).

- 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 still holds when the two interaction variables are introduced. The combination *Jewish origin\*degree* even has a negative sign: people with this combination have a smaller chance of belonging to the center of the network. The interaction between Judaism and banker has the expected sign, but is hardly significant ( $\alpha \leq 0.10$ ). This weak interaction effect does not allow us to attribute the

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<sup>49</sup> In the regression analysis the variable "education" is coded as a dummy variable: university degree = 1; no higher education = 0. Table A2 in the Appendix gives more detailed information about the university degrees of Jewish and non-Jewish members of the sample.

overrepresentation of Jews in the economic elite to a high proportion of Jewish bankers.

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

Notes: Dependent variable: Core A; person is a member of Core A = 1; person is not a member of Core A = 0 (dichotomous variable).

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

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

Nagel R<sup>2</sup> = Nagelkerke R<sup>2</sup> measures the strength of the relationship between the dependent and the independent variables. Nagelkerke R<sup>2</sup> 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. A detailed description that gives error terms for each logistic coefficient and precise significance levels is found in Table A3 (Appendix).

What is important is the finding that 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 hold many positions in the network – that is, possess a great deal of social capital – have 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 "cleaned" of such influences.<sup>50</sup>

In logistic regressions, the marginal effect of an independent variable is not linear and varies with the value of the independent variable (Jaccard 2001, p. 6). In Table A4 (Appendix) we have computed the probability of being a member of Core A for individuals with varying combinations of characteristics. The table shows, for instance, how the probability varies depending on whether an individual is banker/non-banker, Jew/non-Jew, etc.

We have also computed a structural equation model with the same variables that were included in model 2 (Figure 1A, Appendix). The variables *banker* and *university degree* have been endogenized. The results of the structural equation model confirm the logistic regression (robustness test).

In sum, it can be said that the impact of the variable *Jewish origin* could not be reduced 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.

## 7. Did a Jewish network exist?

In his study of German-Jewish investment bankers in New York in the late nineteenth century, Supple (1957, p. 145) emphasizes the importance of endogamy for this community. 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).<sup>51</sup> 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

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<sup>50</sup> The interaction effect *Jew-position* is not significant in any of the three sample years. Results are not reported here.

<sup>51</sup> On this, see also Beckert (2001, pp. 265-66): "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." Cf. Sowell (1981, pp. 69-99).

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."<sup>52</sup> We consequently expect the two networks (Jewish, non-Jewish) to be separated from one another (few bridges).

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 artifact. The center of the network (Core A and B) was created on the basis of network criteria. If, however, the Jewish members of the corporate elite were particularly skillful networkers, then it is not surprising that they are quite prevalent at the center 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 meet 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 1A in the appendix illustrates the structure of such a matrix.

We can sort this matrix both by column and by line according to the categories of Jew and non-Jew. 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 submatrices are created: the submatrix A contains only Jewish members and shows how the 98 Jewish members are interconnected among themselves ( $J \leftrightarrow J$ ). The submatrix D contains only the non-Jewish members and shows how the 300 non-Jewish members are interconnected among themselves ( $NJ \leftrightarrow NJ$ ). These two submatrices are square, that is, they have the same number of lines and columns.

The submatrix 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, the submatrix C has 300 lines (containing the non-Jewish members) and 98 columns (containing the Jewish

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<sup>52</sup> 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" (McPherson et al. 2001, p. 415).

members). This rectangle-matrix shows the connections among non-Jews and Jews (NJ ↔ J).

The results listed in the upper left-hand corner of Table 5 are from the submatrix 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 the submatrix D and show ties only between non-Jewish members. The upper right-hand corner and the lower left-hand corner show the results of the submatrices B and C. We can call the submatrices A and D endogamous/homophilous matrices and submatrices B and C exogamous/heterophilous ones.

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

<b>A. J ↔ J</b>	<b>1914</b>	<b>1928</b>	<b>B. J ↔ NJ</b>	<b>1914</b>	<b>1928</b>
All ties	1492	3442	All ties	2035	5918
Density	0.24	0.21	Density	0.13	0.14
Ø number of ties	23.7	35.1	Ø number of ties	32.3	60.4
Dimension	63x63	98x98	Dimension	63x188	98x300
<b>C. NJ ↔ J</b>	<b>1914</b>	<b>1928</b>	<b>D. NJ ↔ NJ</b>	<b>1914</b>	<b>1928</b>
All ties	2035	5918	All ties	3874	14604
Density	0.13	0.14	Density	0.09	0.12
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

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

The matrices were calculated for the years 1914 and 1928. We explain the results for the year 1928. Matrix A (J↔J) contains 3442 ties between 98 Jewish members of the network. The density equals 0.21, which means 21% of the possible ties did indeed exist.<sup>53</sup> On average, a single Jewish member had 35.1 ties to other Jewish members.

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 part

<sup>53</sup> For an introduction in network analysis cf. Scott (2000).

of "Germany Inc." and operated within the model of cooperative capitalism (Windolf 2009).

We come to the conclusion, that the high percentage of Jewish members at the center of the network (Core A) cannot be attributed to different strategies in interlocking. Jews and non-Jews alike are network specialists in 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 188 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 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 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%). This corresponds almost exactly with the percentage of Jewish members represented overall in Core A (24.6%). In this sense, the network of Paul Silverberg is "representative."

## 8. Homophily

Figures in Table 5 show 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 the different group size. Jewish members make 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.<sup>54</sup>

We assume, for a moment, that the religious/ethnic affiliations of the members of the economic elite were hidden behind the "veil of ignorance" (Rawls 1997, p. 136). The variable religious/ethnic affiliation would then have no influence on the distribution of ties between members of Core A. We would expect ties to be randomly distributed.

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<sup>54</sup> 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. 2001, p. 419). Table 6 (line "random") presents the baseline-homophily for Jews and non-Jews.

We have computed a series of Erdos-Renyi Random graphs. This 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 other member of the network.<sup>55</sup> 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 (e.g., 251 nodes, density 0.149, year: 1914). A summary of the random distribution is given in the line "random" in Table 6. Figures in the upper panel refer to the year 1914; figures in the lower panel refer to the year 1928. We explain the figures for 1914.

Core A had 251 members in 1914. We computed a network matrix for these 251 persons. This matrix contains a total of 9436 ties among 251 persons.<sup>56</sup> On average, each member has 37.6 contacts to other members of Core A ( $9436/251 = 37.6$ ). The distribution of 37.6 contacts between Jews and non-Jews is only influenced by their relative group size. Therefore, Jewish (J) as well as non-Jewish (NJ) members have 9.4 contacts to Jews ( $\approx 25\%$ ) and 28.2 contacts to non-Jews ( $\approx 75\%$ ). This is our baseline model. It states that ties are randomly distributed among members of Core A; religious affiliation is unknown; only relative group size influences the distribution of ties between Jews/non-Jews.

The lines "observed" give the figures from our sample network (cf. Table 5). On average, Jewish members have 56 contacts to other members of Core A (last column: J+NJ); non-Jews have only 31.4 contacts. Thus, Jewish members have 49% more contacts compared to the baseline model. The figures show that Jews are more active networkers.

Jews have 23.7 contacts to other Jewish members of Core A.<sup>57</sup> Compared with the random graph (9.4), they have 152% more contacts than a random distribution would predict. Table 6 shows that a significant part of within-group contacts is due to "inbreeding homophily" within the Jewish community (McPherson et al. 2001, p. 419). The non-Jewish members have 10.8 contacts to Jewish members.<sup>58</sup> This comes close to the figure we would expect under the assumption of a random distribution (9.4).

We come to the following conclusions: On average, Jews have more contacts in the overall network (big linkers); they also have significantly more contacts to other Jewish members (tendency toward inbreeding, homophily). Therefore, on average

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<sup>55</sup> Cf. Robins et al. (2007), equation 2 (Bernoulli random graph distributions).

<sup>56</sup> Cf. Table 5, figures for 1914: 1492 ties (Matrix A) + 2035 ties (Matrix B) + 2035 ties (Matrix C) + 3874 ties (Matrix D) = 9436 ties (total number of (symmetric) ties in Core A).

<sup>57</sup> Cf. Table 5 above:  $\emptyset$  number of ties among Jews ( $J \leftrightarrow J$ ) = 23.7 (1914).

<sup>58</sup> Cf. Table 5 above:  $\emptyset$  number of ties of Non-Jews to Jews ( $NJ \leftrightarrow J$ ) = 10.8 (1914).

Jews have a higher degree centrality (Freeman), and they have a higher Bonacich centrality.

**Table 6: Distribution of ties (random/observed)**

		1914	J	NJ	J+NJ
Random	J/NJ		9.4	28.2	37.6
Observed	J		23.7	32.3	56.0 <sup>59</sup>
	NJ		10.8	20.6	31.4
		1928	J	NJ	J+NJ
Random	J/NJ		18.5	56.6	75.1
Observed	J		35.1	60.4	95.5
	NJ		19.7	48.7	68.4

1914: Ties 9436; members (N) 251; 25.1% Jews  
 1928: Ties 29882; members (N) 398; 24.6% Jews

Members of Core B were selected on the basis of degree centrality and Bonacich centrality (big linkers meet people with many mandates). We can see here that the high proportion of Jews in Core B is, at least to some extent, a statistical artefact (40% in 1914; 31.1% in 1928, cf. Table 3).

However, figures in Table 6 do not invalidate our conclusions drawn in section 7. Table 6 confirms that Jews had, on average, more contacts to non-Jews than to their fellow-believers. The *tendency* toward (inbreeding) homophily does not mean that they were an isolated minority within the corporate network.

**9. Discussion and conclusion**

With respect to the hypotheses presented in section 3 to explain the economic success of Jews, two arguments can be made.

We first tested the hypothesis that the members of the Jewish community had, on average, a higher level of education than the general population of the host country and that this greater investment in human capital brings them comparative advantages in various occupations (e.g. the financial sector). If this hypothesis were correct, then the variable "Jewish origin" could be replaced by the two variables "education" and "banker." The observed correlation between "Judaism" and "economic success" 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 analysis showed that this hypothesis of an indirect causality is not confirmed by the data. The high percentage of Jews at the center of the network of big businesses cannot be attributed to the higher level of education or

<sup>59</sup> Number of ties in each line add up to the figure in column J+NJ. Example for 1914: Jews have 23.7 ties to Jews and 32.3 ties to non-Jews. 23.7 + 32.3 = 56.0

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 section 7, 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.
- 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 to 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 inbreeding 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 expired 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 (1986) concept of habitus and of cultural capital that is acquired in socialization processes taking place within the family.

Second, the variable "community" and "social embeddedness" were 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 is important, but the networks that people have before they become members of the corporate elite, meaning those tutorial networks that have accompanied their careers.

The last point of criticism refers to the motivation that drives people to achieve economic success at any price. 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 fear of eternal damnation in the next world was a weaker motivating factor than the discrimination and humiliation in this world that the Jews in the Diaspora experienced daily. Economic success and wealth then become means to counter this threat.

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.

## Appendix

**Table A1: Core B – 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 <i>M.Klitzing</i>	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 <i>D.J.Hoeter</i>	4	2	3	3	4	1	1	3	2	2		2	2	1	1			1	1	1
12 <i>H.Fischer</i>	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.Hampsohn	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	

*Note:* The submatrix contains 20 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. Example: E. Gutmann and J. Stern sat together on six different supervisory boards. The matrix is symmetric. Italics: names of *non*-Jewish members of the network.

**Table A2: Type of Higher Education**

University degree	1914		1928	
	Non-Jews	Jews	Non-Jews	Jews
Diploma	5.8	5.5	8.8	7.6
Dr. (not specified)	41.9	50.7	41.1	47.9
Dr. sc. nat./engin.	19.9	8.2	19.5	10.9
Dr. jur.	22.7	26.0	20.2	23.5
Dr. h.c.	9.6	9.6	10.4	10.1
With degree (N) =100%	323	73	728	119
With degree (%)	30.5	36.0	43.4	48.4
Sample (N)	1059	203	1676	246

*Note:* Figures in the upper panel give distribution in percent over different types of higher education: *Diploma* (in economics, chemistry, engineering); Dr. (not specified); Dr. of Science/Engineering; Dr. of Law; Dr. honoris causa.

In 1914, there are 323 non-Jews with higher education (university degree) of whom 5.8% received a diploma; 41.9 % have a doctoral degree (various subjects), etc. A higher proportion of non-Jews received a doctoral degree in natural sciences/engineering compared with Jewish members of the network (19.9% compared with 8.2 % in 1914). In contrast, the proportion of Jews who received a Ph.D. (Dr. unspecified) or a doctoral degree in law is higher compared with non-Jewish members of the network.

In 1914 and in 1928, a higher proportion of Jews received a university degree (1914: Jews 36.0%; non-Jews 30.5%).

**Table A3: Logistic Regressions - 1914-1938**

1914	Model 1			Model 2		
	Log.Coeff.	Stand.Err.	Sign. ( $\alpha \leq$ )	Log.Coeff.	Stand.Err.	Sign. ( $\alpha \leq$ )
<b>Intercept</b>	-2.35	0.14	0.000	-2.36	0.14	0.000
<b>Jewish origin</b>	0.56	0.19	0.003	0.61	0.27	0.022
<b>Nobility</b>	0.85	0.20	0.000	0.83	0.20	0.000
<b>Honorary title</b>	0.46	0.16	0.003	0.48	0.16	0.002
<b>University degree</b>	0.17	0.16	0.309	0.27	0.18	0.133
<b>Banker</b>	0.94	0.19	0.000	0.79	0.23	0.001
<b>Positions (1896)</b>	0.82	0.11	0.000	0.82	0.11	0.000
<b>Jew * degree</b>				-0.48	0.40	0.226
<b>Jew * banker</b>				0.53	0.45	0.238

Note: The Chi<sup>2</sup>-test answers the question whether interaction terms improve the model fit: -2 Log-Likelihood (Model 1): 1118.5; -2Log-Likelihood (Model 2): 1115.4. 1118.5 - 1115.4 = 3.1; df 2;  $\alpha \leq 0.2$ . The difference of -2Log-Likelihood between model 1 and model 2 is not significant, therefore, the interaction terms do not improve the model fit.

1928	Model 1			Model 2		
	Log.Coeff.	Stand.Err.	Sign. ( $\alpha \leq$ )	Log.Coeff.	Stand.Err.	Sign. ( $\alpha \leq$ )
<b>Intercept</b>	-2.29	0.11	0.000	-2.33	0.17	0.000
<b>Jewish origin</b>	0.93	0.16	0.000	1.12	0.23	0.000
<b>Nobility</b>	0.27	0.20	0.188	0.28	0.20	0.173
<b>Honorary title</b>	0.21	0.14	0.117	0.23	0.14	0.099
<b>University degree</b>	0.71	0.12	0.000	0.82	0.14	0.000
<b>Banker</b>	0.48	0.17	0.004	0.32	0.19	0.098
<b>Positions (1914)</b>	0.43	0.05	0.000	0.43	0.05	0.000
<b>Jew * degree</b>				-0.64	0.31	0.041
<b>Jew * banker</b>				0.86	0.43	0.042

Note: -2 Log-Likelihood (Model 1): 1752.5; Model 2: 1743.9; 1752.5 - 1743.9 = 8.6, df 2;  $\alpha \leq 0.02$ . The difference of -2Log-Likelihood between model 1 and model 2 is significant. The interaction terms improve the model fit (slightly).

1938	Model 1		
	Log.Coeff.	Stand.Err.	Sign. ( $\alpha \leq$ )
<b>Intercept</b>	-2.11	0.11	0.000
<b>Jewish origin</b>	-1.75	0.49	0.000
<b>Nobility</b>	-0.16	0.24	0.504
<b>Honorary title</b>	0.29	0.16	0.073
<b>University degree</b>	0.43	0.13	0.001
<b>Banker</b>	0.58	0.21	0.006
<b>Positions (1928)</b>	0.31	0.03	0.000

Note: For 1938 no interaction effects were computed because of the small number of Jews in the sample.

The following equation specifies the logistic regression:

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

Odds =  $p/(1-p)$ ;  $p$ : probability that  $Y = 1$  (person is a member of Core A).

$\alpha$ : intercept;  $\beta_k$ : 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 A4: Logistic equations (Model 1)**

Year	Inter	Jew	Nob	Hon	Degree	Bank	Pos	In(odds)*	Odds	Prob
1 Jew 1914	-2.35	0.56	0	0	0.17	0.94	1.64	0.96	2.61	<b>0.72</b>
2 Jew 1914	-2.35	0.56	0	0	0.17	0	1.64	0.02	1.02	<b>0.50</b>
3 Non-Jew 1914	-2.35	0	0	0.46	0.17	0.94	1.64	0.86	2.36	<b>0.70</b>
4 Non-Jew 1914	-2.35	0	0	0.46	0.17	0	1.64	-0.08	0.92	<b>0.48</b>
5 Baseline 1914	-2.35	0	0	0	0	0	0	-2.35	0.10	<b>0.09</b>
6 Jew 1928	-2.29	0.93	0	0	0.71	0.48	0.86	0.69	1.99	<b>0.67</b>
7 Jew 1928	-2.29	0.93	0	0	0.71	0	0.86	0.21	1.23	<b>0.55</b>
8 Non-Jew 1928	-2.29	0	0	0	0.71	0.48	0.86	-0.24	0.79	<b>0.44</b>
9 Non-Jew 1928	-2.29	0	0	0	0.71	0	0.86	-0.72	0.49	<b>0.33</b>
10 Baseline 1928	-2.29	0	0	0	0	0	0	-2.29	0.10	<b>0.09</b>

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

Table A4 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 *equation (1)*,  $\ln(\text{odds})$  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 A3, Model 1.

Intercept + Jew + Nobility + Honor. Title + Uni.Degree + Bank + Positions 1896 = $\ln(\text{odds})$ - 2.35 + 0.56x1 + 0 + 0 + 0.17x1 + 0.94x1 + 0.82x2 = 0,96
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We can convert the  $\ln(\text{odds}) = 0.96$  by taking the exponent of this value:

$$e^{0.96} = 2.61 = \text{odds. Probability of belonging to Core A} = 0.72.^{60}$$

In *equation (2)*, we assume that the person is of Jewish origin, but is not a banker (bank = 0). The probability of belonging to Core A for a Jewish non-banker is 0.50.

In *equation 3*,  $\ln(\text{odds})$  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.

Intercept + Jew + Nobility + Honor. Title + Uni.Degree + Bank + Positions 1896 = $\ln(\text{odds})$ - 2.35 + 0 + 0 + 0.46x1 + 0.17x1 + 0.94x1 + 0.82x2 = 0,86
--

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

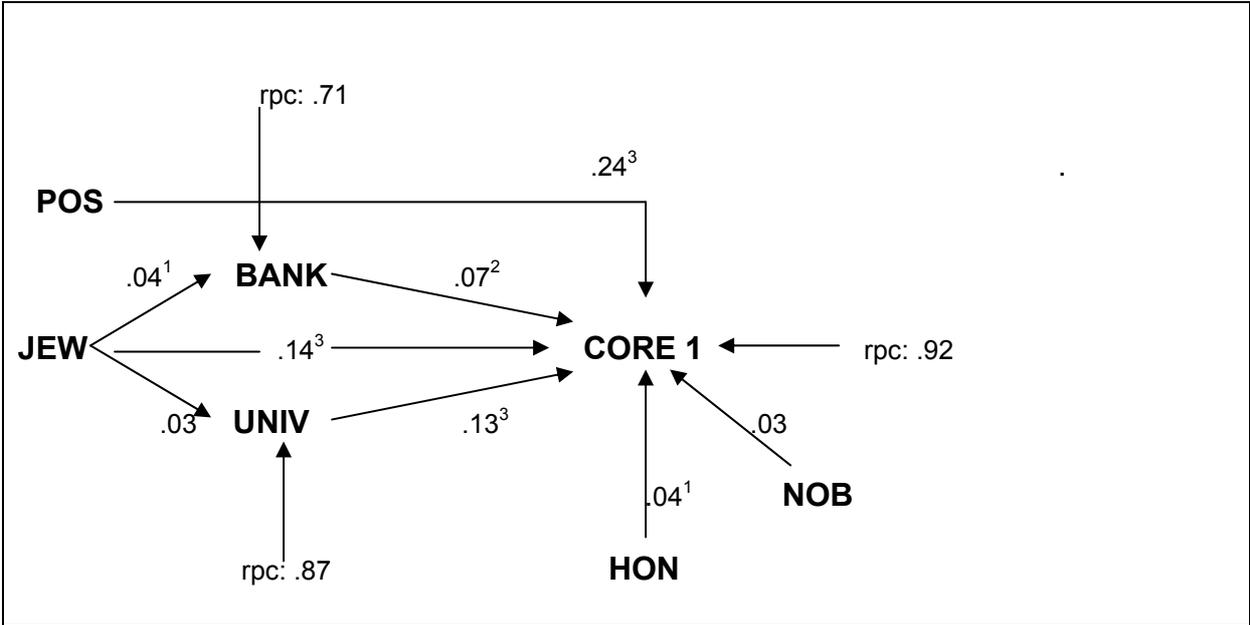
<sup>60</sup> Prob =  $\text{odds}/(1 + \text{odds})$ :  $2.61/(1+2.61) = 0.72$ .

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.

In equation 5, the baseline model for 1914 is computed. 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 a person with this combination of characteristics belongs to Core A = 0.09.

In equations 6-10, similar computations have been carried out for the year 1928.

**Figure A1: Structural equation model - 1928**



Note: Levels of significance: <sup>3</sup>:  $\alpha \leq 0,000$ ; <sup>2</sup>:  $\alpha \leq 0,01$ ; <sup>1</sup>:  $\alpha \leq 0,10$ .  
 JEW: Jewish origin; POS: number of mandates in 1914; BANK: Banker; UNIV: university degree; HON: honorary title; NOB: nobility.  
 All variables of Model 1 (cf. Table 4, above) are also included in the Structural Equation Model. The variables *banker* and *university degree* have been endogenized.  
 Coefficients show standardized regression weights. rpc: residual path coefficient; explained variance of dependent variable Core A:  $R^2 = 0.15$ .  
 Models have been estimated for 1914 and for 1928; ML-estimation (SPSS-Amos).  
 Details of estimation are available upon request from the author. For an introduction to structural equation modeling see Kline (2005).

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