BETTING ON HITLER—THE VALUE OF POLITICAL CONNECTIONS IN NAZI GERMANY*

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This paper examines the value of connections between German industry and the Nazi movement in early 1933. Drawing on previously unused contemporary sources about management and supervisory board composition and stock returns, we find that one out of seven firms, and a large proportion of the biggest companies, had substantive links with the National Socialist German Workers' Party. Firms supporting the Nazi movement experienced unusually high returns, outperforming unconnected ones by 5% to 8% between January and March 1933. These results are not driven by sectoral composition and are robust to alternative estimators and definitions of affiliation.

I. INTRODUCTION

From Indonesia and Malaysia to Italy, politically connected firms are more valuable than their less fortunate competitors.[1] Yet a key event in the history of the twentieth century has not been examined in terms of the value of political connections—the Nazi rise to power. We systematically assess the value of prior ties with the new regime in 1933. To do so, we combine two new data series: A new series of monthly stock prices, collected from official publications of the Berlin stock exchange, and a second series that uses hitherto unused contemporary data sources, in combination with previous scholarship, to pin down ties between big business and the Nazis. We consider both active managers (the *Vorstand*) and supervisory board members (*Aufsichtsrat*). Our data reveal that many more large firms had ties with the National Socialist German Workers' Party (NSDAP) than suggested by earlier scholarship—to the extent that weighted by capitalization in 1932, more than half of listed firms on the Berlin stock exchange enjoyed close links with the Nazi movement.

1. Faccio (2006), Faccio, Masulis, and McConnell (2006).

These two new data sets allow us to examine the reaction of investors to the Nazi "seizure of power." If close ties with the new government—as perceived by German stock market investors in 1933—were valuable to the firms in question, their share prices should have outperformed the rest of the market. We thus try to offer a quantitative answer to the question, How much was it worth to have close, early connections with the Nazi party? The answer is—a great deal. Affiliated firms outperformed the stock market by 5% to 8% and account for a large part of the market's rise. Investors recognized value where they saw it and rewarded firms with preestablished ties handsomely. This demonstrates that the connections we document mattered—investors' willingness to pay for connected firms was markedly higher by mid-March 1933 than before the thirtieth of January.

Our results relate to an earlier literature that focused on the connections between big business and the NSDAP during the Great Depression. Following the conviction of influential industrialists such as Friedrich Karl Flick, Alfried Krupp, and I. G. Farben executives in the Nuremberg trials, much of the literature took it for granted that major German firms had financed the Nazi party's rapid rise after 1930. Autobiographies of leading figures such as Fritz Thyssen's *I Paid Hitler* (1941) reinforced this impression.[2] From the late 1960s onward, this consensus was challenged by Henry A. Turner. His *German Big Business and the Rise of Hitler* argued that before 1933, contributions from large corporations were rare. Only a handful of prominent business leaders had made substantial donations. The party was largely self-financing. Political contributions were a way to hedge bets, and many right-wing parties received funding.[3] There was no "smoking gun" linking big business with the rise of Hitler. Although some authors have questioned Turner's reading of the evidence, the consensus now is that the links between big business and the Nazis were much more tenuous and ambiguous than previously assumed.[4]

2. Heiden (1944); testimony from senior Weimar officials who had fled the country, prominent foreign diplomats, and reports from foreign journalists only strengthened that impression. See, for example, Brüning (1970) or Dodd and Dodd (1941).

3. Turner (1985) is the classic treatment. Studies by Hayes (1987) and Mollin (1988) provided influential early support, as has subsequent work by Feldman (2004) and James (2004a).

4. Criticisms of earlier essays by Turner are in Stegmann (1973, 1977); of the book, in Abraham (1986) and Conze (2005). For one version of a consensus, see, for example, Berghahn (2004) or Feldman (2004).

Our findings relate to two other literatures as well. Recent work on Indonesia and Malaysia has analyzed the value of political connections in developing countries using event-study methods in the context of the East Asian financial crisis. It offered a natural experiment to test the value of Suharto's patronage in Indonesia (Fisman 2001) and by Mahathir or Anwar in Malaysia (Johnson and Mitton 2003). Jayachandran (2006) found that when Senator Jeffords switched party affiliation, losing the Republicans their majority, firms that had made substantial soft-dollar donations lost in value. Knight (2007) examined stock market responses to the changing election prospects of Bush vs. Gore in the run-up to the 2000 election. He argued that policy platforms of Presidential contenders are priced into equities, with, for example, tobacco firms being worth 13% more under a favorable Bush administration than under Gore.[5] Recent work has emphasized cross-country comparisons (Faccio 2006; Faccio, Masulis, and McConnell 2006).[6] Faccio (2006) shows that political connections around the globe are more valuable in corrupt countries with barriers to foreign investment and weak institutions.

In the studies of Indonesia and Malaysia, many affiliations were either predetermined by family ties or had existed for a long time. Faccio emphasized ties that arise when businessmen enter politics. The type of connections we document are different because they are formed deliberately, and not by genetic roulette. In this regard, they are more similar to the contributions in United States elections traced in Jayachandran (2006). Their value is tested in the context of an extreme shift in power. Recent literature has analyzed contributions to parties and political campaigns, arguing that these are similar to investment opportunities. Scholars have documented that politicians in key positions such as committee chairs in Congress receive greater contributions (Ansolabehere and Snyder 1999; Grier and Munger 1991). Also, the contributions of political action committees run by firms and industry associations are tied to the likelihood of a politician succeeding in his bid for office, whereas individual contributions may not be (Snyder 1990). Despite the evidence that money talks in politics, controversy continues about the process of price formation. Returns on contributions often appear to be exorbitant: Some

5. Snowberg, Wolfers, and Zitzewitz (2007) show that U.S. stock indices reacted strongly to the flawed exit poll data during 2004 U.S. presidential election.
6. There is also a related literature that examines the response of asset markets to the risk of war. Cf. for example Frey and Kucher (2000).

analysts, following Tullock (1972), suggest that because switching a single vote with limited contributions may generate windfalls worth millions, even more money should find its way into politics.[7]

The rest of the paper is structured as follows. Section II offers a brief summary of the NSDAP's rise to power and argues that a look at the cross-sectional evidence is necessary to shed further light on the stock exchange's reaction to the rise of the Nazi party. Section III describes our data on stock prices and connected firms. We present our main results in Section IV and discuss interpretations of our findings. The next section looks at issues of robustness. We then consider how associations were formed and potential endogeneity problems in Section VI. The conclusion discusses the paper's main implications and compares the size of effects with that of those found during other regime changes.

II. The NSDAP's Rise to Power

In November 1923, the National Socialist German Workers Party staged an unsuccessful putsch in Munich. Key figures, including Adolf Hitler himself, were imprisoned. Thereafter, the party pursued a strategy of legitimacy, attempting to gain power through the electoral process. For most of the 1920s, its chances of doing so seemed slim. In 1928, membership exceeded 100,000, but the party polled a disappointing 2.6% of all votes in national elections. In the spring of 1930, however, the last coalition with a parliamentary majority fell apart over the Reich's budget deficit and increased unemployment contributions. Afterward, minority governments largely relied on the President's special powers to push through legislation.

As the economic crisis deepened, the NSDAP gained its first major success in the national elections of 1930, polling 18% and gaining the second-largest number of seats in parliament. The party's membership soared, reaching 800,000 by 1931. In the spring of 1932, the Brüning government fell (Table I). President Hindenburg appointed another minority cabinet, headed by Franz von Papen. In the summer election of 1932, the Nazi party received 37% of all votes, winning the largest number of delegates in the

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7. For example, Ansolabehere, de Figueireido, and Snyder (2003) argue that some $200,000 in contributions by the sugar industry produced a windfall of $1.1 billion per year for the industry; they also argue that U.S. political contributions have been flat in real terms throughout the twentieth century. Cf. the Internet version of Ferguson (2005) for a skeptical assessment.

TABLE I
CHRONOLOGY OF KEY EVENTS

1932	May 30	Chancellor Brüning steps down
	July 31	National elections (NSDAP wins 230 seats)
	August 13	Hitler and von Papen visit President Hindenburg; Hitler declines offer of Vice-Chancellorship
	November 6	National elections (NSDAP seats decline from 230 to 196)
	December 2	General von Schleicher appointed Chancellor
1933	January 4	Meeting of von Papen and Hitler in the house of von Schröder in Cologne
	January 30	Hitler appointed Chancellor
	February 27	Reichstag fire
	March 5	National elections (NSDAP obtain 288 of 647 seats)
	March 23	Enabling law (legislation can be enacted without constitutional constraints)
	April 1	Nationwide boycott of Jewish-owned stores starts
	May 2	Unions dissolved

Reichstag. Because Hitler insisted on becoming Chancellor, the NSDAP did not enter into government. Elections in November 1932 brought the first major setback for the Nazis, as their vote slipped and they lost 34 seats. After von Papen stepped down as Chancellor, Hindenburg briefly appointed General von Schleicher in his place. Von Schleicher was unable to widen his political support and had to resign. Promising a broad coalition of the right, Hitler was appointed as head of government by the President on January 30, 1933.

Apart from Hitler himself, the new cabinet contained only two Nazi ministers. Hermann Göring also held the crucial post of Prussian Minister of the Interior, which gave the NSDAP control over the biggest German state's police. The German National People's Party (DNVP), some technocrats, and other independent figures of the right filled key positions. Within days of taking office, the new government announced new parliamentary elections for early March. Using the pretext of the Reichstag fire, the new government cracked down on the Communist party and suspended civil liberties.

The March elections gave the NSDAP 44% of the vote. With its "National" coalition partners, the government commanded an absolute majority. The enabling law, passed with the votes of all parties except the Social Democrats, changed the constitution and allowed laws to be passed without parliamentary approval. In

April, a nationally orchestrated boycott of Jewish stores began, and the civil service was purged of Jews and Social Democrats.[8] The unions were dissolved in early May, and numerous members jailed. By the summer of 1933, all parties except the NSDAP had been dissolved.

Earlier examinations of the link between stock prices and the Nazis' rise to power focused on market averages. Immediately after the new government took office, stocks rallied. As the *New York Times*'s correspondent put it on January 31: "The Boerse recovered today from its weakness yesterday when it learned of Adolf Hitler's appointment, an outright boom extending over the greater part of the stocks. . . The turnover was large, leading stocks advancing 3 to 5 percent."[9] Stock prices continued to rise after January 1933.[10] Some observers argued that investor enthusiasm for Nazi economic policies and rearmament was responsible for this increase.

The consensus view has been that this evidence is not convincing, for two reasons. First, the rebound in stock prices began long before Hitler's accession to office became a serious political possibility. Second, it is also virtually indistinguishable from the cyclical increase in broad market indices that started in most industrialized countries in the summer of 1932. Figure I plots stock indices in France, the United Kingdom, Germany, and the United States. The German market fell by 40% between January 1930 and April 1932. By mid-January 1933, it had risen by 43%. This was part of a general trend—the Standard and Poor's 500 in the United States had gained 35% over the same period. Nor were the increases after the thirtieth of January 1933 unusually high. By June, the German index had risen by 12% since mid-January. The S&P was up 63%, the U.K. FTSE 11%, and the French index 10%. As Figure I shows, there is little to suggest that stock market investors as a whole cheered the Nazis' rise to power to a significant extent, at least during its initial phase. What has been neglected is the impact of Hitler's accession to power on the cross section of stock returns.

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8. The party had a long history of extralegal violence against its enemies; the degree of central coordination was new. Cf. Bessel (2004).

9. *New York Times*, Feb. 1, 1933, p. 29.

10. News reports from the Berlin bourse often refer to positive reactions to Nazi policies (such as large increases in stock prices for automobile manufacturers after a speech by Hitler at the automobile show in February 1933), but also describe unease at the prospect of fresh elections and possible deadlock in the new government. Cf. *New York Times*, Feb. 12, 1933, p. 47 and Feb. 13, p. C23.
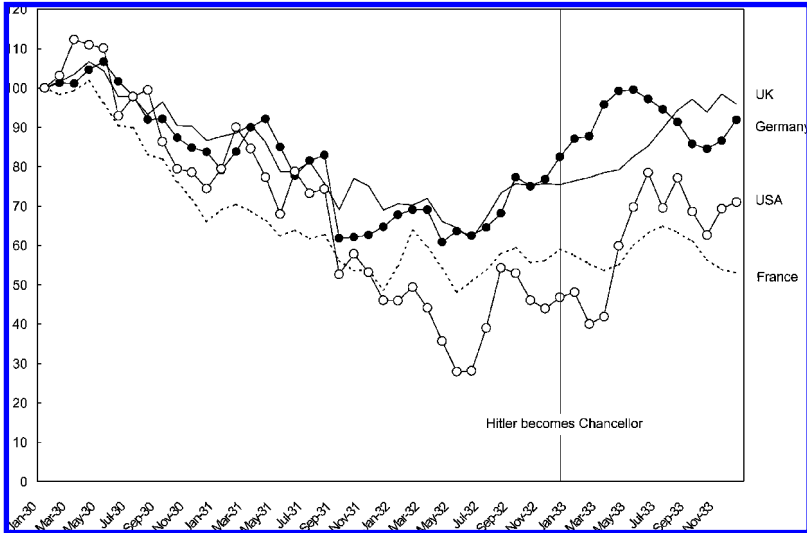
FIGURE I
Stock Market Indices, January 1930–December 1933, United Kingdom,
Germany, United States, and France

III. New Data Sets on Stock Market Returns and National Socialist Affiliation

III.A. Stock Prices, Dividends, and Market Value

Stock prices of individual shares are from the Berlin stock exchange's official price lists (*Monats-Kursblatt*). Germany had (and still has) numerous exchanges, with local bourses competing for listings. The Berlin Bourse became the dominant one by the late nineteenth century and retained its position until 1945.[11] Some potentially interesting firms, including several from the Ruhr industrial district, are not included in our study. We begin in April 1932, when the stock exchanges reopened after the financial crisis of the summer/autumn of 1931. There are 751 firms in our data set, with quotations for 789 securities during the period April 1932 to May 1933 (Table II). Many observations are missing—trading, especially in the smaller stocks, was often illiquid, and some stocks were delisted. A few firms had more than one security quoted, in almost all cases preferred shares. We include these separately but cluster standard errors at the

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11. Fohlin (1999); Holtfrerich (1999).

TABLE II
DESCRIPTIVE STATISTICS

		Connected	Unconnected
Mean stock market capitalization, December 1932, in mio RM		42.3	8.4
Weight by capitalization in total		0.56	0.44
Mean dividend yield		0.034	0.029
Proportion of firms with zero dividend		0.65	0.52
Mean log return	November 32–January 33	0.12	0.10
	January 33–March 33	0.072	0.002
N		119 (81)	670 (381)

Sample size for firms with capitalization figures in parentheses.

firm level to avoid understating them. We collected price information for the tenth of each month, or the nearest trading day.[12] The price list also gives information on dividend payments by financial year.

The 1932 edition of the *Handbuch der deutschen Aktiengesellschaften* contains information on capital structure (number and type of shares outstanding).[13] Market capitalization was calculated as the total number of ordinary share equivalents times the share price in December 1932 (thus giving a greater weight to preferred shares if they carried a higher par value).

III.B. Definition of Connected Firms

We identify businessmen and firms as connected to the NSDAP if they meet either of two criteria. First, if business leaders or firms contributed financially to the party or to Hitler or Göring, they qualify as connected.[14] Second, certain businessmen provided political support for the Nazis at crucial moments, serving on (or helping to finance) various groups that advised the

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12. If we have a price both for one day before and for one day after, the subsequent price takes precedence.
13. The *Handbuch* came out in several volumes on a rolling basis throughout the year. In a few cases we also consulted other business reference volumes such as *Salings*.
14. We deliberately exclude contributions to Georg Strasser and his group of more left-leaning politicians.

party or Hitler on economic policy. We also count the latter as connected. Appendix I lists all relevant individuals and firms, along with notes on the main scholarly sources for each.[15] Most of these connections are not controversial. Because some have been disputed, we explain our choices in detail. We also perform a number of sensitivity tests later to show that our key findings are robust to changes in the definition of what it takes to be connected.

The first group includes early contributors such as Thyssen and Kirdorf. Their support—financial and other—is not disputed.[16] It also includes the financiers and industrialists who participated in a meeting on February 20, 1933, at Göring's residence in Berlin. After giving a speech attacking Communism and declaring private enterprise to be incompatible with democracy, Hitler left the conclave. Göring laid out plans for winning the upcoming national elections, observing that "the sacrifices asked for . . . would be so much easier for industry to bear if it realized that the election of March 5th will surely be the last one for the next 10 years, probably even for the next 100 years." Schacht then presided over the establishment of a campaign fund totaling three million Reichsmarks for the electoral campaign.[17]

In the second group are businessmen whose ties to the party also pre-dated Feb. 20. It includes the signatories of a famous petition to President Hindenburg, urging him to appoint Hitler as Chancellor. The signatories were providing political support to the Nazis at a critical juncture because the party's vote had just declined.[18] They qualify as connected according to our second criterion.[19]

We also include the members of the *Keppler Kreis* and the *Arbeitsstelle Schacht* in this group. The former was organized by Wilhelm Keppler, a former chemical company executive, with the

15. Available on the QJE Web site.
16. Turner (1985) raised questions about the importance and representativeness of connected business leaders. Only the first of these issues is relevant for this paper.
17. *NMT* 6 (1952). See the discussion and references in Appendix I for February 20.
18. See the discussion in Turner (1985) and Stegmann (1973, 1977). Again, we use only the undisputed signatories.
19. The February 20 meeting occurred after Hitler had become Chancellor. It might be argued that its participants primarily represented firms and were less likely to forge individual ties that would carry over to other enterprises with which they were also affiliated. To test this, we estimated both "wide" and "narrow" models of the meeting, with the narrower one including only firms in which participants served as Chair or Deputy Chair of the Aufsichtsrat or the Vorstand. As discussed below, our results were the same.

explicit aim of creating stronger links between big business and the National Socialist Party and of influencing the latter's economic policies. The *Arbeitsstelle Schacht* was organized by the former Reichsbank President, Hjalmar Schacht. The businessmen who financed Schacht's circle included some of the biggest names in German business, including Albert Vögler of Vereinigte Stahl, Krupp von Bohlen, Fritz Springorum, Emil Georg von Stauss (who first introduced Schacht to Göring), Rosterg of Winterhall, and Kurt von Schröder.[20] Because Turner raised questions about some of these figures, we again test the sensitivity of our results to alternative definitions.[21]

Traditional accounts of big business involvement with the Nazi party have focused on the relationship between managers (*Vorstand*) and party figures.[22] We pursue a more comprehensive approach. The power of the supervisory board (*Aufsichtsrat*) in the organization of German industry is difficult to exaggerate. It appoints and fires executives, acting on behalf of the shareholder assembly (Passow 1906). Part of its remit is to check on the financial reporting of joint stock companies and to consult with managers before major decisions. In contrast to Anglo-Saxon boards, executives are ordinarily not members of the supervisory board. Far from being an ineffectual rubber-stamping institution, supervisory boards offered central positions of power, and many of the leading businessmen in Germany did (and still do) accept multiple appointments. Universal banks exerted their influence habitually through seats on the board—Gerschenkron called the supervisory board in Germany the "most powerful organ . . . within corporate organizations."[23]

We trace positions on supervisory boards and executive positions of all the individuals connected to the Nazis. In combination, these individuals define a group of Nazi "original supporters" with credible ties to the new leadership.[24] To do so, we checked each

20. Cf. Turner (1985) and Stegmann (1973, 1977).
21. Because of Henry Turner's objections, we have excluded Paul Reusch and Krupp from our calculations, though both their firms made substantial contributions to the Feb. 20 fund. In the same spirit, we also exclude Paul Silverberg. For Reusch, see Langer (2003). On Silverberg, compare Turner (1985) with Mommsen (2004) or Neebe (1981).
22. Turner (1985).
23. Gerschenkron (1962). The banks' power is examined more closely by Fohlin (1999).
24. Newspaper coverage of some of these individuals was extensive; such acts as the attempt to recruit signatures on the petition to Hindenburg certainly identified others to wider circles of the business community.

name against the 1932 edition of the *Handbuch der deutschen Aktiengesellschaften*. This digest gives information on members and their functions (chair, vice-chair, or ordinary member of the board). Since preliminary statistical tests indicated that no special significance attached to chairs or vice chairs, we count all of them as of equal importance.

Our definition of Jewish-owned firms follows Mosse's (1987) as closely as possible. We attempt to identify "enterprises usually founded by men of Jewish extraction, with Jews prominent in management and substantially represented on the board."[25] Because Mosse focuses on large enterprises, we cross-checked the firms in our sample against Kaznelson's (1962) work from the period.[26] As a further safeguard against limited coverage of small firms, we supplement our data with information from a 1927 series of articles in the Jewish periodical *Der Morgen*.[27]

In total, we have 115 connected firms (with 119 securities) in our sample, using our baseline definition of affiliations. Not all of these have recorded share prices and/or market capitalizations (we have market capitalizations for 81 of them). They differ from unconnected firms in a number of important ways. First, they were markedly larger—their average market capitalization of 42 million RM was five times higher than that of unconnected firms. This appears to be in line with contemporary comments emphasizing that large businesses had a greater interest in influencing politics, perhaps because of potential free-riding incentives for smaller firms. Weighted by market capitalization, more than half of the firms listed on the Berlin stock market had Nazi-connected members. This factor alone suggests that connections between the party and big business were closer than some of the recent literature has accepted. In terms of dividend yield, the

25. Mosse (1987, p. 271). "Jewish-owned" is our term for the first in his fourfold classification of firms that in effect defines a spectrum, with the last being firms in which Jews were altogether absent. Its use screens out firms in which, for example, some Jewish bankers sat on a board. Other definitions are possible. Some Nazis saw Jews almost everywhere, and Göring famously declared that he decided who was Jewish (Petropoulos 2006). But it is clear that in 1933 German Jews and non-Jews recognized some companies as historically Jewish.

26. Its publication was interrupted by the Nazi takeover and thus only appeared years later. Mosse's lists and tables do not consistently distinguish firms within his categories; we accordingly check our assignments against our other references such as Kaznelson. Works by Genschel (1966), Barkai (1989), and Toury (1984), as well as recent studies of "Aryanization" after 1933, concentrate on firms that are not in our sample.

27. See Buer (1927); Landsberg (1927a, 1927b); and Priester (1927). In all cases, we checked the 1932 *Handbuch der deutschen Aktiengesellschaften* for subsequent changes in management or ownership.

two groups are relatively similar—connected firms paid a slightly higher rate of 3.4%, compared to 2.9% for unconnected firms. In both groups, a large number of firms were not making any payments to shareholders during the Great Depression. Prior to Hitler's rise to power, both groups showed almost identical log returns, driven by a cyclical recovery—a rise by 0.12 during the two-month period from November 1932 to January 1933 for connected firms, and 0.10 for unconnected ones. During the two months after January 1933, however, the connected firms show markedly higher returns—a difference of 0.07 in mean returns. The next main section explores the extent to which we can document a systematic relationship between above-average stock returns and affiliation with the Nazi party. Before we can turn to the results, we have to consider what investors could have known about connections between the NSDAP and business leaders in 1933.

III.C. Publicly Available Information on Connections

Investors are unlikely to have had complete information on the growing links between German companies and the NSDAP. But enough news was leaking out to make many of the connections apparent to contemporaries. Even foreign correspondents noticed. Schacht's new allegiance was profiled in *Time Magazine*, which opened a story on Germany's political situation on December 5, 1932, observing "The famed 'Iron Man' of German finance, blunt Dr. Hjalmar Schacht . . . came out for the first time last week in support of Adolf Hitler. By this abrupt move Dr. Schacht brought a sizeable section of Berlin finance into the Biggest Business phalanx lined up behind Handsome Adolf by Steel Tycoon Fritz Thyssen."[28] Such a public change in political position would be watched closely by stock market investors. Indeed, *Time*'s earlier coverage of negotiations in late November highlighted the stock market's reaction:[29]

> At Herr Thyssen's . . . residence Leader Hitler and Oberst Göring ate dinner after their flights to Berlin. . . . Germans soon noticed the surprising fact that several news organs of Biggest Business, such as Deutsche Allgemeine Zeitung and Rheinisch-Westfalische, had abruptly switched from hostility to support of Adolf Hitler. The Deutsche Allgemeine Zeitung urged President von Hindenburg "in the interest of that tranquility required for business revival" to overcome his "strong personal dislike" of Fascist Hitler and appoint him German Chancellor! . . . For the first time in his blatant, meteoric career

28. "Only One Man . . . ," *Time Magazine*, December 5, 1932.
29. "Hitler Gets Warm," *Time Magazine*, November 28, 1932.

Adolf Hitler was "getting warm." Stocks on the Berlin exchange, which eased when the von Papen Cabinet resigned, firmed again and began to rise.

As the *Time* reporter recognized, newspapers were often closely linked with individual business groups. From their editorials, the orientation of big business could be inferred. Nor was this all. Organizers of the Hindenburg Petition tried to be discreet, but the nature of their enterprise meant that word leaked out. In Hamburg, for example, Keppler Kreis members systematically canvased the old Hanseatic town's business community in search of supporters. Executives associated with the town's major shipping firms rebuffed them, along with others, so that the effort could not have stayed under wraps.[30]

Similarly, in early January, former Chancellor von Papen met with Adolf Hitler in Cologne. The meeting was meant to be kept secret. It was held at the home of a prominent banker, Kurt von Schröder. We count him as connected because of his involvement with the Keppler Kreis and his role in organizing the Hindenburg Petition.[31] As the participants emerged, a press reporter was waiting outside. The news of the meeting caused a sensation. Not surprisingly, the left-wing press concluded at once that Hitler was the "agent of big business" who had been caught "in flagrante."[32] By contrast, center-right papers like the Berlin *Tägliche Rundschau* focused on specific connections: "The organizer of the discussion between Hitler–Papen is the Rhenish-Westfalen industry group and the Stahlverein" (Petzold 1995). Three days later, von Papen (who was to become Vice-Chancellor on January 30) met with a group of influential Ruhr businessmen. A reporter for a Düsseldorf paper saw Hoesch's Fritz Springorum meet von Papen and reported that the group had conferred at the home of Vereinigte Stahl's Albert Vögeler; the report was picked up by other papers.[33] Although many details remained murky, growing contacts between the NSDAP and leading business figures were there for many to see. Stock market investors may not have known

30. See the correspondence in the folders for Emil Helfferich (C7/1) and Wilhelm Keppler (C7/2) along with the material in C8, in the Krogmann Papers (622-1), now in the Staatsarchiv of the City of Hamburg. We also consulted related materials in the Institut der Zeitgeschichte of the University of Hamburg; see especially 11 K13.
31. Turner (1970); Petzold (1995).
32. The SPD's *Vorwärts*, quoted in Turner (1985, p. 317).
33. Compare the accounts in Petzold (1995) and Turner (1985). Petzold notes that Vögler was present at the meeting, but that it was not actually held at his house.

every detail. They may also have misinterpreted some aspects of connections.[34] Nonetheless, it is clear that many of them could have known enough to bid up the prices of connected firms.

IV. STOCK RETURNS AND NATIONAL SOCIALIST AFFILIATION

In this section, we estimate the value of Nazi affiliations. We evaluate the effect on the cross-section of returns for listed firms between January and March 1933, compare it to returns in 1932, and experiment with additional controls.

IV.A. *Main Findings*

To pin down the benefits of having Nazi affiliations, we use a starting date before the NSDAP's entry into government was public knowledge or highly likely. As Turner (1996) emphasized, many editorial writers looking back at the end of 1932 concluded that the Nazi menace was receding—the republic had survived. A month later, the leader of the NSDAP had become Chancellor. Accounts of the negotiations emphasize that the outcome was in doubt literally to the last hours before Hitler and the other members of the new government presented themselves to Hindenburg on the morning of the thirtieth of January (Turner 1996; Schwerin von Krosigk 1974, 1977). It is also commonly agreed that the results of the election in Lippe-Detmold on January 15, 1933, affected the bargaining. We thus use January 10 as a safe last date when stock prices were undisturbed.[35]

After the summer of 1932, the rising tide of Germany's recovering economy lifted all boats. Following the "seizure of power," investors may have cheered the appearance of a more broadly based government (Figure I). In addition, those firms that supported the Nazis financially or had business leaders with strong links to the NSDAP on their boards experienced share-price increases many times larger than the general rise in the market.[36] Figure II shows the distributions. The modal return on Nazi-affiliated firms was about 8 log points higher than for unconnected firms.

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34. Turner (1985, 1996) argued that business leaders played essentially no role in the final rise of Hitler; but see also the discussion in Petzold (1995), which draws on a wealth of archival material.
35. We also checked the results if we substitute mid-December as a starting date; they are unchanged. Pushing back the date, in general, makes rises associated with NSDAP connections larger.
36. Connected firms saw their share prices rise 30 times faster than unconnected firms (7.2% vs. 0.2%).
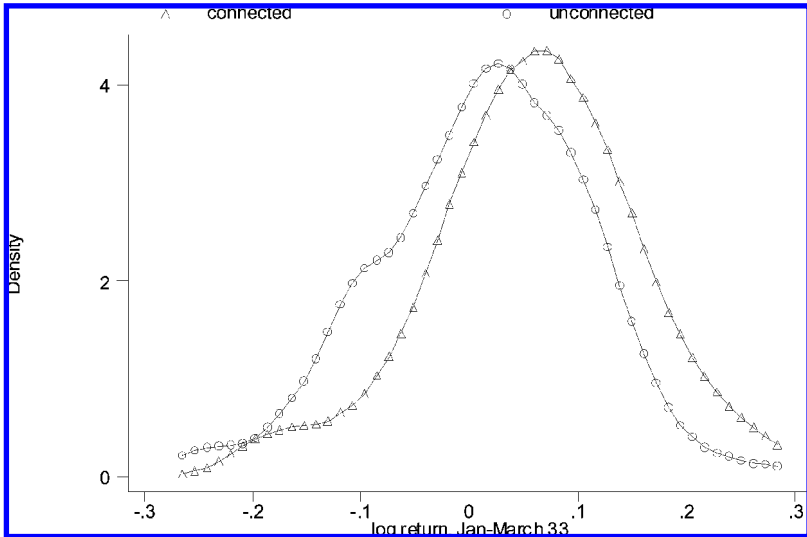
FIGURE II
Distribution of Log Returns, January–March 1933, Connected and Unconnected
Firms

Interestingly, connected firms did not do better before the *Machtergreifung*. Nor were excess returns simply the result of other observable characteristics, such as market capitalization. Table III shows the impact of being affiliated with the NSDAP for two two-month periods, November 32 to January 33, and January 33 to March 33, controlling for other characteristics. For the period prior to Hitler's accession to power, the naïve regression of returns on our Nazi dummy does not suggest significant benefits for connected firms. This finding is robust to including the dividend yield and the log of market capitalization as control variables. The November elections had gone badly for the Nazi party and caused an internal crisis. Also, the appointment of General von Schleicher seemed to rule out any entry into government in the near future. There is also no significant effect from being Jewish-owned.

The lower panel of Table III documents significant outperformance over the period from mid-January to mid-March. Nazi-affiliated firms saw their prices increase by almost 7% more than the rest. Controlling for additional characteristics strengthens the result. Firms with large market capitalizations were more likely to be Nazi-affiliated, but size alone did not aid in the recovery of stock prices. Regression (6) shows that firms with higher market

TABLE III
OLS REGRESSIONS (DEPENDENT VARIABLE: LOG RETURNS
NOVEMBER 1932–JANUARY 1933; JANUARY 1933–MARCH 1933)

	Regression				
	1	2	3	4	5
Nazi	0.0175	−0.002	0.012	0.012	0.021
	(0.79)	(0.08)	(0.48)	(0.047)	(0.95)
Market cap		−1.8e − 11	1.3e − 12	6.7e − 12	5e − 11
		(0.3)	(0.02)	(0.09)	(0.9)
Dividend yield			−0.066	−0.67*	−0.3
			(1.63)	(1.7)	(1.4)
Jewish-owned				−0.018	−0.02
				[0.5]	[0.6]
Constant	0.104***	0.12***	0.138***	0.14***	0.13***
	(9.63)	(10.2)	(7.0)	(7.0)	(6.7)
β					0.002
					(0.9)
Adj. R^2	0.001	0.006	0.01	0.007	0.004
N	436	352	299	299	277

	Regression				
	6	7	8	9	10
Nazi	0.0697***	0.078***	0.084***	0.083***	0.078***
	(4.6)	(4.5)	(4.3)	(4.3)	(2.7)
Market cap		9e − 11*	3.5e − 11	3.9e − 11	5e − 12
		(1.7)	(0.7)	(0.8)	
Dividend yield			0.47**	0.46**	−0.6
			(2.5)	(2.5)	(2.0)
Jewish-owned				−0.014	−0.07
				(0.5)	(1.5)
Constant	0.0024	−0.003	−0.013	−0.01	0.13*
	(0.3)	(0.3)	(1.3)	(1.1)	(7.7)
β					0.002
					(1.5)
Adj. R^2	0.038	0.05	0.09	0.08	0.05
N	448	374	317	317	265

t-statistics in parentheses. Standard errors are based on Huber-White heteroscedasticity-consistent estimates and clustered on the level of the firm.
*, **, *** indicate significance at the 90%, 95%, and 99% levels of confidence.

capitalizations did somewhat better than the rest of the market. High dividend yields were rewarded during the period. Our estimate of the value of NSDAP affiliation rises to 8.4% when controlling for these factors. Overall, while 68% of affiliated firms outperformed the market during January–March 1933, only 45%

of unconnected firms did.[37] We also examined if the outperformance of Nazi-affiliated firms could be a result of greater riskiness. Connected firms had a higher average beta.[38] However, adding the betas to the basic regression setup as an additional explanatory variable does not change our main result.

As Gelman and Stern (2006) argue, the difference between significant and insignificant results may itself be insignificant. We pooled returns for two periods, Nov. 32 to Jan. 33, and Jan. 33 to March 33 and ran the return against our measure of NS affiliation, an NS power dummy, and an interaction effect. We find that NS affiliation on its own is not associated with higher returns (coefficient 0.018, t-statistic 0.8) and that the Nazi seizure of power on its own did not boost stock market values (coefficient -0.10, t-statistic 7.6). The interaction dummy has a coefficient of 0.054, t-statistic 1.99, which suggests significance at the 95% level ($N = 867$). Thus, being associated with the Nazi party only boosted stock prices after the party came into office.

Connections with the Nazi party could be established in a variety of ways. Were they all equally useful? As Table A2 in Appendix II (available on QJE Web site) shows, all types of affiliation generated a significant excess return for the period January–March 1933. As one would expect as a result of smaller sample size, the significance levels are sometimes lower, but none is statistically different from the baseline results. The estimates in Table A2 also confirm that one potentially contentious decision is not decisive—we counted firms contributing on February 20 as connected. This could be seen as inappropriate because stock returns from January 10 to February 10 are counted as if these firms had already established a close link. Overall, their stock market returns look remarkably similar to those of other firms that had established connections previously.[39]

Jewish-owned firms as a whole underperformed the market. However, the result falls short of statistical significance. This may

37. Our findings are not driven by outliers. We estimate median regressions and obtain a significant outperformance of 6.96%. Nor is our main finding sensitive to alternative event windows. Using a five-month window (January–May 1933), we find a coefficient on the Nazi dummy of 0.069 (Appendix II, Table A1).

38. We calculated betas for the period April 1932–December 1932. Although the short period is not ideal, the risk of structural breaks is considerable if we include the period before September 1931, before the stock exchange closure.

39. This is partly because, of the 55 firms we count as connected under the wider definition, 32 have connections in addition to participating on February 20. If, to err on the side of caution, we exclude firms whose only connection with the NSDAP stems from that meeting and reestimate the full specification (8) from Table III, we obtain a coefficient of 0.065 (t-statistic 2.75).

TABLE IV
Coefficients on Nazi Dummy, Month by Month

1932	NS-affiliated	1933	NS-affiliated
May–June	0.018	Nov–Dec	0.015
	(1.1)		(1.3)
June–July	0.008	Dec–Jan	0.004
	(0.5)		(0.23)
July–Aug	0.049*	Jan–Feb	0.019*
	(1.7)		(1.7)
Aug–Sept	−0.005	Feb–Mar	0.045***
	(0.21)		(4.3)
Sept–Oct	−0.026*	Mar–Apr	−0.012
	(1.7)		(0.67)
Oct–Nov	−0.004	Apr–May	−0.0001
	(0.4)		(0.01)

t-statistics in parentheses. Standard errors are based on Huber-White heteroscedasticity-consistent estimates. Estimation based on regression (9) in Table III, including a full set of controls.
*, **, *** indicate significance at the 90%, 95%, and 99% level, respectively.

simply reflect measurement error. Although we made strenuous efforts to pin down ownership, it is likely that some errors remain. In addition, other factors may be at work. Some analysts have suggested that in 1933, Nazi agitation focused primarily on retail stores and related consumer goods sectors.[40] The market may also have reflected expectations of a relatively smooth transfer of ownership from Jewish to Aryan investors or managers. Although some short-term upheaval may be associated with wresting control from existing owners, investors may not have expected a major impact on profitability. From the simple OLS results, we conclude that having a board member who supported the Nazis or signed petitions for Hitler apparently produced substantial payoffs on the stock market.

IV.B. Results over Time

As a next step, we estimate the returns to being Nazi-affiliated for each month. Table IV shows that the extent of outperformance by connected firms varied over time. For the period before January 1933, there is some evidence that political events mattered for the cross section of stock returns. As the Brüning Cabinet fell at the end of May, positive returns began to accumulate for the Nazi-connected firms. The only period with significant

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40. For evidence that attacks were concentrated on retail and consumer goods sectors, see, for example, Comite des delegations juives (1934) and Tooze (2006).

positive returns is from mid-July to mid-August 1932, showing a plus of 4.9%. This is the time when the NSDAP scored its biggest electoral success up to that date. Immediately following the elections, Hitler entered into negotiations with Chancellor von Papen and the President, who was responsible for appointing the cabinet (Bracher 1984). The Chancellor in particular explored various schemes to integrate Hitler and the Nazi movement into the government (Petzold 1995). For the period from June 10 to August 10, we find a rise in the value of NS-connected firms by 6.5%.[41]

In the fall of 1932, Hitler's hopes for office were quickly dashed. Insisting on the Chancellorship, he found himself spurned by the President. Negotiations collapsed on August 13 (Bracher 1984). It became apparent that another minority cabinet would come to office, probably for only a few months. We find significant underperformance for the period August 10 to September 10, by 2.6%—eroding about half of the previous gains. The Reichstag elections in November produced a serious setback for the Nazi movement, which lost 2 million votes compared to the high point in July. This had no significant effect on share prices, probably because the stock market had already discounted hopes of entry into government after the failed negotiations in August.

The results by month also suggest that outperformance of connected firms between January and May 1933 was not continuous but mainly occurred over two months—from mid-January to mid-March. Immediately after Hitler's accession to power, the stock market rewarded connected firms. Their prices jumped by close to 2%, but the move was smaller than in the summer of 1932. Given the instability of Weimar cabinets and the seemingly weak position of the Nazi Party in the new government (only Hitler and two other party members held office), the stock market seems to have been skeptical about the long-term value of connections.

Few observers could have had such doubts by mid-March, after a round of fresh elections. As Robert Crozier Long, the *New York Times's* Berlin correspondent observed,[42] "The German business community received the news of Hitler's electoral victory

41. Significant at the 5% level of confidence. The "connection" variable is designed with the period after January 1933 in mind; some of the connections that we track—such as those arising from the Hindenburg Petition—had not yet been established. This will add to the noise in our explanatory variable.

42. *New York Times*, March 13, p. 24. Another article from the same day reports on "Week's Violent Rise in Stocks at Berlin" and emphasizes the high trading volume (p. 24). By March 27, the *New York Times* reported that the three-week-long stock market boom was coming to an end due to profit-taking. *New York Times*, March 27, 1933, p. 23.

calmly. Some business men even expressed enthusiasm, and a rather wild advance occurred on the Berlin Boerse, in which leading stocks gained 15 to 25 points within three days." In the Reichstag elections on March 5, the NSDAP and the nationalist Kampffront Schwarz-Weiß-Rot obtained a parliamentary majority. Perhaps more importantly, the massive crackdown on the Communists after the Reichstag fire in February and the intimidation in the run-up to the election made it clear that a new authoritarian and more durable regime was taking hold. Also, in the meeting on February 20, Hitler and his associates had tried to reassure business leaders, distancing themselves from the social revolutionaries in the party. For the period from February 10 to March 10, 1933, our data show that connected firms outperformed by 4.5%. Between mid-March and mid-April, little additional information seems to have arrived that would have caused more excitement among stock market investors about Nazi-connected firms. According to our estimates, the stock market rewarded connected firms overall with a return of approximately 11%–12% for the period from April 1932 to May 1933 (depending on the controls used).

We also estimated returns for Jewish firms over time.[43] They underperform in every sample month after Hitler's rise to power, but the coefficient is not tightly estimated. For the period January–March, we find underperformance by 2.4%, which is not significant. It is only when we include the returns for April and May that the overall effect becomes large and significant (−6.8%, significant at the 10% level). It appears that the stock market took the threat to Jewish firms seriously only after the start of the nationwide boycott of Jewish stores in April, when other anti-Jewish measures were also enacted. Observers noted that Jewish department stores were particularly hard-hit.[44]

V. Robustness

V.A. *The Effect of Size*

Numerous large firms were connected with the Nazi party. Smaller ones formed markedly fewer associations. If there are nonlinearities in the way in which size influenced the chances

43. Results available from the authors upon request.
44. *New York Times*, April 3, 1933, p. 23.

TABLE V
RESULTS BY QUINTILE/SIZE

Size indicator	Unconnected	Connected	Coefficient	*t*-statistic
Top quintile?				
Yes	42	38	0.066***	3.3
No	277	43	0.0846***	2.6
By quintile				
Smallest quintile (Q1)	67	13	−0.017	0.24
Q2	77	3	0.27**	2.25
Q3	69	11	0.13***	2.89
Q4	64	16	0.089**	2.1
Biggest (Q5)	42	38	0.066***	3.25
Firms in top 200?				
Yes	51	24	0.123***	3.5
No	243	56	0.067***	2.7

Coefficients from full regression specification including dividend yield, market capitalization, and Jewish ownership.
*, **, *** indicate significance at the 90%, 95%, and 99% level, respectively.

of affiliating with the Nazi party, controlling for market capitalization will not be sufficient. Therefore we investigate whether the benefits from association depended on the size of the firm.

Table V gives the results. We examine whether firms outside the highest quintile by market capitalization show different returns, by estimating for each quintile separately, and test whether being in the top 200 largest industrial concerns (ranked by 1929 assets) influenced returns (Chandler 1990, Appendix C2).

There are 38 connected firms in the top quintile by market capitalization. They outperform the 42 unconnected firms by 6.6%. Outside the highest quintile, the returns from affiliating with the Nazi party were actually somewhat higher (8.5%). Outside the largest quintile, sample sizes are smaller. We find consistently significant and large excess returns in quintiles 2 through 5, varying from 6.6% to 27%. For the smallest firms, there appears to be no effect. Because there are only 13 connected firms, this may simply reflect a lack of identifying variation. We also compare the effect of NS connections within and outside of the list of the largest 200 firms. The ranking is different because we use assets, not market capitalization. Here, the results for large firms are bigger than those for the rest—they appear about twice as big.

Affiliated firms outside the Top 200 nonetheless record significant outperformance.[45]

V.B. Rearmament

If the NSDAP stood for a policy, it was to free Germany from the shackles of the Versailles Treaty. This limited army size to 100,000 and placed major constraints on the types of weapons Germany could manufacture. Military aircraft, for example, were banned. Could our main results be driven by expectations of an increase in armament production? As we will show below, firms with relevant skills for rearmament were more likely to form affiliations with the NSDAP. Here, we show that possible arms suppliers showed excess returns after January 1933. Nevertheless, the value of NS connections is not affected by controlling for the armament effect.[46]

We investigate the effect of being a potential weapons supplier in case of future rearmament. To this end, we use a list compiled by the Reichswehr in 1927–28, tabulating firms that were important for general armament production (Hansen 1978, App. 6, 10). As Eq. (1), Table VI, shows, being on the Reichswehr list produced a positive return of 6.5% percent after January 30, but the coefficient is not significant. It also does not change the size or significance of the Nazi dummy. This conclusion is robust to a wide range of alternative specifications and definitions.[47] We conclude that the Nazi dummy does not simply capture the expected benefits of rearmament, but that some of the excess returns earned by firms on the Berlin stock exchange after January 30, 1933, reflected an expectation of future rearmament.

45. When we interact the NS dummy variable with the Top 200 variable, we find no statistically significant effect above and beyond what the NS dummy predicts.

46. Recent scholarship on the NSDAP has stressed their commitment to rearmament at an early stage (Epkenhans 2003; Tooze 2006), whereas earlier scholars gave less emphasis to the issue (Turner 1985). For further evidence, cf. the excerpts from the Denkschrift des Reichverbandes der deutschen Eisenindustrie für Generalleutnant Alfred von Vollar-Bockelberg, Chef des Heereswaffenamtes, Jan. 16, 1933 in Kühnl (1975), along with the detailed analysis in Hansen (1978).

47. We experimented with alternative definitions of armament producers. Results are reported in Table A3, Appendix II. Reichswehr 2 is based on a list compiled in 1931. Reichswehr 3 adds other firms mentioned in Hansen's text as working in armaments. We also defined four broad arms-related sectors: chemicals, transportation, steel, and coal. These sectors jointly show significant outperformance. Part of this effect is due to the NS-affiliated firms. As equation (6), Table A6, Appendix II shows, armaments sectors outperformed by 6.9%. The Nazi dummy now drops to 4.5% but remains significant.

TABLE VI
FURTHER ROBUSTNESS CHECKS

	1 Armaments	2 EIV	3 IV-estimation
Nazi	0.0818***	0.11***	0.10**
	(4.22)	(4.7)	(2.1)
Reichswehr 1	0.0646		
	(1.49)		
Dividend yield	0.485***	0.45**	0.47*
	(2.60)	[2.5]	(1.7)
Market capitalization	4.42e − 11	−4.7e − 12	1.7e − 11
	(0.89)	[0.04]	(0.2)
Jewish-owned	−0.0212	−0.01	−0.01
	(−0.84)	(0.5)	(0.2)
Constant	−0.0136	−0.02	−0.016
	(−1.21)	(1.4)	(1.1)
N	317	317	312
Adj. R^2	0.088	0.12	0.096
Anderson LR			7.9
			(0.005)
Instrument			%vote KPD
Reliability score		0.75	

V.C. Sectoral Effects

If the prospect of rearmament paid rewards in the early months of Hitler's regime, was sectoral composition more generally behind some of the striking differences in returns? Could the large price jumps of affiliated firms simply reflect overrepresentation of certain sectors, which could expect to benefit from a change in policy under Chancellor Hitler? Or did affiliations with the Nazi party produce higher than average returns in all sectors?

Table VII shows the number of affiliated and unaffiliated firms, by sector. It also gives the log returns for the period from January to March 1933. With the exception of two sectors (construction and insurance), affiliated firms consistently show higher returns than unaffiliated ones. The return difference varies from −0.128 to 0.155. Results for three industries are statistically significant—chemicals, steel, and machinery. When we estimate with a full set of controls (final column), we obtain similar signs, but size and significance levels change.

Sample sizes are small for many sectors. Nonetheless, differences are positive in nine of eleven sectors. This suggests that outperformance was not concentrated in a handful of them, even

TABLE VII
AFFILIATION AND RETURNS BY SECTOR

	Number of observations		Log return Jan–March		Difference (*t*-statistic)	Coefficient from model with controls[a]
Affiliated?	No	Yes	No	Yes		
Electric industry	6	7	−0.044	0.054	0.098 (1.34)	−0.077 (1.0)
Utilities	19	6	0.029	0.044	0.015 (0.3)	0.007 (0.2)
Construction	35	3	0.016	−0.011	−0.014 (0.3)	−0.046 (0.5)
Coal	10	8	0.022	0.096	0.073 (1.64)	0.078 (1.1)
Transportation	13	12	0.022	0.07	0.0477 (0.9)	0.28*** (2.9)
Insurance	16	2	0.11	−0.017	−0.128 (1.57)	−0.017 (0.4)
Steel	14	20	−0.032	0.108	0.14** (3.1)	0.134 (1.4)
Chemicals	29	8	0.022	0.11	0.088* (1.74)	0.07 (1.62)
Banks	28	8	0.0002	0.0477	0.048 (1.57)	0.068 (1.5)
Food	50	3	0.032	0.072	0.04 (0.58)	0.18** (2.2)
Machinery	60	6	−0.04	0.115	0.155** (2.2)	0.15** (2.5)
Totals and (weighted) averages	280	83	0.009	0.079	0.07** (4.2)	
Meta-analysis (fixed effects)					0.061*** [5.8]	

[a]Dividend yield, market capitalization, Jewish ownership.

if finding statistically significant results is easier in those with larger sample sizes. To assess whether random variability and small sample size could be responsible for the differences in coefficients, we perform meta-analysis on our results. From the fixed effects specification, we obtain an effect of 0.061, significant at the 99.9% level.[48] Overall, these results suggest that connected firms

48. Random effects estimation yields virtually identical results. There is also no evidence that the difference between the two groups differed systematically in our subsamples—the *Q*-statistic of 12.5 cannot reject the null of no systematic heterogeneity ($p = .251$). We also examined whether the significant effect overall

saw gains in their stock prices across most sectors, even if the effect is not always tightly estimated. Also, adding sectoral controls does not undermine the size and significance of the Nazi dummy variable.[49]

V.D. Extreme Bounds Analysis

In all previous tables, we provided stepwise variations of the basic regression setup. If researchers only report combination of variables that produce significant coefficients, inference will be invalid. We use a form of Leamer-style extreme bounds analysis to safeguard against this potential problem (Levine and Renelt 1992). Using 73,815 possible combinations of regressors—including all sector dummies, market capitalization, the dividend yield, the Jewish dummy, size quintiles, Reichswehr association, beta, and twenty dummies of regional origin—the smallest coefficient we obtain for the Nazi variable is 0.059 (t-statistic 3.1) and the biggest is 0.11 (t-statistic 5.8).[50] Despite using a large number of possible combinations of regressors, we consistently find a statistically significant and economically meaningful coefficient. Sala-i-Martin et al. (2004) make the valid point that the entire distribution of coefficients, and not just the extreme bounds, matters. Because the stringent Levine-Renelt method raises the bar relative to the Sala-i-Martin approach, our results are a lower bound on the true stability of the effect of party affiliation.

V.E. Alternative Definitions of Affiliation

What constitutes affiliation with the Nazi party is crucial for the analysis presented in this paper. There is a large historical literature on the topic discussing which businessman maintained what kind of link.[51] In many cases, there are questions about the participation or the importance of individuals. In this subsection, we show that our results are not sensitive to alternative definitions of connection with the Nazi party. Our baseline specification deliberately included a number of businessmen whose

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depended on any one of the sectors being included, dropping each industry in turn. The coefficient on the meta analysis never falls below 0.04 and always remains significant at the 95% level of confidence.

49. Cf. Appendix II, Table A4.

50. We use the EBA do-file for STATA, with a maximum of 4 additional regressors (in addition to the Nazi dummy), as implemented by Gregorio Impavido.

51. Cf. Turner (1985); Petzold (1995).

involvement with the Nazi Party has been questioned by some scholars. Others were excluded because the weight of evidence seems to lean against their participation. Both types of choices are not necessarily compelling. We vary our setup step by step. The fundraiser on February 20 is different in nature because the NSDAP was already in power.[52] Otto Wolff's support for the regime has been questioned by some. Similarly, Emil Georg von Stauss's position may have been more ambiguous, even if he extended financial support to Göring and Arbeitsstelle Schacht and thus qualifies for our baseline group.[53] We also test the inclusion of von Schröder's senior partner, von Stein. In addition, we also experiment with adding various individuals, such as Reusch and Bingel, whom we excluded from our baseline. Because Turner (1985) raised a question about which Tengelmann attended the February 20 meeting, we also check his inclusion.

In Table A5, Appendix II, we present the results for these alternative specifications of the connection variable. Adding two questionable cases—Reusch and Bingel—results in a coefficient that is 0.005% lower, but not statistically different from the baseline. If we do not count Otto Wolff as connected, the coefficient on the Nazi dummy falls minimally, and the statistical significance is reduced somewhat—yet it remains strong overall. Similarly, excluding the contributors on February 20 reduces significance to a small extent, but does not undermine our results. Neither does von Stein's or von Stauss's exclusion. Even when we use a very stringent definition, excluding all those firms whose connection derives solely from participation in the February 20 fundraiser or whose ties depended on von Stauss, Tengelmann, von Stein, Springorum, Vögler, or Wolff, we find positive and highly significant (if slightly lower) returns of 5.7%. Also, we cannot reject the null that the coefficient under the most stringent definition of party affiliation is identical with the baseline result. We conclude that our connection variable is robust to a wide range of alternative coding choices.

Despite the care we have taken in analyzing affiliations, it is possible that the key right-hand-side variable—connections with the Nazi Party—is measured with error. Some of the firms in our sample may have made contributions that left no trace in the

52. In this case, we move 23 firms from the affiliated to the unaffiliated category.
53. For his aid to Göring, Mommsen (2004).

surviving records. Our set of connected companies may only be a subset of those that lent support to the NSDAP. If the group of firms we classify as "nonaffiliated" contains some firms that did contribute (and were seen to have done so by investors), we probably understate the true impact on stock prices. To examine how this possibility might affect our results, we employ errors-in-variable estimation.[54] As column (2) in Table VI shows, the size and significance of the Nazi-affiliation dummy increases, suggesting a true outperformance of 11% if the noise ratio is 0.25.[55]

VI. SELECTION AND ENDOGENEITY

VI.A. *Determinants of Association*

There are good reasons to think that some firms sought proximity to the NSDAP more vigorously than others. One of the reasons may have been that they expected a greater payback. This could undermine the validity of our earlier analysis—either because unobserved variables are responsible for the results, or because of endogeneity issues.

A simple probit regression (Table VIII) of affiliation on observable firm characteristics yields some striking results. Our standard explanatory variables (market capitalization, dividend yield, Jewish) only show that bigger firms were more likely to form connections. Overall, we cannot explain more than 8% of the variation in party connections with these variables. Proxies for military usefulness improve results. We find that the firms with Reichswehr connections, and those in sectors useful to the armed forces, were much more likely to associate with the Nazi party.

A large literature has examined the determinants of the Nazi Party's electoral appeal.[56] Many studies found that religion was a good predictor of NSDAP election results, with Catholic voters much more immune to the party's appeal than Protestants. In electoral districts with above average results for the Nazi Party, Protestants outnumbered Catholics 4:1, whereas they only accounted for one-third of the population in districts with below-average results (Bracher 1984).[57] Also, border regions tended to be much more nationalistic, and hence prone to vote for

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54. Hardin and Carroll (2003).
55. Table A6 in Appendix II shows the results for alternative values of the signal-to-noise ratio.
56. Falter (1991); Falter, Linderberger, and Schumann (1986).
57. Subsequent research has emphsized these results (Falter 1991).

TABLE VIII
PROBIT REGRESSIONS (DEPENDENT VARIABLE: NAZI DUMMY)

Regression	1	2	3	4	5	6
Dividend yield	0.99					3.3*
	(0.49)					(1.8)
Market cap	1.15e−08***					9e − 9***
	(4.68)					(2.5)
Jewish-owned	−0.29					−0.5*
	(−0.98)					(1.8)
Reichswehr 3		1.19***				1.3***
		(4.4)				(4.2)
Arms sector		0.94***				0.84***
		(7.8)				(6.1)
KP vote			0.046***			0.025***
			(4.4)			(2.6)
NS vote				−0.06***		−0.035***
				(6.7)		(3.2)
Border					0.055	
					(0.2)	
Protestant					−0.009	
					(1.5)	
Pseudo-R^2	0.08	0.12	0.03	0.06	0.02	0.22
N	334	789	454	454	454	322
Regional clustering	N	N	Y	Y	Y	Y

Standard errors robust to heteroscedasticity and clustered at the regional level in equations (3)–(6).
*, **, *** indicate significance at the 90%, 95%, and 99% level, respectively.

the NSDAP. Whatever the effects among voters, the same mechanisms were clearly not at work among firms. As Table VIII shows, we obtain an insignificant negative effect on the proportion of Protestants in a region, while border regions register a positive but insignificant effect.

We also analyze the effect of election results in the regions of origin for our firms, using the November 6, 1932 returns (Falter, Lindenberger, and Schumann 1986). Both the Communist and the NS vote explain some of the pattern of association. That regions with a more popular Communist party also had more NS-affiliated firms is not surprising. One of the key messages sent by the NSDAP in its dealings with business leaders was its commitment to defeat Communism and protect private property. Where local conditions suggested that this threat was grave, more executives and directors had links with the NSDAP. The opposite sign for the NS vote may look surprising—regions where the party had

greater electoral appeal had *fewer* associated firms. However, until 1934, the NSDAP contained at least two different groupings—a socialist wing that was strongly anticapitalist under the Strasser brothers, and a more conservative wing. Some regions where the Nazi Party polled strongly, such as Berlin, were dominated by more left-wing elements. This may have reduced the party's appeal in the eyes of business leaders.

Overall, when combining all the significant variables and the standard controls, we find that about three-quarters of the variation in associations cannot be explained. We think of this as reflecting idiosyncratic factors such as personal connections, family history, and ideology.

VI.B. Endogeneity—Propensity-Matching Results and IV Estimates

So far, we have implicitly assumed that membership in the "connected" group was essentially random. However, there are a number of observable characteristics that correlate with being connected with the Nazi party. Even if they do not explain a large share of the total variation, the Nazi dummy variable may be partly endogenous, and inference will be invalid.

One standard way of dealing with the endogeneity problem is to perform matching using a set of controls that influence assignment to the "treated" or "untreated" group. In this way, we compare the share price performance of firms with similar observable characteristics, using *n*-dimensional matching.[58] The same control variables as used in Table III, plus a full set of sector and regional dummies, are employed to calculate propensity scores. Returns of the most similar firms are then compared with each other. As Dehejia and Wahba (1999) argue, propensity-score matching can overcome endogeneity problems by focusing comparisons on subgroups of observations that are strictly comparable. Their results suggest a high success rate in replicating results from experimental studies. We use two alternative methods for estimating differences between the matched groups—nearest neighbor matching (with the three most similar firms being compared) and a kernel approach using a continuous weighting function.

For the period January–March 1933, the strongly positive effect of Nazi affiliation is confirmed—the matching estimator

58. Abadie et al. (2002). The propensity scores come from probit estimation.

TABLE IX
MATCHING ESTIMATOR RESULTS: STOCK RETURNS

	Treated	Controls	Difference (95% confidence interval)
11/32–1/33			
Nearest neighbor (3)	0.115	0.071	0.044 [−0.039, 0.146]
Kernel	0.128	0.104	0.024 [−0.05, 0.11]
1/33–3/33			
Nearest neighbor (3)	0.078	−0.001	0.079 [0.021, 0.18]
Kernel	0.088	0.002	0.086 [0.038, 0.19]

"Treated" refers to firms predicted to be Nazi-affiliated; "controls" are firms with similar characteristics based on the propensity scores derived from probit estimates, using market capitalization, dividend yield, Jewish ownership, regional dummies, and sector dummies as explanatory variables. The 95% confidence interval, based on percentiles of the difference (in square brackets), was derived from bootstrap estimation with 1,000 repetitions (results are bias-corrected).

results suggest outperformance of around 8%, significant at the 95% level of confidence (Table IX). The two-month period prior to the Nazis coming to power shows some outperformance, but the result is not significantly different from zero. Overall, the impact of relaxing the linearity assumption is small—we broadly find the same results as under OLS.

Instead of matching, we can use an instrument for NS affiliation that is itself not connected with stock market returns. Most of the determinants of association explored above will be correlated with the error term. If there is one exception, it is the electoral preferences of voters in the region of origin. There is, for example, no obvious reason that firms located in Communist-dominated areas should have outperformed, except for the varying likelihood of associating with the Nazi Party.[59] We therefore use regional election results to instrument for affiliation.[60] Equation (3), Table VI gives the result of using Communist votes as an instrument for NS affiliation of firms. The coefficient for the Nazi dummy is consistently large, suggesting an excess return of ten percentage points.[61]

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59. Note that the correlation coefficient between KP vote and the arms sector is 0.1, and for Reichswehr 3 and KP vote −0.008. Hence, it is not the case that Communist election results simply reflect the strength of sectors most likely to associate with the NSDAP.

60. We cluster all of our results at the level of the region.

61. Table A7 in Appendix II presents the results of alternative estimation techniques. Coefficients range from 8% to 16%. Significance inevitably declines, and falls below the customary threshold in one specification. Where we estimate with both the NS and the Communist vote, the Hansen J-test fails to reject the null of uncorrelated errors, suggesting that the exclusion restriction holds.

VII. DISCUSSION AND CONCLUSIONS

Just as in 1990s Malaysia and Indonesia, the stock market in Nazi Germany realized the value of political connections when it saw them. To understand the value of political connections in Germany, we examine the directorships and management ties of listed firms. Interlocking directorates were the key to the country's industrial power structure—a phenomenon known as "Deutschland AG." We use this basic insight to track the influence of contributors to the Nazi party. Among the party's supporters we count only those that contributed funds, or offered direct support for the "movement," or for appointing Hitler Chancellor. Tracing them through the contemporary handbooks on German firms, we examine which business leaders with ties to the NSDAP served on supervisory and management boards. Despite the restrictive definitions, we find that 115 firms (with 119 listed securities) in our sample of 751 firms were connected in one way or another. Because these firms were, on the average, larger and more highly capitalized than unaffiliated firms, they accounted for more than half of the Berlin stock market's capitalization.

Share prices in Germany may not have been rising more than in other countries after January 30, 1933, but a very substantial part of the increase that we observe reflected the value of political connections with the new party in power—and not general improvements in business conditions. Firms that had "bet on Hitler" benefited substantially. They saw their stock price rise by 5% to 8% faster between January and March than comparable firms. Most of the excess returns accumulated between January 30 and March 10, 1933. As uncertainty about the new regime's nature and permanence declined between January 30 and mid-March, the stock prices of connected firms rallied substantially. We find strong evidence that the stock market bid up the share prices of connected firms beyond what can be explained by size, profitability, or sectoral origin. This result is not driven by outliers or the sectoral composition of donor groups.

Overall, the change in stock market value as a result of political change in Germany in early 1933 was sizable—market capitalization in our sample increased by 5.8%, equivalent to RM 383 mio between mid-January and mid-March 1933. Excess returns earned by connected firms were responsible for 358 mio, or 93%; the remaining 25 mio came from unconnected firms. The effect is broadly comparable in magnitude to what has been found in Malaysia and the United States. Table X shows a comparison

TABLE X
CHANGES IN THE VALUE OF POLITICAL CONNECTIONS, SCALED BY GDP AND MARKET CAPITALIZATION (GERMANY, MALAYSIA, UNITED STATES)

Case	Duration	GDP (in millions) (I)	Market capital-ization (II)	Change in market value (III)	Change in market value as a result of political connections (IV)	% of change in market value due to political change (IV/III)	Politically induced change in capitalization/total market capitalization (IV/II)	Politically induced change in capitalization/total market capitalization per month	Politically induced change in market capitalization/GDP (IV/I)
Germany 1933	2 months	RM 50,780	6,120 (sample)	383	358	93%	5.8%	2.90%	0.71%
Germany 1933	2 months		13,200 (total)	(826)	(772)	(93%)	(5.8%)	(2.90%)	(1.53%)
Malaysia 1997–1998 (down)	13 months	$86,200	93,174	−60,000	−5,400	9%	−5.8%	−0.45%	−6.3%
Malaysia 1997–1998 (up)	1 month	$72,200	94,367	5,000	1,600	32%	1.7%	1.70%	2.2%
United States 2001 (Republican)	1 week	$10,128,000	10,956,000 (sample)	30,826	−76,948	423%	−0.7%	−2.80%	−0.78%
United States 2001 (Democratic)	1 week	$9,816,000	10,956,000 (sample)	30,826	27,923	−153%	0.3%	1.20%	0.28%

Note: All figures in mio. Numbers in parentheses denote extrapolation based on sample evidence.
Sources: The values for the change in stock market value and the contribution of political connections for Malaysia are from Johnson and Mitton (2003). The first GDP figure is the average of the IMF (2007) GDP estimate in current dollars for 1997 and 1998 (the downturn took place from July 1997 to August 1998). The second is for 1998. Market capitalization is from FIBV (2007) for the middle of the first period, that is, the end of 1997. For the second period, it is the average of end-1997 and end-1998 capitalizations. Figures for the United States are derived from stock market values by FIBV (2007) for year-end 2000, estimates of GDP for 2000 from IMF (2007), and the figures for change in stock market value are calculated from Jayachandran (2006).

with these other cases. In the United States, the so-called "Jeffords effect" wiped $84 billion off share prices (when firms with Republican soft-money connections fell in price; Jayachandran [2006]). This was equivalent to 0.7% of market capitalization and 0.8% of GDP. The political events we track unfolded over different time horizons. Per month, the NS seizure of power generated as much of a discontinuity as Senator Jeffords' change in position, and a bigger one than in Indonesia.

When scaled by GDP, the effect in Nazi Germany is very similar in magnitude to the Jeffords effect, but smaller than in Malaysia. There, the political value of connections fell by $5.4 billion during the crisis, according to Johnson and Mitton (2003), equivalent to 9% of market capitalization and 6.3% of GDP. Scaled by market capitalization, the German case is more dramatic than either the United States in 2001 or Malaysia in 1997–1998. In the early days of the Hitler regime, gains of connected firms in our sample are 5.8% of (sample) market capitalization and 0.7% of GDP. Since we only have one (of many) exchanges in Germany in our sample, and were unable to construct capitalization figures for all Berlin-listed firms, this may well represent a lower bound of the true effect. If the firms outside our sample had a similar composition in terms of affiliation and showed similar responses, the rise in share prices as a result of excess returns for connected firms would be equivalent to 1.53% of GDP.[62]

With a median stock market value of 42 mio RM (as of December 1932) of connected firms, the 7%–8% outperformance translated into gains of approximately 3 mio RM. Known contributions to the party were, by comparison, small. At the famous February 20, 1933, meeting to raise campaign funds, for example, IG Farben appears to have made the largest single contribution— 400,000 RM. Subsequently, the firm's stock market capitalization increased by 12% to 1,190 mio in March. Of this gain, the baseline coefficient in Table III (equation (4)) attributes 86 mio to NS connection.[63] Most firms provided only a fraction of what IG Farben

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62. We use Rajan and Zingales' (2003) figure for market capitalization/GDP in Germany (35%) and connect it with the known change in nominal share prices (−51.7%) and nominal GDP (−46%). This suggests that market capitalization/GDP should have been 26% in early 1933. Because our sample is equivalent to 12% of GDP, this implies that the 0.71% of GDP change in market capitalization for connected firms in the sample translates into 1.53% for the country's stock market as a whole.

63. Petzold (1995) provides an extensive discussion of the campaign funds; older essays such as Hallgarten (1952) raise questions that may still require further work. For IG Farben, see esp. *NMT,* 7 (1953).

donated—and their relative return would have been commensurately larger.

By international standards, the value of connections with the Nazi party was unusually high. Comparison with the results of Faccio (2006) suggests that in her sample of 47 countries from around the globe, only Third World countries with poor governance showed similarly high returns. Also, associations with the NSDAP were formed voluntarily, not through family links; also, they were not in place decades before their political value became apparent, as in many Third World countries. One question for future research is how many of these connections turned out to be valuable in the end and through which channels the party rewarded its supporters.[64] Though some businessmen felt that the donations were large, their value was small compared to the rise in stock market value of connected firms. Interestingly, even recently formed affiliations such as those resulting from the fundraising party in Berlin on February 20, 1933, appear to have boosted firms' fortunes on the stock market. Returns were not arbitraged away by many other firms entering the fray. This suggests that Hitler's rise to power may have come as a genuine surprise to many, that an ideological distaste for his party kept numerous businessmen from contributing, or that NSDAP representatives deliberately focused their attention on a subgroup of sympathetic business contacts.

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64. In other countries with large returns to political affiliation, privileged access to finance can be a channel (Claessens, Feijen, and Laeven, forthcoming). In the German case, there is currently little evidence to suggest such a link.

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