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From Finance to Fascism: The Real Effect of Germany's 1931 Banking Crisis

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Abstract:
Do financial crises radicalize voters? We analyze a canonical case – Germany during the Great Depression. After a severe banking crisis in 1931, caused by foreign shocks and political inaction, radical voting increased sharply in the following year. Democracy collapsed six months later. We collect new data on pre-crisis bank-firm connections and show that banking distress led to markedly more radical voting, both through economic and non-economic channels. Firms linked to two large banks that failed experienced a bank-driven fall in lending, which caused reductions in their wage bill and a fall in city-level incomes. This in turn increased Nazi Party support between 1930 and 1932/33, especially in cities with a history of anti-Semitism. While both failing banks had a large negative economic impact, only exposure to the bank led by a Jewish chairman strongly predicts Nazi voting. Local exposure to the banking crisis simultaneously led to a decline in Jewish-gentile marriages and is associated with more deportations and attacks on synagogues after 1933.

JEL Classification: E44, G01, G21, N20, P16

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Contents

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I. Introduction

Can financial crises fan the flames of fanaticism? From Brexit to the recent elections and referenda in Brazil, Italy, Spain, France, US, Austria, Germany, Sweden, and Greece, the period since 2008 has witnessed dramatic gains for anti-establishment parties and politicians. On the 10th anniversary of the Lehman collapse in the summer of 2018, the *Financial Times* argued that "Populism is the true legacy of the financial crisis".[1] At the same time, the driving forces behind the recent populist surge remain unclear: Rising concerns over immigration, growing income inequality, fiscal austerity, and the adverse effects of foreign trade have all been named as potential drivers (Moriconi et al. 2018; Dippel et al. 2016; Autor et al. 2017; Becker et al. 2017). While recent evidence (Mian et al. 2014; Algan et al. 2017) and historical studies (Eichengreen 2018; De Bromhead et al. 2013; Funke et al. 2016) using aggregate cross-country data suggest that financial crises are linked to radical voting, there is a striking lack of evidence based on micro data identifying a direct effect of financial shocks on political radicalization, and the economic and non-economic channels through which these shocks reverberate.

We examine the canonical case of a radical government coming to power amidst economic and financial disaster: The rise of the Nazi Party, leading to a genocidal dictatorship responsible for World War II with millions of casualties. As aggregate GDP in Germany fell by 40% and unemployment surged towards six million (Feinstein et al. 2008), the Nazi party went from 2.6% of the popular vote in 1928 to 43.9% in March 1933. While the Nazis' triumph is hard to imagine without the Great Depression, there is no clear cross-sectional evidence linking economic distress to their electoral triumphs. Analyses focused on unemployment find relatively little to suggest that the economic slump caused the Nazi Party's electoral gains (Falter 1991; Childers 1983; Stachura 1978). Instead, voting studies typically conclude that the turn towards the Nazis was broad-based across social classes (Falter and Zintl 1988; Kolb 1997). The mass army of unemployed overwhelmingly supported the Communists, not the Nazis (Falter 1991; King et al. 2008).[2]

At the same time, Germany's slump was aggravated by a severe banking crisis in the summer of 1931. Output had contracted before, but the banking crisis helped to turn an ordinary recession into the Great Depression (Figure 1): Over 80% of the decline in output in

[1] *Financial Times*, 30 August 2018. The New York Times similarly titled "From Trump to trade, the financial crisis still resonates 10 years later," *New York Times*, 10 September 2018.

[2] King et al. (2008) have argued that groups hurt economically by the depression did not all have the same interests. Rather, in their view, Nazi support was a case of 'ordinary economic voting' – those at low risk of unemployment turning to the Nazis and those at high risk turning to the Communists. One exception Galofré-Vilà et al. (2018), who argue that austerity was a key driver of Nazi voting.

durable production from peak to trough occurred after the start of the banking crisis. The crisis was triggered by the collapse of Danatbank, one of Germany's four big universal banks. A Central European banking crisis had begun in Austria, with the failure of Creditanstalt in May, leading to deposit withdrawals in Germany. In addition, Danat faced unsustainable losses as one of its borrowers, a large textile firm, defaulted due to fraud and bad luck. The ensuing bank run led to a suspension of bank deposits, the failure of Dresdner Bank as well, a three-week bank holiday, and Germany's de facto exit from the gold standard. Political inactivity because of repayments due to the Versailles Treaty and conflict between Germany and France over a proposed customs union with Austria had undermined international cooperation.[3] Both external and domestic factors turned Danat's troubles into a full-blown financial crisis.[4]

In this paper, we show that the German banking crisis in the summer of 1931 was crucial in boosting the Nazi movement's electoral fortunes. It not only aggravated the German economy's downturn, leading to more radical voting because of declining incomes. It also increased the Nazis' popularity directly: Their central, long-standing claim that "the Jews are our [Germany's] misfortune"[5] was seemingly borne out by indisputable fact. The bank at the center of the crisis, Danat, was led by a prominent Jewish banker, Jakob Goldschmidt. We first present new evidence on the real effects of the German banking crisis, and then document the crisis' consequences for Nazi support and anti-Semitic attitudes.

We collect new data on firm-bank pair relationships and wage bills of listed firms (based on a contemporary directory of listed firms) as well as city-level income. Shorter working hours and lower wages caused income losses, as did disruptions to the flow of credit and a collapse of demand from under- and unemployed workers. To identify the effect of bank failures on the real economy and voting, we exploit *firm-bank* pair relationships. Listed German firms typically had a strong relationship with a single bank, often the one that had brought them to market. The *Hausbank* ("house bank") would offer payment services, lend, provide capital market services, and send a delegate to the supervisory board of the connected firm (Fohlin 2007). We use cross-sectional variation in pre-crisis exposure to failed banks to identify effects. German banks lent nationwide in the 1930s (in contrast to the US), and

[3] Ferguson and Temin (2003) conclude: "German banks failed in 1931, but the problem was not primarily with them. Instead, the crisis was a failure of political will in a time of turmoil that induced a currency crisis"

[4] For the banking crisis, see Born 1967, Ferguson and Temin 2003, Schnabel 2004. Kindleberger (1986) and Eichengreen (1992) argue that the Austrian banking crisis was crucial for the German one, highlighting the international origin of the crisis. Ferguson and Temin (2003) highlight the inaction of German politicians, and the run on the currency, while Schnabel (2004) emphasizes crisis of both the currency and the banks.

[5] This was the motto of *Der Stürmer*, a highly anti-Semitic Nazi weekly magazine that published the slogan on its front page in every issue.

information on bank connections was recorded prior to the banking crisis. There is no evidence that firms linked to the Danatbank were ex ante riskier than client firms of other banks – nor were they different in size, age, or leverage when compared to borrowers of other large banks.

Loan volume at all banks in the aggregate declined by 13% from 1931 to 1933 (Figure 2, Panel A) and by 10% for big banks that did not fail (Commerzbank and Deutsche Bank). Aggregate lending by Danat and Dresdner fell twice as much – by 20%. The fall in wage bills was even greater (Figure 2, Panel B): At firms connected to small banks, wages and salary expenditure were reduced by 18%; at big banks that did not fail, by 25%, and at Danat- and Dresdner-connected companies ("DD-connected" from now on), by 43%.[6] In our regression analysis, we control for a host of borrower characteristics that explain a large share of lending and wage changes; however, the coefficient on DD-connected does not change. Firm fundamentals (including observed and unobserved proxies for firm-level credit demand) are therefore orthogonal to the bank crisis shock. This suggests that declines in liabilities and the wage bill are not driven by firm-level credit demand, but by bank lending restrictions caused by the crisis.[7]

Before the banking crisis, cities where many firms had banking relationships with DD were similar to those with less exposure. They are on average larger and have more blue-collar workers, but the share of Protestant, of pre-crisis Nazi votes, and the share of Jews are statistically indistinguishable. After 1931, cities with a higher share of firms connected to Danatbank or Dresdner Bank (prior to the crisis) saw larger income declines, and unemployment rose more. Crucially, the greater the exposure to failing banks in 1931, the bigger the electoral gains for the Hitler movement became. We first show that higher DD exposure at the city level (based on the universe of 5,610 listed firms' pre-crisis bank connections) significantly increased Nazi Party support between the 1930 and 1933 elections. There were no pre-trends, and the shift was strong already in 1932.

Greater economic collapse was one important mechanism that links DD collapse to Nazi voting.[8] While unemployment did not impact Nazi votes, income decline driven by exposure

[6] Figures for aggregate lending are from NBER microhistory database, for individual banks from the Handbook of German Stock Companies. Note that Panels A and B do not use exactly the same categories. In Panel A, the left-most bar is "all banks" (including Großbanken); in Panel B, it is "all banks that are not Großbanken". The reason is that NBER and the Handbook provide different definitions of bank liabilities and loans. This makes it impossible to correct aggregate lending figures for changes at the Großbanken. Nevertheless, the lending reduction by small banks was significantly smaller than for large banks.

[7] We perform tests in the spirit of Altonji et al. (2005) and Oster (2017) below.

[8] Danat exposure affects both city-level change in income and unemployment. City-level Danat exposure or change in income affect Nazi votes, but not change in unemployment. This finding in particular provides new evidence for the hypothesis in King et al. (2008) that income losses among those who were not unemployment

to DD strongly increased support for the Nazi party – a one standard deviation (std. dev.) decline in income caused by DD was associated with a 4.3 percentage point (p.p.) rise in Nazi support (while the average change in NSDAP vote share from 1930 to 1933 was 22 p.p.). In contrast, a one std. dev. change in income (not predicted by DD exposure) increased Nazi votes by only 1.1 p.p.

We also find that non-economic mechanisms from DD exposure to the rise of the Nazi party were crucial. After controlling for changes in economic fundamentals,[9] higher DD exposure by local firms directly increased Nazi voting. The Nazi message was similar across Germany. It appears to have had greater success in cities affected by DD failures. With the financial crisis, the Nazis had seemingly incontrovertible proof for their misguided theories of Jewish domination and destruction. It was an easy story to tell and to sell: As in many other countries, Jews were vastly overrepresented in 1930s German high finance (Mosse 1987). Nazi propaganda consistently blamed the Jewish population for Germany's economic ills. One infamous cartoon in *Der Stürmer*, a Nazi weekly, showed a gigantic, all-powerful, obese Jewish banker hanging a starving German businessman.[10] Goebbels, later Minister for Propaganda, instructed party propagandists to emphasize that the banking crisis validated the party's anti-Semitic line. Diaries from the time, such as Hans Schäffer's (a leading German-Jewish civil servant), suggest a general surge in anti-Semitic sentiment after the banking collapse, even at the highest levels of society.[11] Similarly, the *Völkischer Beobachter,* the party's leading newspaper, argued that the bourgeois middle had shown "an ever-increasing convergence towards national socialist language and national socialist thought. The turning point came … during the summer crisis 1931…" (VB 31.5.1932).

In line with anti-Jewish sentiment being a key factor behind electoral gains, effects of DD exposure on Nazi voting were greatest in towns with an earlier history of anti-Semitism (as proxied by medieval pogroms, or by voting for anti-Semitic parties, 1890-1914).[12] In those cities, income variation induced by the Danat collapse lead to an even stronger increase in NSDAP support than income itself. In addition, the banking crisis' direct effect – over and above economic fundamentals – on Nazi voting was also markedly greater. In contrast, in localities without a prior history of anti-Semitism, the non-economic mechanism played no role; only income changes explain increased Nazi voting. In other words, where hatred of

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benefitted the Nazis. We also examine whether cities that suffered more from the hyperinflation were more likely to vote for the Nazis, and find no link.

[9] City-level income and unemployment, in levels or also including polynomials.

[10] Figure A1 in the appendix reproduces the cartoon.

[11] Schäffer documents meetings of the cabinet in which members of the Catholic Zentrum party openly discussed alleged plans by Jews to 'take over' the German economy.

[12] As in Voigtländer and Voth (2012, 2015).

Jews had no deep historical roots, there was no effect of the banking collapse on Nazi voting over and above income effects.

This conclusion is reinforced when we distinguish between Dresdner- and Danat-connected firms.[13] Economic effects of association with Dresdner and Danat are large, negative, and statistically indistinguishable. However, for Nazi votes, the effect of Dresdner Bank alone is statistically and economically zero – but large and significant for Danat. Only Danat-affected towns and cities show evidence of voting for the Nazis above and beyond economic factors. This is important for our interpretation because only Danat was led by a Jewish chairman.

Did relations between Jews and gentiles actually worsen differentially in towns and cities affected by the Danat collapse? To this end, we collect monthly data on Jewish mixed marriages. Inter-faith marriages are rare events and indicative of deep involvement between Jews and gentiles. And yet, mixed marriages also act as a 'canary in the coalmine', reflecting not only romantic attachment but also the social acceptability of intermarriage. Cities with more DD exposure saw a sharp decline by 15-17% of mixed marriages just after the banking crisis; unaffected places experienced no change (and neither did intra-faith marriages).[14]

The financial crisis also had serious aftereffects: Anti-Semitism heightened by the banking crisis led to more vociferous forms of hate after 1933. We find evidence that cities more exposed to the DD collapse witnessed higher deportation rates of Jewish citizens to concentration camps, and more attacks on synagogues, Jews, and their property during the 1938 pogroms ("Reichskristallnacht").[15]

Our findings contribute to three literatures – the real effects of banking crises, the effects of economic shocks on conflict and instability, and the history of the Nazi Party's rise to power in Germany.

Since Bernanke's (1983) classic paper, a growing literature has documented the effects of financial crises.[16] After the 2008-09 financial crisis, there is clear evidence that firms suffered from a decline in lending (Duchin et al. 2010, Ivashina and Sharfstein 2010, Jiménez et al. 2012). More recent evidence focuses on the real (economic) effects of the 2008 financial crisis (Chodorow-Reich 2014; Paravisini et al., 2014; Jiménez et al. 2017; Huber 2018;

[13] While our main analysis uses them jointly since they were forcibly merged as a result of the banking crisis, splitting them allows for additional insight into the anti-Semitic nature of reactions to the banking crisis.
[14] Effects are insignificant until the banking crisis and (statistically and economically) significant afterwards.
[15] Note that there is no statistically significant difference between the share of Jews across cities exposed to failing banks vs. those unexposed.
[16] See, for example, Reinhart and Rogoff (2009).

Bernanke 2018).[17] There is also evidence that financial crises can bring medium- or long-term costs by leading to the wrong (economic) policies thereafter (Mian et al. 2014). We advance this literature by showing that *the real* impact of a banking crisis is to bring political extremism, going beyond the real effects (e.g. unemployment) of a credit crunch.

The conflict literature has investigated the effects of a variety of adverse economic shocks, such as rainfall variation or commodity price shocks. Results typically show that economic distress makes civil war and other forms of conflict more likely (Collier and Hoeffler 1998; Miguel et al. 2004).[18] Autor et al. (2017) use exposure to trade with China as a source of identification and demonstrate that US electoral districts were more likely to support extreme candidates the more adverse the trade shock was. Similarly, Dippel et al. (2016) argue that negative trade shocks increased support for radical right-wing parties in Germany in recent years.[19] However, Funke et al. (2016), analyzing financial crises over the past 140 years covering 20 advanced economies and more than 800 general elections, conclude that political extremism does *not* increase during normal recessions or after severe macroeconomic shocks that are not financial in nature, but only after financial crises. Instead of aggregate cross-country data, we use new micro-data (firm-bank connections and firm- and city-level data) in conjunction with a banking crisis shock to show how a financial crisis radicalized voters and facilitated the rise of the Nazi power in 1933 via both economic and non-economic mechanisms.[20] Our evidence suggests that income reductions arising from a banking crisis can be special. In our case, income declines due to the Danat crisis implied 10 times more Nazi voting than a similarly-sized income change not due to Danat.[21] This is true despite the fact that Danat- and non-Danat induced income changes have the same average and the left tail is similarly large.

The rise of the Nazi Party has attracted extensive scholarly attention over the last 80 years. Initial analyses emphasized either class-based theories (Lipset 1960; Hamilton 1983) or

[17] This evidence as well as recent theoretical work on the transmission of financial shocks to the real economy during the 2008-09 financial crisis is summarized in Gertler and Gilchrist (2018). For an analysis of the US Great Depression and its banking crisis, see Calomiris (1993) and Calomiris and Mason (2003). Benmelech et al. (2017) use an empirical strategy similar to Almeida et al. (2009), and demonstrate a link from the 1930s US banking crisis to firm employment. In contrast with the US crisis in the 1930s, large banks in Germany were serving to the whole country. This makes it less likely that local demand shocks caused banking distress.

[18] At the same time, democratic transitions also appear to become more likely during periods of low income (Lipset 1960; Brückner and Ciccone 2009).

[19] We find that trade shocks had real effects – but no political ones. An alternative literature has argued that immigration is a major determinant of right-wing voting. See for example Moriconi et al. (2018), who argue that the skill of immigrants is key.

[20] Two recent, innovative papers also study financial shocks and political outcomes using micro data and bank shocks. Braggion et al. (2018) and Gyongyosi and Verner (2018) respectively analyze bank lending and social unrest in China in 1933 and bank FX lending in the 2008 crisis and political extremism voting in Hungary.

[21] Based on columns (2), (4) and (6) in Table 7.

theories of the masses (Ortega-y-Gasset 1932; Arendt 1973). Research based on voting records have largely superseded this earlier literature, demonstrating that, far from being a party dominated and supported principally by members of the lower middle class, the Nazi party was a "catch-all" party that drew support from all walks of German society (Falter 1981; Childers 1983). Nonetheless, some differences in the cross-section emerge: Research using district-level voting results shows that Protestants were much more likely to offer support than Catholics, that the better to-do increasingly turned towards the Nazis after 1930, and that the unemployed overwhelmingly supported the Communists instead.[22] King et al. (2008) use ecological inference to show that while a broad-based shift underpinned the Nazi's rise to electoral success, some groups were more susceptible. This is especially true of the self-employed from high-unemployment areas, and domestic employees from low- to medium-unemployment areas. While few doubt that the rise of the Nazis was facilitated by the Great Depression (see e.g. Evans 2004; Kershaw 2016), there is as of now no compelling evidence that more economically distressed areas of Germany turned to the Hitler movement at the polls.[23] By collecting new data on city-level incomes, firm-level wage bills and bank-firm connections, in conjunction with the banking crisis shock of the summer 1931, we provide direct evidence of a link between economic distress and extremist electoral success. Importantly, income declines rather than unemployment increases were an important determinant of the Nazi surge after 1930 that propelled the party to office.

Our main contribution is to document the impact of a banking crisis on political extremism, going beyond the real effects of a credit crunch. Importantly, we demonstrate that both economic and non-economic channels play an important role. We find strongly different effects on voting from Danat versus Dresdner, and sharply contrasting results for towns with or without deep-rooted anti-Semitic attitudes. This suggests that the mapping of financial distress into political extremism depends on whether and which scapegoat can be easily blamed.[24]

We proceed as follows. We first provide historical context and background, and then describe our data and empirical strategy. Next, we present our main empirical results, before discussing the robustness of our findings. Finally, we offer some concluding remarks.

[22] We do not find significant robust evidence that Danat failure led to more votes for the Communists.
[23] One notable exception is Galofré-Vilà et al. (2018), who argue that austerity in the form of higher taxes was a key reason for pro-Nazi voting. When we control for austerity among other variables, our results remain unchanged in statistically significance and in the size of the estimated coefficients.
[24] Along similar lines, Eichengreen (2018) emphasizes the importance of identity issues on political extremism in the context of economic shocks.

II. Historical background

In this section, we briefly describe three aspects of the historical context – the Great Depression in Germany, the banking crisis of 1931, and the rise of the Nazi Party to power.

A. The Great Depression in Germany

The Great Depression in Germany was amongst the worst world-wide. Peak-to-trough, German industrial output fell by 40%, while the corresponding figure is around 20% in Britain and 10% in Japan. The only other major industrialized country with a similarly severe decline in economic activity was the US. In 1933, Germany counted 6 million unemployed. Unemployment spelled misery, as elsewhere. While the unemployment insurance system looked after those losing their jobs, benefits were cut several times. After 20-27 weeks, the unemployed received emergency aid, which offered only minimal support.[25] Unemployment was only the most visible manifestation of economic misery. Workers were put on short working hours, civil servants' wages and public pensions were reduced, and many small business owners and entrepreneurs suffered severe income declines. GDP contracted by almost 40%; money wages and real earnings declined by more than 22% peak-to-trough (Overy 1996).

Fiscal austerity was one important feature of the German slump (Ritschl 1998). The federal government, states, and municipalities had borrowed heavily before 1929. A good share of the money raised came from abroad. Once international debt markets froze, authorities had to try to balance their books by raising taxes and cutting expenditure. Germany's export industries suffered as protectionism surged after 1929. These were already saddled with relatively high labor costs; new tariffs and difficulties in encountering export financing therefore translated into rapidly falling sales of German products abroad (Eichengreen 1992). By 1933, German exports had declined by 63 % relative to their 1929 value.[26]

B. The banking crisis of 1931

After the outbreak of Germany's banking crisis, the decline in output accelerated (Figure 1). While the production of durables was down some 4% by the spring of 1931 compared to its

[25] At the height of the depression, unemployment benefits became means-tested.
[26] We later examine the extent to which radical voting results can be explained these alternative channels.

pre-crisis peak, it had fallen by a full 10% by the summer, at the height of the banking crisis, only to decline another 5% during the rest of the year.[27]

The 1931 banking crisis had several causes, and there is no overall agreement as to their importance. German banks entered the Great Depression with relatively low equity ratios, and a high share of their deposits was short-term and came from abroad (Eichengreen 1992). The crisis was nonetheless unanticipated, with banks' stock prices giving no indication of trouble ahead. In May 1931, the Austrian Creditanstalt revealed large losses. When it collapsed, foreign deposit withdrawals accelerated in other countries, including Germany (Kindleberger 1986). While the Austrian banking crisis unfolded, huge losses at a German textile firm, Nordwolle, came to the attention of its main creditor, the Darmstädter Nationalbank (Danatbank or simply Danat). Nordwolle management was unlucky in its ill-timed speculation, and also had been hiding losses for a while (Ferguson and Temin 2003, Born 1967). Losses on the loans to the textile firm were large, equivalent to 80% of Danatbank's equity, and threatened the bank's survival.

There were runs on Dresdner and Danatbank, and a three-week bank holiday. Transfers and other transactions remained barred for over a month (Born 1967). The Reichsbank's reserve position severely circumscribed its freedom of action: Because of its commitment to the gold standard, her ability to come to the aid of Danat was limited (James 1985, Schnabel 2004). International support for the Reichsbank could help to shore up the banking system, and to stay on the gold standard. However, Germany and France were at odds over German-Austrian plans for a customs union, and the German government pushed for revisions to reparations payments. Thus, lingering international tensions undermined any bid for multilateral support (Eichengreen 1992). An attempt to merge Danat with Deutsche Bank also failed. By mid-July, many banks were experiencing runs. In the end, the Reichsbank had to suspend convertibility of the Mark into gold, declare a bank holiday, merge Danatbank and Dresdner, and the federal government had to recapitalize all Großbanken (Born 1967).

Some scholars have argued that the German banking crisis was a "twin crisis", with a latently fragile banking system exposed to foreign withdrawals and a run on the mark (Schnabel 2004). Underlying this view is the belief that many banks lent recklessly in the late 1920s, because they believed themselves "too big to fail." Other scholars have argued that "the crisis was primarily [an] exchange rate and foreign liability crisis, which … would have occurred … even if the banks had acted with exemplary caution in the 1920s." (Hardach

[27] We chose durables because they often drive a large part of the variation in demand during downturns, and may be particularly affected by financial-sector shocks (Romer 1990).

1976). Ferguson and Temin emphasized politics, arguing that the crisis was "made in Germany" – that the German government's bid to renegotiate reparations caused foreign withdrawals of funds and subsequent banking collapse (Ferguson and Temin 2003; Temin 2008).

For our purposes, we do not need to resolve the issue of the crisis' ultimate cause. What is clear is that the banking crisis was caused by a confluence of multiple external factors, from the collapse of the Creditanstalt to the reparations problem and pressure on the German currency. Even if the banks might have acted with less than exemplary caution – and a banking crisis ex post is no proof that they did – there is no evidence of Danatbank (and Dresdner) being laxer in its lending than other Großbanken.[28]

C. The rise of the Nazi Party

From relatively obscure beginnings in post-war Munich, the Nazi Party grew in influence and membership during the hyperinflation. In 1923, it made a violent but unsuccessful bid for power, the so-called Beerhall Putsch. After its bloody collapse, Nazi leaders were tried and sent to prison, Hitler most prominently among them; the party was declared illegal. A growing number of prominent right-wing politicians beat a path to the door of his prison cell. Using his time in prison, Hitler wrote *Mein Kampf* ("My Struggle") about his political vision and experiences so far. Anti-Semitism was integral to his ideology. His beliefs on the influence of Jewish finance are well-summarized when he argued that "Jewish finance desires… not only the economic smashing of Germany, but also its complete political enslavement" (p. 905).[29] According to Hitler, the lost war, the humiliating reparations settlement as part of the Versailles treaty, and the hyperinflation were all caused by a Jewish conspiracy.

After an early release from internment, Hitler returned to politics at the head of the newly-legalized party (Bracher 1955). It initially had paltry success at the polls. In the 1928 Reichstag election, the Nazi Party received a mere 2.6% of the vote – during Weimar's "Golden Years", it was languishing in obscurity (Stachura 1978). All of this changed after 1929. As the Great Depression spread, politics became increasingly acrimonious. The last democratically elected Chancellor Müller resigned in 1930, after a row over the rapidly rising cost of unemployment insurance. Thereafter, Chancellor Brüning governed without a parliamentary majority, supported by the emergency powers of President von Hindenburg (Bracher 1955).

[28] We return to this point below, in section III.C.
[29] Cited according to the 1941 edition (Reynal and Hitchcock).

After its poor showing at the polls in 1928, the Nazi Party changed its tune. It no longer publicly advocated a violent overthrow of the established democratic order. Instead, Hitler emphasized that only legal means would be used to come to power. As the party seemingly moved towards the political middle, it became more acceptable to middle- and upper-class voters (Evans 2004), and Hitler formed links with businessmen (Ferguson and Voth 2008). The party also played a prominent role in a plebiscite against the rescheduling of Germany's reparations obligations ("Young Plan"). While the plebiscite against the plan was ultimately defeated, it provided a platform for the Nazis to argue that Germany was being enslaved by foreigners for generations to come (Hett 2018). In the aftermath of the plebiscite, the party scored its biggest success yet – in the September 1930 election, it won 18.3% of the vote. Compared with 1928, it had gained an additional 4.6 million votes.

The Nazi Party's biggest electoral breakthrough came in July 1932 (the first federal parliamentary elections after the banking crisis, twelve months after). In the federal parliamentary election in July 1932, the Nazi Party received 13.7 million votes. It thus became the largest party in parliament, receiving more votes than social democrats and communists combined. Fully confident of his claim to the chancellorship, Hitler negotiated his entry into the government – and failed to convince an aging President von Hindenburg. By November 1932, in another round of federal parliamentary elections, electoral support began to slip. The Nazi vote count fell by 2 million (Evans 2004).

By late 1932, many political commentators confidently predicted that the Nazis were on their way out. Barely a month later, after lobbying from arch-conservative advisors around him, President von Hindenburg appointed Hitler as Chancellor, in a cabinet where leading Nazi politicians were in a minority. Nonetheless, within two months, the Nazis had staged another set of elections, and taken over effective power in the country (Turner 2003). The rise of the Nazi party to power and the end of German democracy was only a prelude, ultimately leading to genocide and the Second World War with more than 60 million casualties.

III. Data and main variables

A. Data

We use a number of data sources for interwar Germany, several of them hand-collected and digitized for the first time. To identify the effect of bank failures on the real economy and voting, we exploit firm-bank pair relationships. A key challenge is to establish the connection between firms and banks, since historical data on individual loans are unavailable. Listed

German firms typically had a strong and persistent relationship with a single bank. Their *Hausbank* ("house bank"), usually the bank that had brought them to market, would offer capital market and payment services (such as dividends), supply credit, and at times send a delegate to the supervisory board of the connected firm (Fohlin 2007). We hence use information on banks paying out firms' dividends to establish firm-bank connections. Investors could collect dividends in exchange for coupons tendered at branches of the main bank for each listed company (so-called "Zahlstellen" – place of payment). Information on "Zahlstellen" is listed in the Handbook for German Stock Companies ("Handbuch der deutschen Aktien-Gesellschaften"), a yearly 4,000-pages compendium of balance sheet information for each listed German company. We use yearbooks for 1929 and 1934 to collect firm-level data on bank connections and balance sheet items.[30] We record bank connections prior to the banking crisis. Since German banks lent nationwide in the 1930s (in contrast to the US), we use cross-sectional variation in firms' pre-crisis exposure to failed banks to identify effects.

We begin our analysis at the firm level. First, we collect data on total assets, total capital, as well bank connections in 1929 for 5,610 firms. These firms represent the *universe* of German listed firms, with assets totaling up to 3.6 billion Reichsmark (RM), which represent 40 % of GDP, or around two-thirds of all non-financial assets. Since listed firms tend to be less constrained financially than privately-owned firms, our results likely represent a lower-bound of true effects.

For each firm, we record whether "Zahlstelle" lists Danatbank or Dresdner Bank, one of the other Great Berlin Banks (Deutsche Bank, Commerzbank), or any other bank. Since the focus of the first part of our analysis is on the real effects of the banking crisis, among the 5,610 firms we identify all those reporting their wage bill in 1929 and 1934. For this sample we collect pre-crisis balance sheet items in 1929 on founding date, total assets and capital, return on assets, dividends, industry, and city, as well as total wage bill in 1929 and 1934.[31] This results in a sample of 386 firms in 239 cities and 20 industries. Of these, 59 firms list either Danatbank or Dresdner Bank as "Zahlstelle" (of which 27 firms list Danatbank), 63

[30] Each handbook generally reports balance sheet data either for July of the previous year or February of the current year. For example, the 1934 Handbook reports July 1933 or February 1934 data items, which is why the 1934 Handbook reflects firm balance sheets during the trough of the recession in 1933.

[31] While today data sources like Compustat provide easy access to comparable information across firms, historical handbook data do not. While for some firms we have information on the bank, assets, and wages, other firms provide none of this information. There are no filing requirements or any consistent form of balance sheet across firms. Firms that report a wage bill in 1929 can be missing in 1934 for several reasons: they do not report the wage bill anymore; they exited the market; they delisted; or they merged. Unfortunately, we can only observe the first of these possibilities and thus analyze the intensive margin only. In the city-level analysis, we use all listed firms (the universe), e.g. even if they do not report wage bills.

firms list one of the other Großbanken, and 17 are connected to both Danat/Dresdner and at least one other Großbank. For the sample of firms reporting their wage bill, we additionally collect information on liabilities in 1929 and 1934, which are available for 258 out of our 386 firms. We use the label "DD" for firms connected with either Danatbank and Dresdner Bank, as both were merged and suffered similar declines in lending; we also use the terms *connected* and *borrowing* interchangeably. However, in some of our analysis, we distinguish Danat versus Dresdner connections.

We then analyze data at the city level. From the *universe* of listed firms in the 1929 Handbook, we calculate measures of city level exposure to DD (explained in detail below). For a total of 187 cities, we assemble information on city population and unemployment from 1930 to 1934 from the Statistical Yearbooks of German Cities ("Statistisches Jahrbuch deutscher Städte"), as well as total city labor force from the 1933 census. We use data on all major German federal elections inform 1924 to 1933. For each election, we record the number of votes for the different parties at the city level from German federal statistics ("Statistik des Deutschen Reichs", ICPSR 42). To measure the extent of suffering during the hyperinflation, we use the vote share of the VRP ("Volksrechtspartei"), an association-turned-party of inflation victims (Fritsch 1984). In addition, we use information on destroyed and damaged synagogues (based on Alicke 2008) and deportations of Jews (Bundesarchiv). Falter and Hänisch (1990) provide information on the share of blue-collar workers, Protestants, and Jews for each city.

We also assemble new data on city income in 1928 and 1934 from Germany's statistical handbooks ("Statistik des Deutschen Reichs, Neue Folge 1884-1944", bulletins 378 and 492).[32] To shed light on the underlying mechanism, we use data on historical pogroms as well as votes cast for anti-Semitic parties in elections during the pre-war period (1890-1914).[33] We also collect data on monthly marriages between Jews and gentiles for a sub-sample of 51 cities. Our final data set contains 187 cities for which we have data on elections, income, and exposure to DD. Table A1 in the Appendix gives a comprehensive overview of variables and sources.

[32] The German government collected data on city incomes every two years, but due to tight budgets not in 1930. Hence, 1928 and 1934 are the closest available data before and after the crisis. Note that the data on year 1932 could reflect income in July 1931, which is at the time of the banking crisis.
[33] The data were assembled by Voigtländer and Voth (2012, 2015).

B. Measures of bank-firm connections and city exposure

In the first part of our analysis, we look at firms' responses to the collapse of Danat. To measure a firm's connection with a bank, we create two dummies: *Danat+Dresdner* (or *DD)* equals 1 if in 1929 a firm's bank "Zahlstelle" lists Danatbank or Dresdner Bank, and 0 otherwise; *Großbank* equals 1 if the firm is connected to any of the other Great Banks, 0 otherwise. As dependent variable we use the growth in total wage bill from 1929 to 1934, or the growth in total liabilities over the same period. The change in wage bill reflects changes in employment, as well as average wages, i.e. firms' total payroll, while the growth of liabilities measures the channel by which banks affect firms (credit) and whether firms can substitute with other source of finance. As controls we use pre-crisis firm age, size (log of total assets), leverage, return on assets, as well as city and industry fixed effects.

To study the effects of DD failures and subsequent credit reduction on cities in Germany, we calculate a measure of city exposure to Danat or Dresdner. In each city, we sum across firms connected to Danatbank or Dresdner Bank, weighted by their respective size in each city (based on assets). Since we do not directly observe firms' loan volume, each firm is weighted by its 1929 leverage ratio (defined as liabilities over capital). City c's exposure is then calculated as

$$DDexposure_c = \sum_f I_{fc} \left(\frac{liabilities_f}{capital_f} \right) * \left(\frac{assets_f}{assets_c} \right) * DD_f \quad (1)$$

I_{fc} is an indicator for whether firm f is located in city c. To construct city-level exposure, we use data on the *universe* of listed firms in 1929 (that is, a total of 5,610 firms).[34]

Our main outcome variables are the change in city income from 1928 to 1934 and the change in NSDAP votes from 1930 to 1933. We also analyze other federal parliamentary elections, including those in 1932. The change in income is defined as the growth rate from 1928 to 1934. The change in NSDAP votes is the change in the share of votes from September 1930 to March 1933. Additionally, we define the dummy *synagogues* that takes value 1 if a synagogue was damaged or destroyed in a city after 1933; as well as total deportations from 1933-1945 over total Jewish population in 1933. We also construct the

[34] The higher number of observations – compared with the firm dataset – comes from the fact that we use all firms that report assets, liabilities, and capital in 1929, even if they do not report their wage bill and have no corresponding 1934 entry.

change in the unemployment rate from 1930 to 1933. The unemployment rate is defined as the yearly unemployment count over total labor force in 1933.[35]

C. Descriptive statistics

Table 1, Panel A, presents summary statistics for our main variables at the firm level. The average wage bill in our sample declined by 19.5 percent, and liabilities, by 16 percent. As of 1929, the average firm was 30 years old and relatively large, reflecting the fact that our sample covers listed companies. Since only 386 out of 5,610 firms reported their wage bill, the issue of sample selection arises. For example, larger firms might be more likely to report their wage bill. In Figure 3, Panel A, we compare the distribution of log(assets) for the sample of firms that report their wage bill in 1929 (386 observations) and the universe of listed firms in 1929 (5,610 observations). While the full sample shows slightly more dispersion, both distributions are similar and the difference in means is insignificant. This suggests that our sub-sample of firms reporting a wage bill is similar to the average listed firm.

How similar were firms connected with DD to borrowers connected with other banks in terms of pre-crisis riskiness? If DD-connected firms were significantly riskier, the declining wage bill could reflect weaker firm fundamentals, including weaker credit demand, not changes in credit supply. We define firm leverage (or debt-to-equity-ratio) as liabilities over capital and compare leverage for firms borrowing from Danat or Dresdner, from any other Großbank, and from other banks for the full 1929 firm sample. Figure 3, Panel B, shows that DD (blue solid line) and Großbank (red dashed line) borrowers were almost identical in terms of pre-crisis leverage. Firms that borrowed neither from Danat nor Dresdner, nor any other Großbank (black dashed line), had higher leverage. Thus, in the full sample of listed firms, firms borrowing from Danat or Dresdner were not riskier before the crisis.

Figure 4 plots the geographical distribution of cities by exposure. DD-exposed cities, i.e. cities with firms connected to DD, are spread out over Germany, reflecting the fact that Germany's large banks served borrowers all across the country. There is no geographical clustering of DD-connected firms.

To further investigate characteristics of DD-connected firms, Table 2, column 1, uses the dummy *DD-connected* as dependent variable and runs it against a set of observable firm characteristics, for the sample of 386 corporations reporting their wage bill. The 59 firms connected to Danat are significantly larger, but have lower leverage. They are similar in terms of age, return on assets, and capital-to-labor ratio (wage bill over assets). The overall pattern

[35] We choose to standardize unemployment by the 1933 labor force. Using yearly total city population as denominator yields identical results.

is similar if we control for industry fixed effects (column 2) and city fixed effects (column 3). When we compare DD-connected firms with Großbank-connected firms only (columns 4 and 5), there are no longer any differences in terms of size, but return on assets is actually higher. However, its coefficient also declines in size and becomes insignificant when we control for industry fixed effects.

Danat expanded rapidly in the 1920s. One might be concerned that (some) new borrowers were of lower quality. To examine this issue, we examine the bank's history. In 1922 Darmstädter Bank für Handel und Industrie merged with Nationalbank für Deutschland, creating Darmstädter und Nationalbank (Danat). Thereafter, Danat expanded. If Danat selectively picked borrowers with weak fundamentals during its period of rapid expansion, we might be picking up the greater vulnerability of recently-added firms. The decline in Danat borrowers' wage bill growth would then be due to relatively weak(er) firm fundamentals, and not the contraction in credit supply.

To deal with this issue, we hand-collect data on borrowers for the two predecessor banks in 1922. If firms that already borrowed from either bank in 1922 were less risky than (new) borrowers in 1929, we can rule out that Danat was adding less sound clients. The online appendix (Table OA1) shows that except for size and age, differences between old and new borrowers are not statistically significant. Importantly, old and new borrowers were similar in terms of leverage and return on assets. The significant difference in age and size is to be expected, as firms that already appear in 1922 are older almost by definition.

Next, we turn to city-level variables. Table 1, Panel B, gives descriptive statistics for our city sample. We have data for 187 cities for most variables. On average, the Nazi party gained 22 p.p. between 1930 and 1933 in cities in our sample. The Communists saw almost no change in their vote share. Incomes declined by 14 percent. The mean (median) city in our sample had 93,000 (41,000) inhabitants in 1930, and 42% of those in employment were blue collar workers. The average share of Protestants was 66%. Jews were a tiny part of the sample population – 0.9%, higher than for the country as a whole because Jews were more likely to live in cities. Our explanatory variable, DD exposure, has an average value of 0.081, with a standard deviation of 0.12.

To examine the balancedness of our sample of cities, Table 3 runs multivariate regressions at the city level, using DD exposure as dependent variable. Positive exposure to DD is significantly correlated with city size, and negatively correlated with the share of blue-collar workers. While the effect of the share of Protestants is not significant (columns 1 and 2), it is not small. Since the share of Protestants was a significant predictor of Nazi voting, we

control for it throughout (together with other covariates). Interestingly, there are no significant differences in the share of Jews across cities more or less exposed to DD. Neither do cities differ statistically in pre-crisis income per capita or unemployment rates. This holds once we add fixed effects for Germany's 15 electoral districts. Once the sample is reduced to cities with non-zero exposure to large banks (column 3) or cities for which we have information on historical anti-Semitism in column (4), differences are no longer statistically significant.

IV. Main results

We first show, at the firm level, that firms connected to Danat saw rapid declines in their liabilities and wage bills. Next, we demonstrate that, at the city level, exposure to Danat spelled lower incomes, higher unemployment, and growing radicalization.

A. Firm level

We examine the effect of Danat's and Dresdner's collapse on firms' wage bills by estimating:

$$\Delta y_f = \alpha + \beta\ DD_f + \gamma\ controls_f + \epsilon_f \quad (2)$$

where y_f is the change in firm f's outcome (liabilities or wages) between 1929 and 1933, DD_f is a dummy variable equal to one if a firm was connected to Danat or Dresdner in 1929 and 0 otherwise, and $controls_f$ are pre-crisis firm controls (log total assets, age, return on assets, and leverage). To account for the fact that shocks to firms within the same city may be correlated, we cluster standard errors at the city level.[36]

Panel A of Table 4 gives the results for liabilities; Panel B for wages. Firms with DD connections reduced their total liabilities by 13.3 p.p. (column 1). In column 2, we add firm controls, and find a coefficient of -11.6 p.p. Column (3) allows for heterogeneity by industry, using dummies for 20 industries that absorb any unobservable characteristics that affected all firms within each sector, such as changes in exports.[37] Adding industry fixed effects leaves the coefficient on *DD* largely unaffected. Columns (4) and (5) address the concern that Danat acquired a selection of risky borrowers during its rapid expansion after 1923. We split the DD dummy into firms that were already connected to Danat before 1923, and those who only became connected afterwards. Both old and new Danat borrowers saw a decline in their

[36] Since we only use five categories of banks (four large ones and the rest), we cannot cluster at the bank level, but results remain significant if we cluster at the bank*industry or bank*city level.
[37] We lose two observations in column (3) since some industries only have one firm.

liabilities. While it was somewhat bigger for new borrowers, the coefficients are statistically indistinguishable from each other.[38]

In column (6) we restrict the sample to cities with more than one firm so as to use city fixed effects. The coefficient rises slightly in size, relative to column (2). Then, adding city fixed effects and industry fixed effects, R^2 increases by a factor of 5 (from 0.09 to 0.52), between column (6) and column (8). DD remains significant. This suggests that unobservables are not a concern – DD connections are likely orthogonal to the (considerable) variation captured by firm observables and unobservables (Altonji et al., 2005, Oster 2017). Finally, Column (8) adds a dummy for other Großbank connections. It suggests that affiliation with other Großbanken was associated with small increases in liabilities, relative to firms borrowing from neither DD nor any other Großbank – but not significantly so.

Importantly, firms that borrowed from DD also saw a significantly stronger decline in their total wage bills (Panel B). Without controlling for covariates, DD borrowers' wage bills fell by 25 p.p. more than those of firms that did not have connections with Danatbank or Dresdner Bank (column 1). Column (2) adds firm characteristics to control for the fact that Danat borrowers were on average larger and older. After controlling for firm size and age, return on assets, and leverage, DD borrowers still had significantly lower wage bill growth (-19.5%). Column (3) adds industry fixed effects, the coefficient on DD remains significant and negative. In columns (4) and (5), we distinguish old and new Danat borrowers; effects are always of near-identical size and statistically indistinguishable.

In columns (6) - (8) we use city fixed effects (column 6 reports the baseline coefficient for the sample of firms in cities with more than one firm). After absorbing shocks common to cities and industries, the coefficient on DD remains significant and negative (column 8). Comparing two firms within the same city and industry suggests that borrowing from Danat reduced the wage bill by 25.4 p.p. Column (8) also adds a dummy for other Großbank connections. Großbank connections raised wage bill growth, relative to firms not borrowing from any large bank, but not significantly. As in the case of liabilities, the coefficient of interest does not decline in size as we add controls and fixed effects: While R^2 increases from 0.04 to 0.42, the coefficient's absolute size rises from -0.195 to -0.254. This implies observables and unobservables are likely orthogonal to the *DD* connection variable.[39]

Overall, results in Panels A and B show a strong negative effect of DD connections on firms' liabilities growth and wage growth: pre-crisis borrowing from Danat or Dresdner

[38] A Wald test for the difference in the two coefficients results in a p-value of 0.99.
[39] An Oster test gives a delta of 1.11 for wages and 2.19 for liabilities, which implies that unobservable would have to be 1.11 (2.19) as important as our complete set of controls and fixed effects to undo the main effect.

reduced firms' liabilities by 12 to 21 p.p. and firms' total expenditure on employee wages and salaries by 15 to 29 p.p. during the crisis.

B. City level

Did bank failures radicalize voters, and did the financial crisis bring political extremism to power? If so, what were the economic and non-economic mechanisms? To address these questions, we aggregate firm connections to the city level. Danat's failure led to a significant reduction in city-wide economic activity, as measured by income. Figure 5 summarizes our findings. It shows changes in city-level income and Nazi voting. The left panel plots income for a single cross-section, between 1928 and 1934. The tercile of cities with the highest exposure to Danat also saw the biggest fall in income – the higher exposure to Danat was, the greater the decline. Panel B on the right shows the mirror image in terms of Nazi support – the higher the level of exposure to failing banks, the greater the increase in right-wing radical voting.

To analyze this link more systematically, we run regressions of the type:

$$\Delta y_c = \alpha + \beta\ exposure_c + \gamma\ controls_c + \epsilon_c \quad (3)$$

where y_c is an outcome variable such as the change in income or votes for the NSDAP in city c, *DD exposure*$_c$ is city c's exposure to firms connected to Danat and Dresdner, calculated from firm-level data (defined in equation 1). Controls include city latitude and longitude, log population in 1930, as well as its share of Protestants, Jews, and blue-collar workers in 1925 out of its total population. In some regressions we also control for city exposure to other Großbanken, as well as exposure to the decline in exports. Cities with a higher exposure to DD-connected firms should see a stronger decline in income (β<0) and an increase in votes for the NSDAP (β>0). While regression equation (3) controls for several city characteristics, unobservable shocks could still bias our estimates. To address this issue, in robustness tests we estimate panel regressions with city and time fixed effects.[40]

Table 5, Panel A, investigates this pattern systematically and provides the results of a regression of the change in income between 1928 and 1934 on city exposure.[41] Column (1)

[40] See table OA2. In a panel of cities, we find that income fell more after 1931 where exposure to Danat was greater, unemployment surged more, and the total number of firms declined rapidly. The magnitude of these effects is big, with declines in income of 21.1%, a rise in unemployment by 4.5%, and fall in the number of firms 15.1% for a fully exposed city, relative to a city with no exposure. The result for the number of firms is not significant at conventional levels (p-value 0.16).

[41] To be precise, the date of *publication* for income was February 1934, and data refer to late 1933.

shows that without controls or fixed effects, higher Danat exposure significantly decreases city incomes. Controlling for socio-economic characteristics increases the coefficient significantly (column 2). Moving a city from the 50th to the 90th percentile in terms of exposure to Danatbank reduces city incomes by an additional (0.24 x 0.295=) 6.9% (48% of the average decline or 0.38 standard deviations). In column (3) we further control for common shocks through province fixed effects for Germany's 15 electoral districts. The magnitude decreases only slightly when we allow for heterogeneity across regions and the coefficient remains strongly significant.[42] Finally, columns (4)-(6) repeat the previous specifications, yet restrict the sample to cities with strictly positive exposure to Danat or Dresdner. In all cases, the new specification slightly strengthens the effect of Danat's failure on cities' local economies. Hence, even within the sample of cities that have positive exposure to Danat or Dresdner, higher exposure significantly reduced incomes.

Exposure to failing banks also increased unemployment (Table 5, Panel B). We repeat the analysis in Panel A, but use the change in the unemployment rate from 1930 to 1933 as dependent variable. While adding controls to the specification reduces the magnitude of the coefficient on DD exposure somewhat, it remains significant across specifications (columns 1 to 3).[43] When we look at the intensive margin alone, we obtain similar results, except for a marginally insignificant result in the most demanding specification (column 6).[44]

Did exposure to failing banks also lead to radicalization among the electorate? Table 6 shows that it did. The increase in the Nazi vote share between 1930 and 1933 was greater the higher exposure to Danat was (Panel A, column 1). The effect is slightly stronger once we take regional differences into account in column (2). Moving a city from the 50th to the 90th percentile in terms of exposure increases the NSDAP vote share by 2.2 p.p. (9.8% of the mean or 0.41 standard deviations). Columns (3) – (6) look at vote gains between 1930 and the two parliamentary elections in 1932, in July and November. They show similarly large effects, but the biggest effect is visible for July 1932, immediately after the banking crisis.[45]

Within less than a year of the banking crisis, voters strongly increased their support for an openly anti-Semitic party. Did these voters just turn a blind eye towards the Nazis' hateful

[42] Importantly, Germany underwent a period of harsh austerity (Galofré-Vilà et al. 2018). Since some of it was implemented at the state level, and electoral districts are almost synonymous to states, use of district fixed effects allows us to control for differential changes in public spending that could have radicalized voters.
[43] Figure A2 examines developments over time: By 1932, cities with more DD exposure registered significantly higher unemployment (Panel A); no such pattern is visible for other Großbanken (Panel B).
[44] P-value 0.17.
[45] Table A2, Panel A, in the Appendix looks at Communist (KPD) voting. There is also a significant but smaller effect of DD exposure on the KPD vote share.[45] As we add controls, the effect becomes even smaller. Nor is there evidence of a significant shift before 1933 (columns 3-6). The radicalization we observe on the extreme right part of the political spectrum in response to the banking crisis is not equally visible on the extreme left.

racial agenda, or did the banking crisis change people's actions towards Jews? In towns and cities more affected by the 1931 banking crisis, the persecution of Jews was markedly worse after 1933 than in less affected areas. Panel B of Table 6 uses the share of deported Jews after 1933 and the destruction of synagogues between 1933 and 1945 as dependent variables. Cities with high exposure deported a markedly higher share of Jews during the Holocaust (columns 1 and 2). There were also more attacks on synagogues where the banking crisis struck (columns 3 and 4). Going from the 50^{th} to the 90^{th} percentile of exposure raised the deportation rate by 3.5 p.p. and increased the probability of synagogue damage by 14 p.p. While examining only these two variables does not do full justice to the cruelty of the Nazi regime and its victims, our findings suggest that anti-Semitic sentiment triggered by the banking crisis had repercussions even years after Danat's failure.

C. Political Extremism: Mechanism

Why did the banking crisis increase support for the Nazi party? There are two plausible channels through which banking distress may increase support for extremist parties. First, Danat's default led to economic misery by reducing incomes, and this negative economic shock led to increased support for the NSDAP. However, the core of Nazi ideology centred on scapegoating Jews (and the hated Weimar "system", allegedly dominated by Jews) for the depression. This may have increased anti-Semitic sentiments in addition to direct economic effects of the crisis. This section shows that both channels were at work.

In Table 7, we disentangle the overall effect of income changes and the effects of the banking crisis above and beyond economic factors on voting for the extreme right. Columns (1) and (2) show that decreasing income had a direct effect on voter polarization. Cities with greater income declines turned more towards the Nazi Party. A one standard deviation drop in income is associated with (0.18 x 0.057) 1 % percent more votes for the NSDAP (0.19 standard deviations). The decline in income used in columns (1) and (2) was caused by multiple factors, including the banking crisis. Columns (3) and (4) concentrate on the income loss due to the banking collapse. We first regress the overall change in income in a city on city exposure to Danat and Dresdner to separate the part of income loss explained by the banking crisis and the income loss orthogonal to Danat and Dresdner failures. Using only the income loss inflicted by the banking crisis, the effect on Nazi voting increases substantially compared to the effect of aggregate income losses. A one std. dev. decline in income caused by DD led to a 4.3 p.p. rise in Nazi support (while the average change in NSDAP vote share

from 1930 to 1932/33 was 19/22 p.p.).[46] At the same time, a one std. dev. fall in income in general (not predicted by DD exposure) only increased Nazi votes by 1.1 p.p. While income and predicted income could be collinear, the correlation between both is 0.11. In columns (5) and (6) we include both overall and predicted income in regressions; coefficients remain similar in sign, size, and magnitude.

Finally, in columns (7) and (8), we isolate the effect of exposure on radicalization that is not due to economic factors. In a first step, we regress the change in NSDAP votes on the change in unemployment and income. We then use only the residual as a dependent variable and regress it on DD exposure. The strong positive and significant coefficient suggests that the banking crisis radicalized voters even after accounting for any direct economic effects through falling incomes and rising unemployment. Its effect on voters' movement to the right goes above and beyond pure economic effects. [47]

Interestingly, unemployment did not have the same effects as income. Figure OA1 shows that the overall level of unemployment in 1933 is a good predictor of Communist support, but not of Nazi support – in line with existing literature. Table A2, Panel B, demonstrates that neither in levels nor in first differences has unemployment predictive power for Nazi or Communist votes (or their changing vote share, 1930-33). Column (7) also shows that income changes do not predict Communist voting (while they do predict Nazi voting, as shown above).

While falling incomes radicalized voters, exposure to the banking crisis had political consequences that exceeded pure economic effects. To demonstrate that the anti-Jewish message was important in the aftermath of the banking crisis, we first separate city exposure to Dresdner and Danat in our data. Since only Danat was led by a prominent Jewish banker, Jakob Goldschmidt, the effect on Nazi voting should not be present for exposure to Dresdner bank. Table 8, columns (1) and (2), show that Danat and Dresdner-exposed cities saw similar and statistically indistinguishable (additional) income declines (0.37 vs. 0.33).[48] However, Nazi votes only surged in Danat-exposed towns (columns 4-6). The fact that only the Jewish-led one of the two collapsing banks boosted the Nazis' electoral fortunes strongly suggests that scapegoating of Jews for economic distress was crucial for the radicalization that followed the banking crisis.

[46] The 1932 figure is for July.
[47] We find similar results if we use polynomials of income and unemployment.
[48] Appendix Table A3 shows that both Danat and Dresdner-associated firms saw a sharp decline in liabilities and in their wage bill. However, the decline was somewhat greater for Danat-affiliated firms.

Why did some voters increasingly flock to the Nazi party, even above and beyond any shift in behaviour driven by economic hardship? Table 9 explores this question in more detail. Anti-Semitic sentiment in Germany before the 1930s differed by municipality (Voigtländer and Voth 2012). We use these differences to split our city sample into two, as a function of historical anti-Semitism. We measure historical anti-Jewish sentiment using vote shares for anti-Semitic parties in elections around the late 19th century, as well as an earlier history of medieval pogroms. Panel A, columns (1) and (2), show that falling income affected Nazi voting in cities with and without a strong history of anti-Semitism. The part of income predicted by bank exposure, however, only has predictive power in highly anti-Semitic cities (columns 3 and 4). When we use both explanatory variables simultaneously (columns 5 and 6), actual income is significant for low anti-Semitism cities, but predicted income (from the banking crisis) for high anti-Semitism ones. In columns (7) and (8) we again use the change in NSDAP votes orthogonal to changes in income and unemployment as the dependent variable. In cities where residents were less receptive to the Nazis' hateful anti-Jewish propaganda, there is no direct effect – over and above economic factors – of banking exposure on Nazi voting (column 7). The opposite is true in places with a history of voting for anti-Jewish parties (column 8). The effect above and beyond economic conditions is only present in areas where there was pre-existing anti-Semitism.

Panel B repeats the exercise, distinguishing between places where pogroms were committed either during the Black Death in 1349/50 or during the 1920s. We find an almost identical pattern to Panel A – for places with a history of anti-Semitism, actual income declines matter much less than income changes predicted by exposure to the banking crisis. After accounting for economic changes, the banking crisis exposure itself matters only in high-anti-Semitism cities. These results suggest that the financial crisis may not have created anti-Semitism, but legitimized the public expression of hatred where it existed previously.[49] In combination, these results suggest that one of the core Nazi messages fell on more fertile ground where pre-existing hostility toward Jews coincided with actual bank-induced suffering.

As a final piece of evidence, we show that the banking crisis did not only affect voting, deportations, and violent attacks on synagogues – but that it also affected relations between Jews and gentiles more generally even before 1933. We collect monthly data on Jewish mixed marriages for a city-date panel of 51 cities. Table 10 shows the results for a difference-in-differences specification with Danat exposure interacted with a dummy for

[49] This similar to recent work showing that expressions of anti-immigrant sentiment became more common once US voters realized that Donald Trump was going to win (Bursztyn et al. 2018).

months after July 1931. Each specification includes city and/or year fixed effects to control for unobservable city-specific characteristics, as well as common shocks. Columns (1) to (3) further support our explanation that the banking crisis increased anti-Semitism. Cities more exposed to the failing banks experienced a significant decline in mixed marriages by 17.3% compared to pre-crisis times, after controlling for common trends and unobservable city characteristics (column 3). This effect is not driven by an overall decrease in the frequency of Jewish marriages. Columns (3) to (5) use the log number of Jewish marriages as a placebo test. Cities exposed to the crisis did not see a significant change in Jewish marriages as such. While a rare event and indicative of deep involvement between Jews and gentiles, we consider it as a 'canary in the coalmine', reflecting not only romantic attachment but also the social acceptability of marrying across religious and ethnic.[50]

In combination, our results strongly suggest that the Nazis' anti-Jewish message was particularly successful in areas where it reactivated deep-rooted anti-Semitism, and where the banking shock was driven by exposure to the Jewish-led bank at the heart of the crisis. Finally, we show that it affected relations between Jews and gentiles, reducing the frequency of intermarriage after July 1931, and raising the deportation ratio and frequency of synagogue attacks after 1933.

V. Robustness, placebo exercises, and alternative factors

In this section, we show further robustness tests of our findings, including analyzing other economic shocks. We also show that there are no pre-trends towards greater Nazi voting in areas more exposed to failing banks.

A. Placebos

Voters in cities affected by the Danat collapse may have been turning towards the Nazis already. To examine this possibility, we use DD exposure as an explanatory variable for voting changes between every single federal election in Weimar Germany after 1923 (Table A4). Since the Nazi party was officially banned in 1924, we use combined votes for two surrogate parties – the DVFP and the NSFP. The NSFP competed with a near-identical agenda and many overlapping candidates. The DVFP offered joint lists with NSFP. Across specifications, DD exposure has no significant effect on right-wing votes – if anything,

[50] Voigtländer and Voth 2013.

coefficients are mostly negative, suggesting that exposed cities tended to vote less for parties on the radical right than before the banking crisis.

B. Robustness

Outliers may have a significant effect on the results. We re-estimate baseline specifications and change the sample every time by excluding each firm (or city) one-by-one. Figure OA2, Panels A-C, show that the coefficient in our main specifications do not depend on individual outliers; they are stable across varying samples.

Our results could also reflect regional shocks. Table A5 examines this possibility. The region around Bremen was also affected by the fall of Nordwolle, which may have had significant effects on the local economy. Danat had a strong foothold in Bremen and was lending to several firms; the effects we find may reflect Bremen's economic distress, and not the effects of Danat's collapse. A similar argument can be made by firms located at the border with Austria, which saw a dramatic crisis in May 1931 as the Oesterreichische Creditanstalt failed. The third region of concern is the Ruhr region, where a large share of German economic activity was concentrated. An overrepresentation of firms in that region may limit the economic significance and representativeness of our findings for Germany as a whole. To address these concerns, Table A5 shows that our firm-level results are robust to excluding each of these regions.

C. Other economic shocks

Could our results reflect the effect of other economic shocks? The German economy was affected by other headwinds during the early 1930s. The large decline in Germany's international trade is one such change. The decline began shortly after the start of the Great Depression. If Danat-exposed cities were also large exporters, we may capture a response to a trade shock instead of a financial shock. Table A6 shows that exports overall are associated with income declines at the city-level; however, export shocks did not affect Nazi votes (columns 1 and 2).

Finally, we examine if the extent of suffering induced by the hyperinflation is a possible confounding factor. The novelist Stefan Zweig's famously argued that "…nothing embittered the German people so much … nothing made them so furious with hate and so ripe for Hitler as inflation." (Zweig 1941). To measure the extent of suffering, we look at votes for a party (Volksrechtspartei – VRP) organized by inflation victims that sought a drastic revaluation of (old) Marks. Areas with higher VRP votes at the time of the hyperinflation did

not see more Nazi voting after the onset of the banking crisis. Moreover, adding the VRP indicator to our regressions does not reduce the coefficient on Danat exposure, and there is no significant interaction with DD exposure, either (columns 3 and 4).

D. Spatially correlated errors

Our data is spatial in nature, and spatially correlated errors could lead us to understate standard errors. Table A7 first examines the extent of spatial correlation. We compute Moran's I for the change in Nazi and Communist votes, 1930-33, for income changes, unemployment changes, and Danat exposure. We find Danat and income changes are not significantly correlated, but all other variables are. Panel B reports the results from estimating regressions using our main specification, computing standard errors that account for spatial correlation. We continue to find highly significant results.

VI. Conclusion

There is a wide-spread belief that the recent upsurge in populism was rooted in the financial crisis of 2007-08; cross-country evidence over the last crisis and also over the last hundred years appears to confirm this conclusion (De Bromhead et al. 2013; Funke et al. 2016). A long-term perspective underlines the importance of scapegoating in turning the economic shocks of a financial crisis into political radicalization (Eichengreen 2018).

The German case of 1931 provides causal evidence of the strength of these patterns, for a case that changed world history. We use new, detailed micro data on bank-firm linkages and a banking crisis shock (caused by external factors and political inactivity) to document three main empirical facts: First, we show that firms that were connected to Danat and Dresdner Bank suffered more when these banks collapsed. In particular, we find that liabilities and the total wage bill declined more sharply in firms that had previously been closely associated with Danat and Dresdner. The evidence suggest that effects are not driven by firm-level credit demand, but by bank lending restrictions caused by the crisis.

Second, economic distress induced by the banking collapse boosted the Nazi Party's electoral fortunes. High unemployment in general predicts Communist votes, but unemployment changes in Germany after 1930 have no predictive power for far-right voting. In contrast, income changes – and especially those predicted by exposure to failing banks – have strong predictive power for Nazi voting. These effects were sharper where the Nazis could tap into pre-existing anti-Semitic sentiment. Exposure to Danat (led by a Jewish

chairman) and Dresdner had the same economic effects – but only the former mapped strongly into more Nazi voting. At the same time, Jewish-gentile interfaith marriages declined markedly more in cities and towns exposed to Danat and Dresdner Bank. Finally, we show that there were marked repercussions – the local persecution of Jews after 1933 was more severe where the banking crisis had caused the greatest economic harm.

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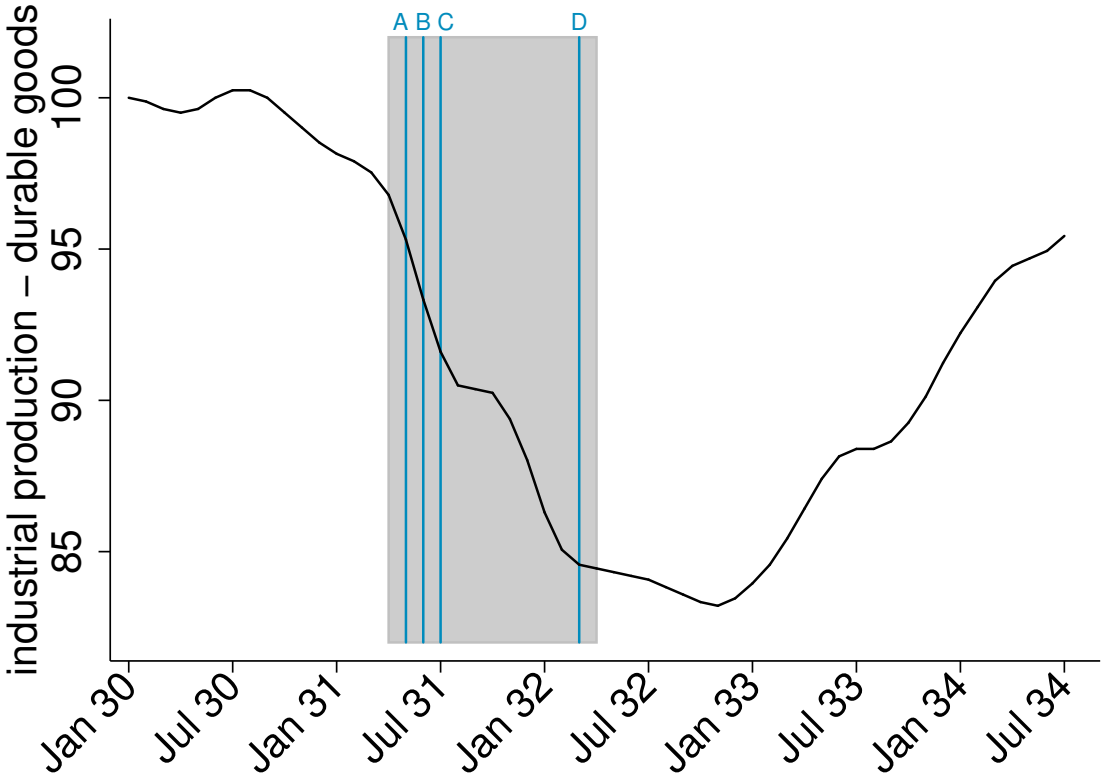
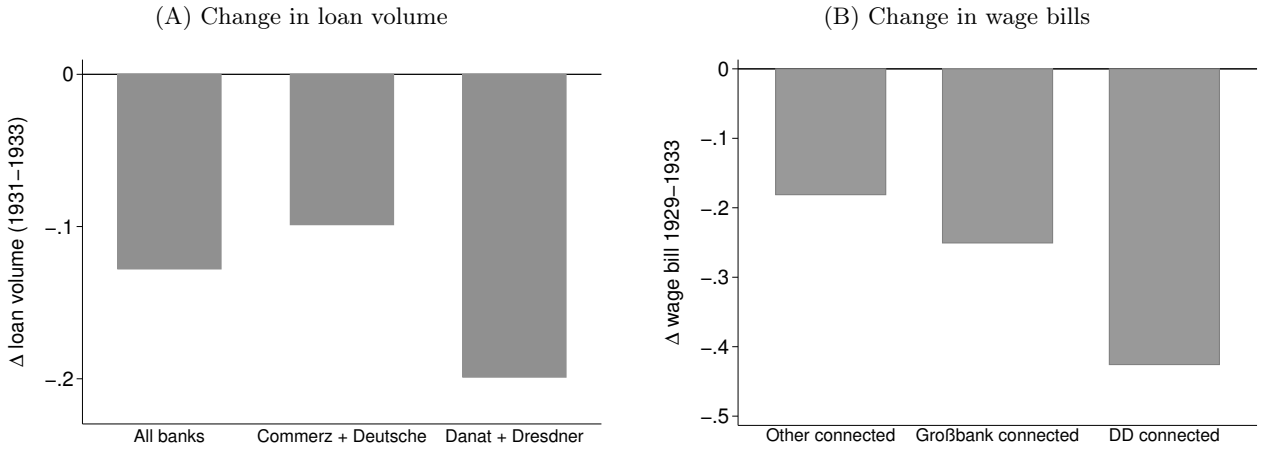
Tables and Figures

Figure 1: **German industrial production**



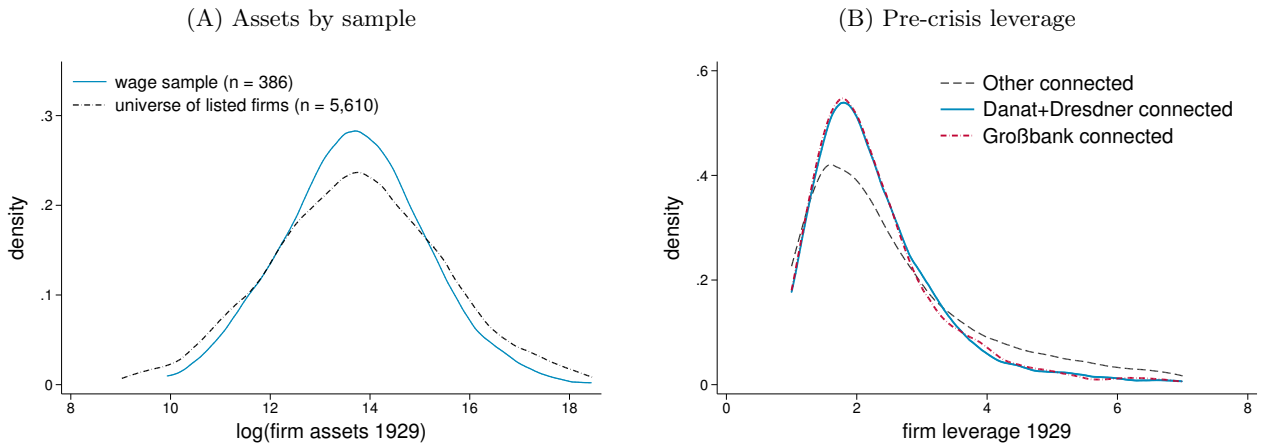
Note: This figure shows the monthly index of industrial production of durable consumption goods for Germany (Wagemann 1936). The production index is normalized to 100 in January 1930. The shaded area indicates the period of the 1931 banking crisis, from the beginning of troubles at Austrian Creditanstalt to the merger between Danatbank and Dresdner Bank. Blue vertical lines show: A beginning troubles at Austrian Creditanstalt (May 1931), B Nordwolle accounting irregularities discovered and Hoover Moratorium established (June 1931), C failure of Danatbank and ensuing bank holidays (July 1931), and D forced merger of Danatbank and Dresdner Bank.

Figure 2: **Bank credit and firm wage bills during the crisis**



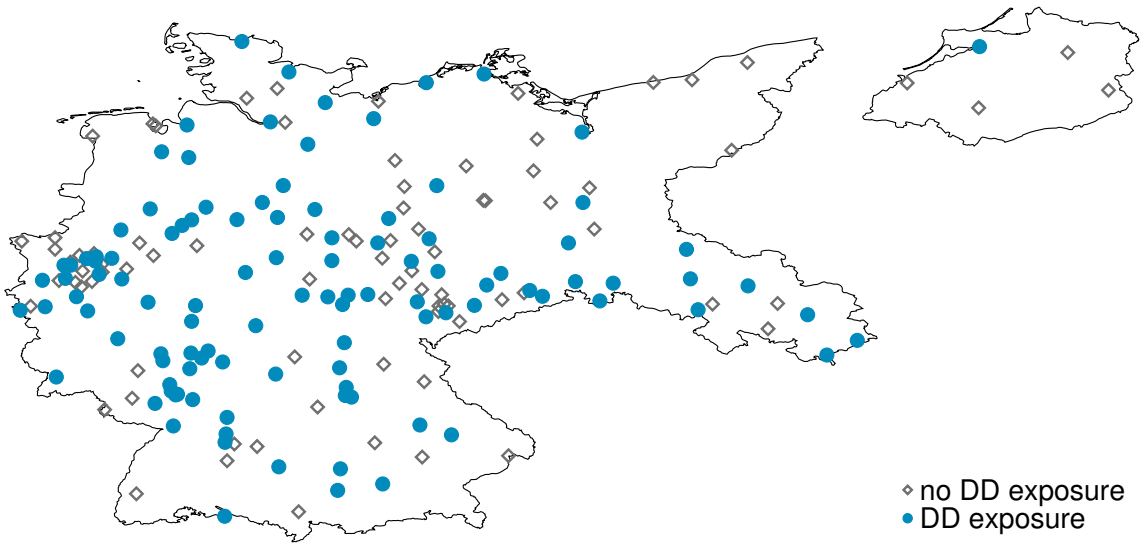
Note: Panel A shows the change in total bank loans from 1931 to 1933 for all banks in Germany (All banks), and the four largest banks, Commerzbank and Deutsche Bank, as well as Danatbank and Dresdner Bank (Source: NBER macrohistory database and Handbuch deutscher Aktiengesellschaften 1934). Panel B shows the average change in firm wage bill from 1929 to 1933 for firms not connected to any of the four largest banks (Other connected), firms connected to Commerzbank and Deutsche Bank (Großbank connected), and firms connected to Danatbank and Dresdner Bank (DD connected).

Figure 3: **Firm size and pre-crisis leverage**



Note: Panel A shows distribution of log assets for wage bill sample of firms (blue line), as well as for the universe of listed firms in 1929 (black line). Panel B shows firm leverage (defined as total liabilities over capital) for the universe of listed companies for firms not connected to any of the four largest banks (Other connected, black line), firms connected to Commerzbank and Deutsche Bank (Großbank connected, red line), and firms connected to Danatbank and Dresdner Bank (DD connected, blue line).

Figure 4: **Geographical distribution of Danat/Dresdner borrowers**

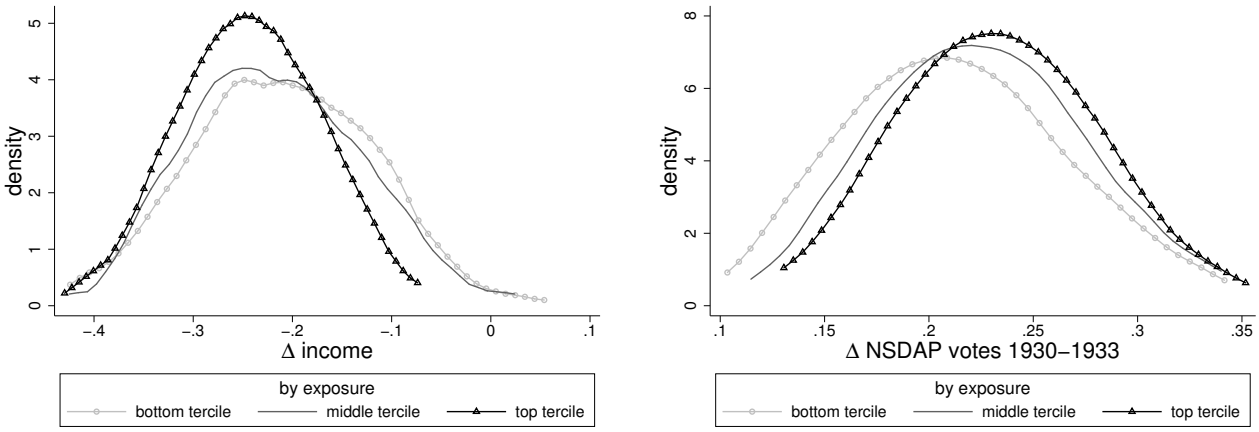


Note: This map of Germany shows the geographical distribution of cities with either positive or zero Danat/Dresdner exposure. Blue dots indicate cities with DD exposure, grey diamonds those with no DD exposure.

Figure 5: **City income and NSDAP votes**

(A) City income

(B) NSDAP votes



Note: Panel A shows density of change in city incomes from 1928 to 1934 for cities in bottom, middle, and top tercile of DD exposure. Note that income recorded in 1934 is for late 1933. Panel B shows density of change in NSDAP vote shares from September 1930 to March 1933 elections.

Table 1: **Summary statistics for main variables**

Panel A: Firm level

Variable	Obs	Mean	Std. Dev.	P25	P50	P75
Δ wages	386	-.195	.76	-.65	-.39	-.06
Δ liabilities	258	-.16	.47	-.38	-.177	-.026
age	386	29.8	28.3	11	18	43
log assets	386	13.84	1.4	12.99	13.82	14.77
leverage	386	3.3	4.65	1.68	2.18	3.0
return on assets	386	.04	.13	0	.03	.06
wage bill/assets	386	.34	.50	.11	.24	.412
Danat+Dresdner	386	.15	.36	0	0	0
Danat	386	.07	.26	0	0	0
Dresdner	386	.1	.3	0	0	0
Großbank	386	.21	.41	0	0	0

Panel B: City level

Variable	Obs	Mean	Std. Dev.	P25	P50	P75
Δ income	187	-.143	.181	-.229	-.141	-.073
Δ income (predicted)	187	-.143	.077	-.197	-.143	-.088
Δ unemployment 1930-33	185	-.006	.039	-.031	-.003	.017
Δ NSDAP votes 1930-33	183	.223	.054	.187	.22	.263
Δ NSDAP votes 1930-33 (residual)	181	.222	.052	.19	.219	.26
Δ NSDAP votes 1930-7/32	176	.173	.064	.143	.176	.218
Δ NSDAP votes 1930-11/32	176	.128	.06	.092	.129	.167
Δ KPD votes 1930-33	182	-.001	.025	-.017	.001	.018
synagogue damaged or destroyed	187	.754	.432	1	1	1
deportations/pop	187	.296	.157	.189	.287	.384
population 1930	187	92645.46	132119	28200	40700	83700
share blue collar	187	.417	.093	.349	.411	.48
share Jewish	187	.009	.008	.004	.006	.012
share Protestant	187	.663	.29	.484	.795	.895
anti-Semitic votes 1900	81	.029	.073	0	.005	.022
Black Death pogrom	61	.607	.493	0	1	1
DD exposure	187	.081	.117	0	.02	.136
exposure (Großbank)	187	.13	.146	0	.089	.219
exposure (Danat)	187	.05	.103	0	0	.051
exposure (Dresdner)	187	.04	.08	0	0	.044

Note: Panel A shows summary statistics for main firm-level variables, Panel B for main city-level variables. *Danat+Dresdner* is a dummy that refers to firms connected to either Danat or Dresdner, *Großbank* to firms connected to other large banks. For other variable definitions, see Table A1 in the Appendix.

Table 2: **Firm sample balancedness**
Dependent variable: Danat+Dresdner-connected (dummy)

	(1)	(2)	(3)	(4)	(5)
sample	*All*		*>1 obs per city*	*Großbank>0*	
age	0.001	0.000	-0.001	-0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
log assets	0.069***	0.078***	0.092***	0.039	0.049
	(0.014)	(0.014)	(0.022)	(0.035)	(0.036)
return on assets	0.140	0.029	0.077	1.399***	0.837
	(0.138)	(0.142)	(0.241)	(0.534)	(0.596)
leverage	-0.008**	-0.007*	-0.001	-0.030	-0.033
	(0.004)	(0.004)	(0.007)	(0.021)	(0.021)
wage bill/assets	0.006	0.009	-0.019	-0.132	-0.056
	(0.036)	(0.037)	(0.055)	(0.184)	(0.205)
Industry FE	-	✓	✓	-	✓
City FE	-	-	✓	-	-
Observations	386	386	194	122	122
R-squared	0.100	0.164	0.472	0.089	0.263

Note: Each column reports the results of a regression with *Danat+Dresdner* as dependent variable, where *Danat+Dresdner* is a dummy with value one if a firm is connected to either Danatbank or Dresdner Bank. All variables are defined in Table A1. Industry FE includes a set of 20 industry fixed effects; City FE require at least 2 firms per city. Großbank>0 restricts the sample to firms connected with at least one of the *Großbanken* - the large German universal banks.

Table 3: **City sample balancedness**
Dependent variable: DD exposure

	(1)	(2)	(3)	(4)
sample	*All*		*Großbank>0*	*anti-Semitism>0*
log population	0.022**	0.025**	0.008	0.021
	(0.010)	(0.011)	(0.014)	(0.021)
share blue collar	-0.204**	-0.237**	-0.183	-0.153
	(0.095)	(0.100)	(0.143)	(0.180)
share Jewish	1.089	0.471	0.026	1.214
	(1.171)	(1.560)	(1.920)	(3.713)
share Protestant	-0.030	-0.078	-0.103	-0.073
	(0.034)	(0.047)	(0.065)	(0.095)
log income p.c.	0.002	0.012	0.077	0.062
	(0.027)	(0.028)	(0.050)	(0.047)
unemployment rate	0.169	0.162	0.200	0.434
	(0.148)	(0.156)	(0.175)	(0.534)
latitude of the city	-0.001	0.011	0.013	-0.048
	(0.006)	(0.019)	(0.025)	(0.042)
longitude of the city	-0.001	0.001	0.004	-0.011
	(0.003)	(0.009)	(0.013)	(0.026)
anti-Semitic votes 1900				0.005
				(0.003)
Black Death pogrom				0.015
				(0.040)
Electoral District FE	-	✓	✓	✓
Observations	187	187	136	61
R-squared	0.111	0.191	0.060	0.181

Note: Each column reports the results of a regression with *DD exposure* as dependent variable on main city characteristics. *DD exposure* is a city's exposure to Danatbank and Dresdner Bank. All variables are defined in Table A1. Electoral District fixed effects are dummies for Germany's 15 electoral provinces. Großbank>0 restricts the sample to cities with positive exposure to at least one large German bank. anti-Semitism restricts the sample to cities for which we have data on historical anti-Semitic votes or pogroms.

Table 4: **Changes in wage bills and liabilities - DD connected firms**

Panel A: Change in firm liabilities, 1929-33

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample			*All*			*City FE sample*		
Danat+Dresdner	-0.133***	-0.116**	-0.167**			-0.191**	-0.145*	-0.209*
	(0.051)	(0.051)	(0.068)			(0.074)	(0.085)	(0.113)
Danat+Dresdner (old)				-0.090	-0.112			
				(0.057)	(0.068)			
Danat+Dresdner (new)				-0.170**	-0.196**			
				(0.078)	(0.095)			
Großbank								0.023
								(0.092)
Observations	258	258	256	258	256	102	102	102
R-squared	0.011	0.063	0.109	0.066	0.108	0.091	0.376	0.523
Firm Controls	-	✓	✓	✓	✓	✓	✓	✓
Industry FE	-	-	✓	-	✓	-	-	✓
City FE	-	-	-	-	-	-	✓	✓

Panel B: Change in firm wage bills, 1929-33

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
sample			*All*			*City FE sample*		
Danat+Dresdner	-0.250***	-0.195***	-0.152**			-0.195***	-0.285**	-0.254*
	(0.062)	(0.063)	(0.061)			(0.069)	(0.107)	(0.134)
Danat+Dresdner (old)				-0.188**	-0.125			
				(0.093)	(0.094)			
Danat+Dresdner (new)				-0.189**	-0.137*			
				(0.079)	(0.073)			
Großbank								0.068
								(0.126)
Observations	386	386	384	386	384	194	194	194
R-squared	0.014	0.022	0.076	0.023	0.075	0.043	0.360	0.421
Firm Controls	-	✓	✓	✓	✓	✓	✓	✓
Industry FE	-	-	✓	-	✓	-	-	✓
City FE	-	-	-	-	-	-	✓	✓

Note: Each column reports the results of a regression with the dependent variable denoted at the top of each panel. The dependent variable in Panel A is the change in a firm's liabilities between 1929 and 1933. The dependent variable in Panel B is the change in a firm's wage bills between 1929 and 1933. *Danat+Dresdner* is a dummy variable with value 1 if a firm is connected to Danatbank or Dresdner Bank. *Großbank* is a dummy variable with value 1 if a firm is connected to any other Großbank. *Danat+Dresdner (old)* is a dummy that takes the value of 1 if a firm was connected to Darmstädter Bank before 1923. Firms that only acquired a connection afterwards are indicated by *Danat+Dresdner (new)*. Firm controls (recorded in 1929) include age, log(assets), leverage, return on assets, and capital-to-labor ratio. All variables are described in Table A1. Industry fixed effects capture 20 industries. In each panel, columns (1) to (5) use the full sample. Column (6) in each panel replicates the baseline regression in column (2), using the smaller sample of cities and industries with at least two firms, which is subsequently used in columns (7) to (8) in each panel. Standard errors are clustered on the city level. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 5: **City income and unemployment**

Panel A: Change in city income, 1928-34

	(1)	(2)	(3)	(4)	(5)	(6)
sample	*All*			*DD exposure>0*		
DD exposure	-0.177*	-0.295***	-0.248**	-0.239*	-0.313**	-0.263*
	(0.103)	(0.110)	(0.104)	(0.142)	(0.127)	(0.132)
Observations	187	187	187	103	103	102
R-squared	0.013	0.182	0.237	0.035	0.119	0.210
City Controls	-	✓	✓	-	✓	✓
Electoral District FE	-	-	✓	-	-	✓

Panel B: Change in unemployment, 1930-33

	(1)	(2)	(3)	(4)	(5)	(6)
sample	*All*			*DD exposure>0*		
DD exposure	0.095***	0.064***	0.039*	0.063***	0.058**	0.038
	(0.019)	(0.021)	(0.022)	(0.024)	(0.026)	(0.027)
Observations	185	185	185	102	102	101
R-squared	0.080	0.270	0.461	0.047	0.252	0.463
City Controls	-	✓	✓	-	✓	✓
Electoral District FE	-	-	✓	-	-	✓

Note: Each column reports the results of a regression with the dependent variable denoted at the top of each panel. The dependent variable in Panel A is the change in city income between 1928 and 1934. The dependent variable in Panel B is the change in city unemployment rate between 1930 and 1933. *DD exposure* measures the degree of city exposure to firms connected to Danatbank and Dresdner Bank. City controls include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are described in Table A1. Electoral district fixed effects are dummies for Germany's 15 electoral areas. In each panel, columns (1)-(3) use the full sample, columns (4)-(6) only cities with DD exposure greater than 0. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 6: **Nazi support and Jewish persecution**

Panel A: Nazi electoral results

	(1)	(2)	(3)	(4)	(5)	(6)
dep. var.:	Δ *NSDAP*		Δ *NSDAP*		Δ *NSDAP*	
	9/30-3/33		*9/30-7/32*		*9/30-11/32*	
DD exposure	0.072**	0.091***	0.081***	0.091***	0.063*	0.068**
	(0.028)	(0.028)	(0.028)	(0.027)	(0.033)	(0.032)
Observations	193	193	183	183	182	182
R-squared	0.282	0.403	0.499	0.595	0.320	0.434
Electoral District FE	-	✓	-	✓	-	✓

Panel B: Persecution after 1933

	(1)	(2)	(3)	(4)
dep. var.:	*deported/population*		*synagogue attack*	
DD exposure	0.147*	0.119	0.584***	0.662***
	(0.077)	(0.081	(0.180)	(0.192))
Observations	189	189	188	188
R-squared	0.270	0.374	0.214	0.309
Electoral District FE	-	✓	-	✓

Note: Each column reports the results of a regression with the dependent variable denoted at the top of the column. In Panel A, the dependent variable is the change in NSDAP vote share between September 1930 and March 1933 in columns (1) and (2), the change in NSDAP vote share between September 1930 and July 1932 in columns (3) and (4), and the change in NSDAP vote share between September 1930 and November 1932 in columns (5) and (6). In Panel B, the dependent variable is the number of total deportations normalized by city population in columns (1) and (2) and a dummy with value one if synagogue were attacked or destroyed in columns (3) and (4). *DD exposure* denotes city exposure to firms connected to Danatbank and Dresdner Bank. City controls include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are defined in Table A1. Electoral district fixed effects are dummies for Germany's 15 electoral areas. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 7: **Economic and non-economic effects of Danat exposure on voting**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dep. var.:	Δ *NSDAP 1930-33*						Δ *NSDAP 1930-33 (res)*	
Δ income	-0.051***	-0.057***			-0.042**	-0.048**		
	(0.019)	(0.019)			(0.019)	(0.019)		
Δ income (predicted)			-0.450***	-0.558***	-0.382**	-0.495***		
			(0.168)	(0.167)	(0.170)	(0.165)		
DD exposure							0.067**	0.085***
							(0.030)	(0.029)
Observations	183	183	183	183	183	183	181	181
R-squared	0.281	0.385	0.283	0.395	0.300	0.414	0.306	0.433
Electoral District FE	-	✓	-	✓	-	✓	-	✓

Note: Each column reports the results of a regression with the dependent variable denoted at the top of the column. The dependent variable is the change in NSDAP vote share between September 1930 and March 1933 in columns (1)-(6). The dependent variable in columns (7) and (8) is the residual of a regression of change in NSDAP vote share between 1930 and 1933 on the change in income between 1928 and 1934 and the change in unemployment between 1939 and 1933. *DD exposure* denotes city exposure to firms connected to Danatbank and Dresdner Bank. Δ *income (predicted)* is predicted change in income by regressing change in income on *DD exposure*. City controls include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All other variables are described in Table A1. Electoral district fixed effects are dummies for Germany's 15 electoral areas. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 8: **City level: Danat vs. Dresdner**

	(1)	(2)	(3)	(4)	(5)	(6)
dep. var.:	Δ *income*			Δ *NSDAP*		
exposure (Danat)	-0.366***		-0.342**	0.077*		0.077*
	(0.135)		(0.134)	(0.043)		(0.043)
exposure (Dresdner)		-0.328*	-0.264		0.013	-0.001
		(0.171)	(0.172)		(0.068)	(0.067)
Observations	185	185	185	181	181	181
R-squared	0.174	0.156	0.181	0.286	0.271	0.286

Note: Each column reports the results of a regression with the dependent variable denoted at the top of the column. The dependent variable is the change in income between 1928 and 1934 in columns (1)-(3) and the change in NSDAP vote share between September 1930 and March 1933 in columns (4)-(6). *exposure (Danat)* denotes city exposure to Danatbank only, *exposure (Dresdner)* denotes city exposure to Dresdner Bank only. City controls include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are described in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 9: **Radicalization and pre-existing beliefs**

Panel A: Voting for anti-Semitic parties, 1890-1913

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dep. var.:	Δ *NSDAP 1930-33*						Δ *NSDAP 1930-33 (res)*	
vote-share AS parties	low	high	low	high	low	high	low	high
Δ income	-0.117*	-0.070**			-0.116*	-0.039		
	(0.058)	(0.033)			(0.060)	(0.041)		
Δ income (predicted)			-0.064	-0.410***	-0.011	-0.342**		
			(0.277)	(0.135)	(0.271)	(0.163)		
DD exposure							0.006	0.135**
							(0.089)	(0.061)
Observations	40	41	40	41	40	41	40	41
R-squared	0.388	0.304	0.338	0.353	0.388	0.369	0.388	0.376

Panel B: Historic pogroms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dep. var.:	Δ *NSDAP 1930-33*						Δ *NSDAP 1930-33 (res)*	
historic pogroms?	No	Yes	No	Yes	No	Yes	No	Yes
Δ income	-0.038	-0.043			-0.042	0.005		
	(0.060)	(0.070)			(0.068)	(0.075)		
Δ income (predicted)			-0.102	-0.297*	0.040	-0.301*		
			(0.409)	(0.146)	(0.454)	(0.166)		
DD exposure							-0.008	0.127*
							(0.201)	(0.070)
Observations	25	36	25	36	25	36	25	36
R-squared	0.497	0.314	0.489	0.376	0.497	0.377	0.499	0.377

Note: Each column reports the results of a regression with the dependent variable denoted at the top of the column. In both panels, the dependent variable is the change in NSDAP vote share between September 1930 and March 1933 in columns (1)-(6). The dependent variable in columns (7) and (8) is the residual of a regression of change in NSDAP vote share between 1930 and 1933 on the change in income between 1928 and 1934 and the change in unemployment between 1939 and 1933. In each panel, cities are divided whether they have high or low pre-existing anti-Semitic beliefs. Panel A measures pre-existing beliefs by a city's historic vote share for anti-Semitic parties. Panel B measures pre-existing beliefs using a dummy whether a city had a pogrom in 1349 or 1920. *DD exposure* is city exposure to Danatbank or Dresdner Bank. Δ *income (predicted)* is predicted change in income by regressing change in income on *DD exposure*. City controls include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are described in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table 10: **Mixed marriages and intra-faith marriages over time**

dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
	log(Jew-Gentile)			*log(Jew-Jew)*		
high DD exposure × post banking crisis	-0.092***	-0.147**	-0.173***	-0.002	-0.002	-0.002
	(0.032)	(0.062)	(0.065)	(0.007)	(0.007)	(0.008)
Observations	1,342	1,342	1,342	1,342	1,342	1,342
R-squared	0.608	0.631	0.633	0.076	0.102	0.105
City controls	-	-	✓	-	-	✓
City FE	✓	✓	✓	✓	✓	✓
Year FE	-	✓	✓	-	✓	✓

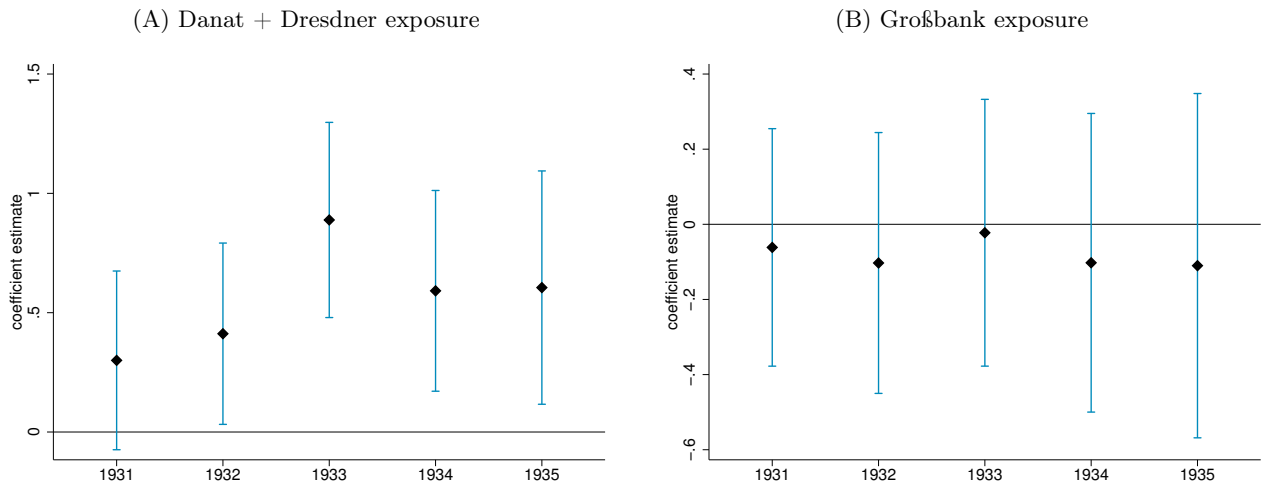
Note: Each column reports the results of a regression with the dependent variable denoted at the top of the column. The dependent variable is the log of monthly marriages between Jews and Gentiles in columns (1)-(3) and the log of monthly marriages between Jews in columns (4)-(6). *high DD exposure* is a dummy for cities with high exposure to Danat or Dresdner bank, *post banking crisis* a dummy with value 1 for the months after July 1931. City controls include yearly population and unemployment rate, as well as an interaction term of *post default* and *Großbank exposure*. Observations are on the city-month level from January 1930 to March 1933. All variables are described in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Figure A1: **"Der Stürmer" caricature**

Note: This figure shows a caricature from the pro-Nazi newspaper "Der Stürmer", published in the summer of 1931. The caption says "The Jew banker and the German business man", suggesting that Jewish-led banks are to blame for Germany's dire economic situation.

Figure A2: **City panel: Unemployment – coefficients by year**



Note: Each panel shows coefficients for regressions $log(UE)_{c,t} = \sum_{i \neq 1930} \beta_i \; DD \; exposure_c \times year_{t=i} + \sum_{i \neq 1930} \gamma_i \; GB \; exposure_c \times year_{t=i} + log(population)_{c,t} + \theta_c + \tau_{s,t} + \epsilon_{c,t}$, where log(UE) denotes log unemployment at the city-year level, θ_c and $\tau_{s,t}$ denote city and state-year fixed effects. Panel A shows yearly coefficients on city exposure to Danat and Dresdner, panel B to other large banks. Standard errors are clustered on the city level. Blue bars denote 90 % confidence intervals.

Table A1: **Variables and data sources**

Variable	Definition	Source	Unit
Firm-level variables			
Δ wages	Change in a firm's total wage bill between 1929 and 1933	Handbook of German Stock Companies	%
Δ liabilities	Change in a firm's total liabilities between 1929 and 1933	Handbook of German Stock Companies	%
age	Firm's age in years as of 1929	Handbook of German Stock Companies	Years
log assets	Firm's log assets as of 1929	Handbook of German Stock Companies	
leverage	Firm's ratio of liabilities (excluding equity) over capital as of 1929	Handbook of German Stock Companies	%
return on assets	Firm's ratio of profits over assets as of 1929	Handbook of German Stock Companies	%
Danat+Dresdner	Dummy with value 1 if a firm was connected to Danatbank or Dresdner Bank in 1929	Handbook of German Stock Companies	{0,1}
Danat	Dummy with value 1 if a firm was connected to Danatbank in 1929	Handbook of German Stock Companies	{0,1}
Dresdner	Dummy with value 1 if a firm was connected to Dresdner Bank in 1929	Handbook of German Stock Companies	{0,1}
Großbank	Dummy with value 1 if Firm was connected to any Großbank other than Danatbank or Dresdner Bank in 1929	Handbook of German Stock Companies	{0,1}
City-level variables			
DD exposure	City's exposure to Danatbank and Dresdner Bank. The exact calculation is described in equation (1)	Handbook of German Stock Companies	[0,1]
exposure (Danat)	Exposure only to Danatbank	Handbook of German Stock Companies	[0,1]
exposure (Dresdner)	Exposure only to Dresdner Bank	Handbook of German Stock Companies	[0,1]
exposure (Großbank)	Exposure to all large banks except Danatbank or Dresdner Bank	Handbook of German Stock Companies	[0,1]
Δ income	Change in city-level income between 1928 and 1934	Statistik des Deutschen Reiches, Neue Folge, 1884-1944	%
Δ income (predicted)	Predicted income of a regression of the change in income on *DD exposure*		%
Δ unemployment 1930-33	Change in unemployment rate between 1930 and 1933	Statistisches Jahrbuch Deutscher Städte	%
Δ NSDAP 1930-33	Change in vote share for the NSDAP between the elections in September 1930 and March 1933	Statistik des Deutschen Reiches (ICPSR 42)	%
Δ NSDAP 1930-33 (residual)	Residual of a regression of Δ *NSDAP 1930-33* on Δ*income* and Δ*unemployment*		%
Δ NSDAP 9/30-7/32	Change in vote share for the NSDAP between the elections in September 1930 and July 1932	Statistik des Deutschen Reiches (ICPSR 42)	%
Δ NSDAP 9/30-11/32	Change in vote share for the NSDAP between the elections in September 1930 and November 1932	Statistik des Deutschen Reiches (ICPSR 42)	%
Δ KPD 9/30-33	Change in vote share for the KPD between the elections in September 1930 and March 1933	Statistik des Deutschen Reiches (ICPSR 42)	%
population 1930	City population in 1930	Statistisches Jahrbuch Deutscher Städte	%
share blue collar	Share of blue collar workers in total city population	Falter and Hänisch (1990) census	%
share Jewish	Share of Jewish population in total city population	Falter and Hänisch (1990)	%
share Protestant	Share of Protestants in total city population	Falter and Hänisch (1990)	%
synagogue dam. or dest.	Dummy whether a synagogue was destroyed or damaged after 1933	Alicke(2008)	{0,1}
deportations/pop	Number of Jews deported between 1933 and 1945 over a city's Jewish population	Bundesarchiv	%
anti-Semitic votes 1900	Vote share for anti-Semitic parties in 1900	Statistische Jahrbücher des dt. Reichsamts für Statistik	%
Black Death pogrom	dummy that is 1 if a city had a pogrom in 1349	Germanica Judaica	{0,1}
log exports	Logarithm of aggregate industry exports in 1929, attributed to a city's based on share of firm assets in a given industry over total firm assets	Statistisches Jahrbuch des Deutschen Reiches	

Note: This table lists main variables, data sources, and units for the firm and city level. For further details and variable construction, see text.

Table A2: **Unemployment vs. income and extremist voting**

Panel A: Communist party (KPD) electoral results

dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *KPD* 9/30-3/33		Δ *KPD* 9/30-7/32		Δ *KPD* 9/30-11/32	
DD exposure	0.042**	0.026*	0.006	0.010	0.020	0.023
	(0.016)	(0.014)	(0.014)	(0.013)	(0.016)	(0.015)
Observations	189	189	179	179	181	181
R-squared	0.135	0.366	0.073	0.210	0.085	0.206
Electoral District FE	-	✓	-	✓	-	✓

Panel B: Extremist voting and city outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dep. var.:	*KPD*	*NSDAP*	*KPD*	*NSDAP*	Δ *KPD*	Δ *NSDAP*	Δ *KPD*	Δ *NSDAP*
UE	0.476***	-0.040						
	(0.057)	(0.087)						
Δ UE			0.122	-0.029	-0.093	-0.371		
			(0.277)	(0.296)	(0.137)	(0.253)		
Δ income							0.013	-0.057***
							(0.011)	(0.019)
Observations	190	190	189	189	185	189	183	187
R-squared	0.502	0.583	0.521	0.589	0.359	0.373	0.382	0.392

Note: Each column reports the results of a regression with the dependent variable denoted on top of the columns. In Panel A, the dependent variable is the change in KPD vote share between September 1930 and March 1933 in columns (1) and (2), the change in KPD vote share between September 1930 and July 1932 in columns (3) and (4), and the change in KPD vote share between September 1930 and November 1932 in columns (6) and (6). In Panel B, the dependent variable is the vote share of KPD in September 1930 in columns (1) and (3), the vote share of NSDAP in September 1930 in columns (2) and (4), and the changes in the vote shares of the respective party between September 1930 and March 1933 in columns (5)-(8). *DD exposure* denotes a city's exposure to Danatbank and Dresdner Bank. *UE* denotes a city's unemployment in 1933. Δ UE and Δ income denote the change in city unemployment from 1930-1933 and change in city income from 1928-1934. All regressions control for log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are defined in Table A1. Electoral district fixed effects are dummies for Germany's 15 electoral provinces, which are included in all regressions in Panel B. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table A3: **Firm level: Danat vs. Dresdner**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
dep. var.:	Δ *wages*				Δ *liabilities*			
Danat + Dresdner	-0.198***				-0.123**			
	(0.063)				(0.049)			
Danat		-0.269***		-0.264***		-0.131**		-0.123*
		(0.082)		(0.081)		(0.066)		(0.065)
Dresdner			-0.143**	-0.136**			-0.107*	-0.099*
			(0.070)	(0.069)			(0.059)	(0.056)
Observations	386	386	386	386	258	258	258	258
R-squared	0.024	0.024	0.019	0.026	0.075	0.072	0.072	0.076

Note: Each column reports the results of a regression with the dependent variable denoted on top of the columns. The dependent variable is the change in a firm's wage bills between 1929 and 1933 in columns (1)-(4) and the change in a firm's liabilities in columns (5)-(8). *Danat+Dresdner* is a dummy that is 1 if a firm is connected to Danatbank or Dresdner Bank, *Danat* is a dummy that is 1 if a firm is connected to Danatbank, and *Dresdner* is a dummy that is 1 if a firm is connected to Dresdner Bank. All regressions include firm controls as of 1929: age, log(assets), leverage, return on assets, and capital-to-labor ratio. All variables are defined in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table A4: **City level: Elections before the banking crisis**

	(1)	(2)	(3)	(4)	(5)
dep. var.:	*far right 05/24*	Δ *far right 05/24-12/24*	Δ *far right 12/24-28*	Δ *NS 28-30*	*NS Sept. 30*
DD exposure	-0.040	-0.026	0.047	-0.037	-0.054
	(0.048)	(0.053)	(0.044)	(0.027)	(0.035)
Observations	190	190	190	193	193
R-squared	0.156	0.439	0.553	0.303	0.282

Note: Each column reports the results of a regression with the dependent variable denoted on top of the columns. When the NSDAP was banned (1924), we use votes for the DVFP (Deutsch-Völkische Freiheitspartei) and the NSFP (Nationalsozialistische Freiheitspartei). The latter was a direct substitute for the NSDAP; the former agreed to a joint list. The dependent variable is the vote share for these two far-right parties in 1924 in column (1), the change in vote share between May and December 1924 in column (2), the change in vote share between December 1924 and 1928 in column (3), the change in NSDAP vote share between 1928 and September 1930 in column (4), and the vote share of NSDAP in September 1930 in column (5). *DD exposure* denotes a city's exposure to Danatbank and Dresdner Bank. All regressions control for log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are defined in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table A5: **Firm level: Robustness to excluding regions**
Firm wage bill change, 1929 to 1933

	(1)	(2)	(3)
dropped region	Austrian border	Bremen	Ruhr
Danat + Dresdner	-0.185***	-0.181***	-0.204***
	(0.062)	(0.064)	(0.068)
Observations	323	375	332
R-squared	0.024	0.021	0.023

Note: Each column reports the results of a regression with the change in a firm's wage bill between 1929 and 1933 as dependent variable. Each column excludes cities located in the region denoted at the top of the column from the sample. All regressions include firm controls as of 1929: age, log(assets), leverage, return on assets, and capital-to-labor ratio. All variables are defined in Table A1. Standard errors are clustered on the city level. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table A6: **City level: Exports and hyperinflation**

	(1)	(2)	(3)	(4)
dep. var.:	Δ *income*	Δ *NSDAP*		
log exports	-0.011*	0.005		
	(0.007)	(0.003)		
DD exposure				0.059*
				(0.033)
hyperinf. candidates			0.020	0.007
			(0.014)	(0.020)
DD exposure × hyperinf. candidates				0.057
				(0.083)
Observations	187	189	189	189
R-squared	0.374	0.273	0.265	0.288

Note: Each column reports the results of a regression with the dependent variable denoted on top of the columns. The dependent variable is the change in city income between 1928 and 1934 in column (1) and the change in NSDAP vote share between September 1930 and March 1933 in columns (2)-(4). *log exports* denote city-level exports as of 1929. *DD exposure* denotes a city's exposure to Danatbank and Dresdner Bank. *hyperinf. candidates* is the vote share for candidates of the VRP ("Volksrechtspartei"). All regressions include log population, share of blue collar, Jewish, and protestants, as well as city latitude and longitude. All variables are defined in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table A7: **City level: Robustness to spatial autocorrelation**

Panel A: Moran's I

var.:	(1) Δ *NSDAP*	(2) Δ *KPD*	(3) Δ *Income*	(4) Δ *UE*	(5) *DD exposure*
Moran's I	0.080***	0.160***	0.007	0.052***	0.005

Panel B: Main regressions using adjusted standard errors

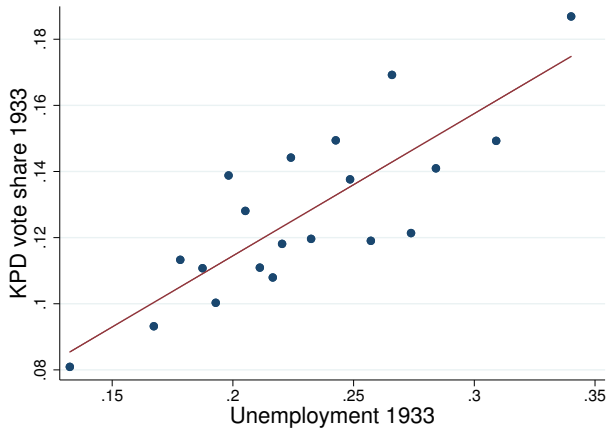
dep. var.:	(1) Δ *NSDAP*	(2) Δ *KPD*	(3) Δ *Income*	(4) Δ *UE*
DD exposure	0.0814**	0.0336*	-0.285**	0.0265**
	(2.75)	(2.15)	(-2.59)	(2.70)
λ	0.0160**	-0.000319	-0.000000553	0.00122*
	(2.80)	(-0.79)	(-0.00)	(1.66)
σ	0.0442**	0.0233**	0.164**	0.0146**
	(18.92)	(18.92)	(18.92)	(18.92)
Observations	179	179	179	179

Note: Panel A: Each column provides Moran's I, a measure of spatial autocorrelation, for the variable denoted at the top of the column. The statistic is produced using Stata's *spatgse* command. Panel B: Each column provides the results of a regression with the dependent variable denoted at the top of the column. *DD exposure* measures a city's exposure to Danatbank and Dresdner Bank. λ is a parameter estimate of the spatial lag. Standard errors are corrected for spatial autocorrelation. The results are produced using Stata's *spatreg* command. All variables are described in Table A1. Key: *** p<0.01, ** p<0.05, * p<0.1.

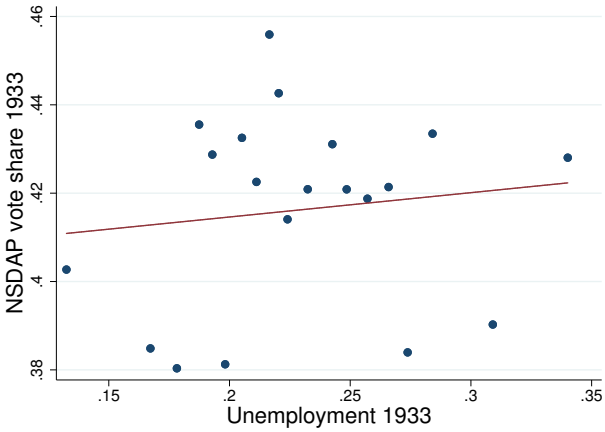
Online Appendix

Figure OA1: **Extremist voting and unemployment in 1933**

(A) KPD



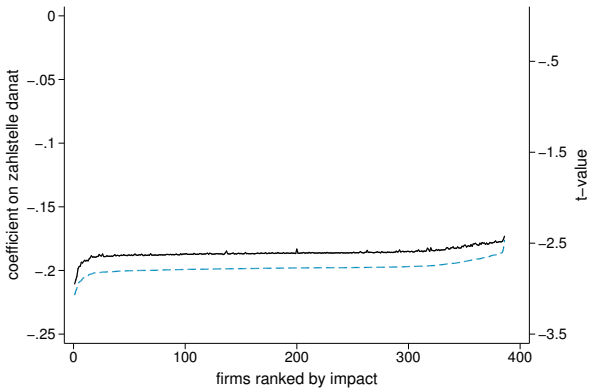
(B) NSDAP



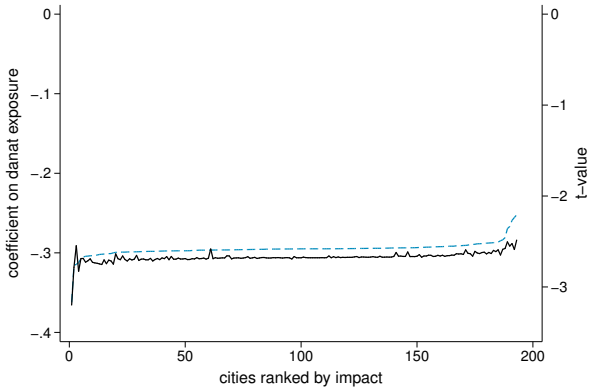
Note: Panel A shows a binscatter plot of a regression of KPD's vote share in 1933 on city unemployment in 1933. Panel B shows a binscatter plot of a regression of NSDAP's vote share in 1933 on city unemployment. Red lines denote linear fits. All variables are described in Table A1.

Figure OA2: **Stability of coefficient and t-value**

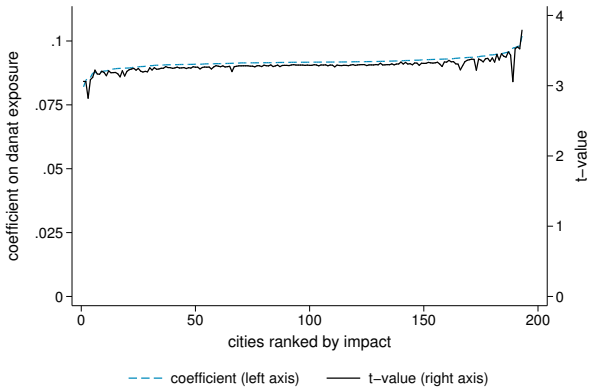
(A) Firm wage bill



(B) City income



(C) City NSDAP votes



Note: Each panel excludes one observations when estimating the underlying specification and then ranks observations by the effect that this observation has on the estimated coefficient. Panel A plots coefficient and t-value of coefficient on *Danat+Dresdner* in regression $\Delta wages_f = \beta Danat + Dresdner_f + controls_f + \epsilon_f$ on the y-axis. Dependent variable is growth in firm wage bill from 1929 to 1933. Each regression drops one individual firm. The x-axis ranks firms according to their impact on the coefficient, from highest to lowest. The blue dashed line denotes coefficient estimates, the black solid line the corresponding t-value. Panels B and C do the same for the city level and run baseline city regression equation $\Delta y_c = \beta\ DD\ exposure_c + controls_c + \epsilon_c$ with change in income or NSDAP votes as dependent variable. Across specifications, excluding firms or cities one-for-one does not change coefficients of interest in terms of sign, size, or significance.

Table OA1: **Firm level: Danat's old and new borrowers**

	old borrowers		*new borrowers*		*difference*
	mean	sd	mean	sd	t
age	49.78	(36.45)	28.74	(26.38)	-2.61
log assets	15.31	(1.18)	14.13	(1.12)	-4.19
leverage	2.66	(3.14)	2.36	(1.03)	-0.47
return on assets	0.06	(0.09)	0.05	(0.06)	-0.47
wage bill/assets	0.30	(0.22)	0.32	(0.32)	0.39
Observations	45		27		72

Note: Summary statistics for main firm-level control variables for the sample of firms with Danat connection. Column (1) restricts the sample to firms connected to either the Nationalbank or the Darmstaedter Bank in 1922, before both banks merged to form Danat. Column (2) restricts the sample to firms whose connection with Danat was established after the merger. Column (3) provides the t-statistic testing for significant differences in means between the two samples.

Table OA2: **City level: Panel with fixed effects**

	(1)	(2)	(3)
dep. var.:	*log(income)*	*unemp. rate*	*log(firms)*
DD exposure × 𝟙(1932-34)	-0.211**	0.045**	-0.151
	(0.106)	(0.019)	(0.102)
Observations	975	975	975
R-squared	0.984	0.878	0.990
City FE	✓	✓	✓
Year FE	✓	✓	✓

Note: Each column provides the results of a regression with the dependent variable denoted at the top of each column. The dependent variable is log city income in column (1), unemployment rate in column (2), and the log number of firms in column (3). *DD exposure* denotes city exposure to Danat or Dresdner, 𝟙(1932-34) denotes a dummy with value 1 for the years 1932-34. Income is interpolated for missing years. All regressions include log population and Großbank exposure interacted with the post dummy. All variables are defined in Table A1. All regressions include city and year fixed effects. Standard errors are clustered on the city level. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table OA3: **Bank lending during the crisis**
Dependent variable: log(loans)

	(1)	(2)
Danat+Dresdner × 𝟙(1932-34)	-0.156**	-0.210*
	(0.057)	(0.105)
Observations	20	20
R-squared	0.996	0.997
Bank Controls	-	✓

Note: Each column provides the results of a regression with the log of loans (in Reichsmark) by a large bank. *Danat+Dresdner* is a dummy with value 1 for Danat and Dresdner, and zero for other German large banks. 𝟙(1932-34) denotes a dummy with value one for years 1932-34. Bank controls include capital ratio, profits, and dividend payments. All variables are described in Table A1. All regressions include bank and year fixed effects. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.

Table OA4: **City level: Danat vs. Dresdner**
Dependent variable: Change in unemployment 30-33

	(1)	(2)	(3)
exposure (Danat)	0.054*		0.049
	(0.032)		(0.033)
exposure (Dresdner)		0.060*	0.050
		(0.034)	(0.036)
Observations	189	189	189
R-squared	0.244	0.239	0.250

Note: Each column provides the results of a regressions with the change in the unemployment rate between 1930 and 1933 as dependent variable. *exposure (Danat)* denotes city exposure to Danat only, *exposure (Dresdner)* denotes city exposure to Dresdner only. All regressions include log population, share of blue collar, Jews, and Protestants, as well as city latitude and longitude. All variables are described in Table A1. Standard errors are robust. Key: *** p<0.01, ** p<0.05, * p<0.1.