

DISCUSSION PAPER SERIES

DP14826

(v. 4)

J'Accuse! Antisemitism and Financial Markets in the time of the Dreyfus Affair

Quoc-Anh Do, Roberto Galbiati, Benjamin Marx and
Miguel Angel Ortiz Serrano

ECONOMIC HISTORY

LABOUR ECONOMICS

PUBLIC ECONOMICS

CEPR

J'Accuse! Antisemitism and Financial Markets in the time of the Dreyfus Affair

Quoc-Anh Do, Roberto Galbiati, Benjamin Marx and Miguel Angel Ortiz Serrano

Discussion Paper DP14826
First Published 29 May 2020
This Revision 17 June 2021

Centre for Economic Policy Research
33 Great Sutton Street, London EC1V 0DX, UK
Tel: +44 (0)20 7183 8801
www.cepr.org

This Discussion Paper is issued under the auspices of the Centre's research programmes:

- Economic History
- Labour Economics
- Public Economics

Any opinions expressed here are those of the author(s) and not those of the Centre for Economic Policy Research. Research disseminated by CEPR may include views on policy, but the Centre itself takes no institutional policy positions.

The Centre for Economic Policy Research was established in 1983 as an educational charity, to promote independent analysis and public discussion of open economies and the relations among them. It is pluralist and non-partisan, bringing economic research to bear on the analysis of medium- and long-run policy questions.

These Discussion Papers often represent preliminary or incomplete work, circulated to encourage discussion and comment. Citation and use of such a paper should take account of its provisional character.

Copyright: Quoc-Anh Do, Roberto Galbiati, Benjamin Marx and Miguel Angel Ortiz Serrano

J'Accuse! Antisemitism and Financial Markets in the time of the Dreyfus Affair

Abstract

This paper studies discrimination in financial markets in the context of the "Dreyfus Affair" in 19th century France. We analyze the market performance of firms with Jewish board members. Building on empirical evidence and a model with antisemitic and unbiased agents, we show how investors betting on firms with Jewish connections earned higher returns during the media campaign organized to rehabilitate Dreyfus, the Jewish officer at the center of the Affair. Our paper provides novel evidence that discrimination can affect stock prices and create rents for some market participants. While these rents may attract betting against discriminators, the uncertainty surrounding discriminatory beliefs can limit the extent of arbitrage and allow discrimination to survive in the long run.

JEL Classification: J15, J71, N23, G14, G41

Keywords: antisemitism, financial markets, discrimination

Quoc-Anh Do - quocanh.do@sciencespo.fr
Sciences Po and CEPR

Roberto Galbiati - roberto.galbiati@sciencespo.fr
CNRS-Department of Economics Sciences Po (DESP, CNRS-SciencesPo) and CEPR

Benjamin Marx - benjamin.marx@sciencespo.fr
Sciences Po, Department of Economics and CEPR

Miguel Angel Ortiz Serrano - miguelangel.ortizserrano@sciencespo.fr
Universidad Carlos III de Madrid

Acknowledgements

This paper benefited from helpful feedback and suggestions from Pamfili Antipa, Sascha Becker, Stefano DellaVigna, Michele Fioretti, Ray Fisman, Carola Friedman, Emeric Henry, Kilian Huber, Joel Mokyr, Maria Petrova, Eduardo Perez-Richet, Vincent Pons, Mirna Safi, Marc Sangnier, David Sraer, Felipe Valencia, Hans-Joachim Voth, and Noam Yuchtman, as well as seminar participants at the 2021 ASSA annual meeting, Boston University, Collegio Carlo Alberto, INSEAD, Northwestern University, PSE, Université Paris VIII, University of Zurich, and the Virtual Economic History Seminar. Gurcan Gulersoy, Luis Herradon, and Antoine Moutiez provided excellent research assistance. We gratefully acknowledge support from the Banque de France. Do acknowledges support from the French National Research Agency's (ANR) "Investissements d'Avenir" grants ANR-11-LABX-0091 (LIEPP) and ANR-11-IDEX-0005-02. All errors are our own.

J'Accuse! Antisemitism and Financial Markets in the Time of the Dreyfus Affair*

Quoc-Anh Do[†] Roberto Galbiati[‡] Benjamin Marx[§] Miguel A. Ortiz Serrano[¶]

June 2021

Abstract

This paper studies discrimination in financial markets in the context of the “Dreyfus Affair” in 19th century France. We analyze the market performance of firms with Jewish board members. Building on empirical evidence and a model with antisemitic and unbiased agents, we show how investors betting on firms with Jewish connections earned higher returns during the media campaign organized to rehabilitate Dreyfus, the Jewish officer at the center of the Affair. Our paper provides novel evidence that discrimination can affect stock prices and create rents for some market participants. While these rents may attract betting against discriminators, the uncertainty surrounding discriminatory beliefs can limit the extent of arbitrage and allow discrimination to survive in the long run.

JEL Classifications: J15, J71, N23, G14, G41

Keywords: Antisemitism, Financial Markets, Discrimination

*This paper benefited from helpful feedback and suggestions from Pamfili Antipa, Sascha Becker, Stefano DellaVigna, Michele Fioretti, Ray Fisman, Carola Friedman, Emeric Henry, Kilian Huber, Joel Mokyr, Maria Petrova, Eduardo Perez-Richet, Vincent Pons, Mirna Safi, Marc Sangnier, David Sraer, Felipe Valencia, Hans-Joachim Voth, and Noam Yuchtman, as well as seminar participants at the 2021 ASSA annual meeting, Boston University, Collegio Carlo Alberto, INSEAD, Northwestern University, PSE, Université Paris VIII, University of Zurich, and the Virtual Economic History Seminar. Gürcan Gülersoy, Luis Herradón, and Antoine Moutiez provided excellent research assistance. We gratefully acknowledge support from the Banque de France. Do acknowledges support from the French National Research Agency's (ANR) “Investissements d’Avenir” grants ANR-11-LABX-0091 (LIEPP) and ANR-11-IDEX-0005-02. All errors are our own.

[†]Sciences Po, Northwestern University, and CEPR. Email: quoc-anh.do@kellogg.northwestern.edu.

[‡]CNRS-Sciences Po (Sciences Economiques Sciences Po) and CEPR. Email: roberto.galbiati@sciencespo.fr.

[§]Sciences Po Department of Economics and CEPR. Email: benjamin.marx@sciencespo.fr.

[¶]University of Sussex. Email: M.A.Ortiz-Serrano@sussex.ac.uk.

1 Introduction

Discrimination, in theory, generates rents. Unbiased agents may capture these rents as long as other agents with biases or incorrect beliefs underinvest in assets associated with specific groups. Financial markets provide an ideal setting to identify this mechanism. Stock prices, by providing a continuous measure of perceived firm value, can potentially reflect changes in attitudes towards particular groups.

A recent literature shows that ethnic or nationalistic preferences can distort investment and firm value (Fisman et al., 2014; Kumar et al., 2015; Hjort et al., 2019). Others have studied the heterogeneity in access to capital across ethnic groups, as a result of discrimination or information asymmetries (Banerjee and Munshi, 2004; Fisman et al., 2017). There is less evidence on when and how investors can exploit the mispricing engendered by discrimination through arbitrage. We show that arbitrage against discriminators allows investors to earn excess returns. Moreover, we show that the uncertainty surrounding discriminatory beliefs can limit arbitrage, allowing discrimination to survive in the long run.

We exploit a historical case study to estimate the response of financial markets to exogenous shocks in antisemitism. The context of our analysis is the Dreyfus Affair in late 19th century France. The Affair was centered around Alfred Dreyfus, a French Jewish army officer who was wrongfully convicted for treason in late 1894. This prompted an antisemitic outburst and revealed the ubiquity of antisemitism in society. We study the French stock market during this period and show that the Affair affected firms with Jewish board members in several ways. Our key result is that firms with Jewish board members experienced higher returns during the media campaign organized to rehabilitate Dreyfus. We argue that these excess returns reflected antisemitic attitudes by some investors, allowing other investors to capture rents through arbitrage. These findings are relevant for understanding the economic consequences of shifting social norms in contemporary societies experiencing polarization and cultural change.

Our analysis combines stock market data, media coverage data, and comprehensive data on the board composition of publicly traded firms during the Dreyfus Affair, which we hand-collected from archival sources. We identify Jewish board members using genealogical data on French Jewish families from the seminal work by Grange (2016). We then investigate whether firms with Jewish board members underperform or outperform other firms following major episodes of the Dreyfus case. Our analysis combines a standard event-study approach with a difference-in-differences strategy exploiting the exogenous timing of “J’Accuse”, an unexpected and widely publicized editorial that denounced the antisemitic conspiracy against Dreyfus and started a media campaign demanding his rehabilitation.

Our results can be summarized as follows. First, we examine the short-term impact of four salient episodes of the Affair on the stock returns of firms with Jewish board members. The four episodes include: (i) Dreyfus’ military degradation, which marked a peak in France’s antisemitic outburst, (ii) the publication of “J’Accuse”, (iii) the appointment of the pro-Dreyfus Waldeck-Rousseau cabinet, and (iv) the pardon of Dreyfus in 1899. All four episodes are recognized by historians as major turning points of the Dreyfus Affair (see Section 2.2). Firms with Jewish board members experienced large negative cumulative abnormal returns (CARs) after the degradation of Dreyfus. “J’Accuse” had a negative, but imprecisely measured effect in the short run. In later stages of the Affair, Jewish-connected firms then experienced positive CARs around Waldeck-Rousseau’s appointment and the pardon of Dreyfus.

We then examine the differential performance of firms with Jewish connections during the media campaign waged to rehabilitate Dreyfus. To identify the causal effects of this campaign, we estimate a difference-in-differences specification comparing Jewish-connected firms with other firms before and after the publication of “J’Accuse” in January 1898. Firms with Jewish board members experienced higher returns and a faster growth of their market valuation throughout this campaign. Our estimates imply that during the two years following “J’Accuse”, in comparison with the rest of the stock market, Jewish-connected stocks recuperated 12.7% of their total value, equivalent to 6.9% of the entire French stock market. As the campaign still could not completely eradicate antisemitism, these figures likely underestimate the total size of the rent due to antisemitism. Our identification strategy ensures that these findings are not driven by time-invariant firm characteristics, time-varying sector characteristics, or the daily market-level response to the Affair.¹ To support our empirical strategy, we show that the returns of Jewish-connected firms did not experience differential trends before “J’Accuse”, and that the Affair had no effects on the composition of firm boards.

We further show that news revelations about Dreyfus contributed to the higher returns experienced by firms with Jewish board members. Those news are manually collected from five major contemporaneous newspapers, through a process of screening and reading more than 61,000 paragraphs in historical archives that are not machine-recognizable. The positive relationship between news coverage and the returns of Jewish-connected firms is driven by pro-Dreyfus coverage, while anti-Dreyfus coverage has the opposite effect. Media revelations about Dreyfus’ innocence likely contributed to change beliefs among investors, allowing those who bet on Jewish-connected firms to earn excess returns.

We provide additional evidence to rule out that the Dreyfus Affair simply changed expectations about the profitability of Jewish-connected firms. Overall, we find little evidence that political uncertainty (Kelly et al., 2016) or expectations of future discrimination against Jewish-connected firms are driving our results. First, there is no sustained decline in the valuation of these firms after Dreyfus’ initial arrest and sentencing. Second, Jewish-connected firms that were not vulnerable to a backlash by the state or the market also experienced higher returns during Dreyfus’ rehabilitation campaign. Third, firms did not change the composition of their boards in response to the Affair. Fourth, the actual profitability of Jewish-connected firms (proxied by dividends) did not change relative to other firms throughout the period. Section 5.4 provides a detailed discussion of these potential alternative mechanisms.

To explain our findings, consistent with the historical record documenting the rise and fall of antisemitism during this period (Wilson, 2007; Joly, 2007), we propose a different interpretation focusing on the existence of antisemitic investors with pessimistic views of Jewish stocks. Building on De Long et al. (1990)’s seminal model of noise traders, we consider the coexistence of two types of risk-averse agents: neutral investors with unbiased beliefs and antisemitic investors who hold uncertain, negatively (positively) biased beliefs about Jewish (non-Jewish) stocks.² In this model, Jewish stock prices suffer from three sources, including (i) fundamental antisemitic biases in beliefs with long-lasting impacts on

¹In addition, while the stock volatility of these firms also increased, the higher returns more than compensated investors for the increased risk. For example, having a Jewish CEO increased risk-adjusted returns by 0.17 SD after “J’Accuse”.

²For conciseness, we use the term “biased beliefs” in the paper to also capture investors’ biased preferences, or prejudice, between firms with and without Jewish connections.

stock prices, (ii) idiosyncratic shocks on those biases with short-lived effects, and (iii) the uncertainty surrounding antisemitic investors' beliefs that further reduces demand for Jewish stocks.

Our main results can be interpreted in light of this model. Salient outbursts of antisemitism at the onset of the Affair—such as Dreyfus' degradation—produced idiosyncratic shocks on the bias of antisemitic investors, leading to short-lived negative market reactions on Jewish stocks. Later events related to Dreyfus' rehabilitation had similarly short-lived but opposite effects. The publication of "J'Accuse" rattled and polarized beliefs in French society, which increased uncertainty about antisemitic biases and decreased Jewish stock prices in the short run. However, "J'Accuse" also sparked off a media campaign aiming to rehabilitate Dreyfus, which contributed to debiasing and reducing uncertainty about fundamental antisemitic beliefs. Both led to a sustained appreciation of Jewish stocks in the long run.

As in [Becker's \(1957\)](#) seminal analysis of taste-based discrimination in labor markets, discrimination in our model creates rents that can be exploited at the expense of discriminating agents. However, because uncertainty about biases matters to risk-averse investors, everyone generically chooses to buy or sell some amount of both Jewish and non-Jewish stocks. Thus, changes in the distribution of biases induce all investors to re-optimize their portfolios, which affects equilibrium prices. Those insights stand in contrast with the phenomenon of segregation of minority workers in labor markets, in which discriminating employers do not hire minority workers, and only the marginal employer's bias matters for the wage gap ([Heckman, 1998](#); [Charles and Guryan, 2008](#); [Lang and Lehmann, 2012](#)). The key to this difference is twofold: our model incorporates uncertainty and risk-aversion, and accounts for the fact that investors' holding of the discriminated stocks is not bounded below by zero.

Without debiasing, can antisemitism thrive in financial markets in the long run? While antisemitic investors underinvest in Jewish stocks, their over-optimistic beliefs in non-Jewish stocks also push them to invest excessively in those stocks. Since all stocks are underpriced because of the uncertainty about antisemitic biases, excessive holdings of non-Jewish stocks yield excess returns for biased investors, which may even offset their losses due to the underinvestment in Jewish stocks. Consequently, biased investors may survive in the market in the long run. Our model thus highlights a novel reason why discrimination may persist, in spite of [Becker's](#) and [Arrow's \(1972\)](#) insight that biased employers will be eventually driven out of the market. Unlike other explanations emphasizing market imperfections (e.g., [Black 1995](#); [Lang et al. 2005](#)), ours is based on the limitation of arbitrage due to uncertainty in beliefs.

Empirically, the evidence of gradual debiasing also underscores the resilience of discrimination against Jewish-connected firms. Even though antisemitism was a "declining force" in the aftermath of Dreyfus' pardon ([Joly, 2007](#)), all the effects of discrimination likely did not disappear at the end of the Affair. Our model highlights how changes in the distribution of biases allowed investors to earn higher returns by betting more on Jewish firms. However, such arbitrage involved risk given the uncertainty about future biases. This can explain why the price of Jewish stocks did not converge immediately towards the value predicted by their fundamentals.

Our finding of excess returns for firms with Jewish connections after the publication of "J'Accuse" is, to the best of our knowledge, the first successful attempt to empirically demonstrate the existence of rents from discrimination in financial markets. In related work, [Pager \(2016\)](#) shows that firms en-

gaging in hiring discrimination are less likely to survive in the long run. [Szymanski \(2000\)](#) shows that soccer clubs employing more minority players achieve higher league rankings, controlling for the wage bill. Other studies provide cross-sectional evidence of this mechanism in the context of discrimination against women ([Hellerstein et al., 2002](#); [Kawaguchi, 2007](#); [Weber and Zulehner, 2014](#)). While suggestive, these results may be partially driven by unobservables such as managerial practices that correlate with ethnic or gender prejudice. In contrast to these studies, we exploit exogenous antisemitic shocks that are plausibly orthogonal to firms' unobservables.

Several studies have explored the distortionary impacts of ethnic preferences and social norms on investment. [Fisman et al. \(2014\)](#) show that deteriorating Sino-Japanese relations in 2005 and 2010 adversely affected the performance of firms involved in bilateral exchange. [Kumar et al. \(2015\)](#) document an abnormal decline in investment flows to funds with managers with Middle-Eastern-sounding names after 9/11. [Hjort et al. \(2019\)](#) show that ethnic discrimination by investors lowers value creation among publicly listed firms in Kenya. [Hong and Kacperczyk \(2009\)](#) show that "sin stocks" associated with alcohol and tobacco products are less likely to be held by norms-constrained investors, and have higher expected returns than comparable stocks. Overall, the literature has mainly focused on the efficiency consequences of these behaviors. There is less evidence of investors' discriminatory beliefs generating profit opportunities for other investors. Our results are consistent with a long-standing hypothesis that unbiased investors can "beat the market" by betting against discriminators ([Wolfers, 2006](#)).

We also contribute to a growing literature on the economics of ethnic and religious discrimination, including antisemitism. Our paper estimates the short-term impacts of exogenous shifts in antisemitic beliefs, rather than the long-term determinants and persistence of antisemitism. Several studies have explored the origins of antisemitism and its link with financial development in historical Germany ([Becker and Pascali, 2019](#); [D'Acunto et al., 2018](#); [Voigtländer and Voth, 2012](#)) and Russia ([Grosfeld et al., 2019](#)). [Ferguson and Voth \(2008\)](#) study the performance of firms with connections to the Nazi movement, and [Doerr et al. \(2019\)](#) show that exposure to a failing bank led by a Jewish chairman increased Nazi voting after Germany's 1931 banking crisis. Finally, [Huber et al. \(2019\)](#) explore the consequences of mass dismissals of Jewish managers in Nazi Germany. In contrast to the economic environment in [Huber et al. \(2019\)](#), where firms experienced drastic changes in their corporate management under the Nazi regime, firms with Jewish connections during the Dreyfus Affair did not experience structural changes and did not face the likely prospect of government discrimination.³ We make two distinct contributions to the literature on antisemitism: we provide novel evidence on the consequences of the Dreyfus Affair, and we study the contemporaneous effects of shifts in antisemitic sentiment before and after "J'Accuse".

This last contribution hinges on our empirical setup, which allows us to study negative as well as positive shocks to antisemitism in the context of Dreyfus' degradation and his rehabilitation through a media campaign. The debiasing mechanism speaks to a large literature on the impact of information ([Adida et al., 2018](#); [Grigorieff et al., 2018](#)), evaluations ([Bohren et al., 2019](#)), and quota policies ([Beaman et al., 2012](#)) on destigmatization and the debiasing of prejudice (see also [Bertrand and Duflo, 2016](#)). We provide evidence that destigmatization can affect price movements in financial markets.

³Liberal French governments never considered or enacted antisemitic policies under the Third Republic, spanning 1870-1940 (see Section 2.1). Until the advent of the Vichy regime in 1940, no viable political force advocated for antisemitic policies.

The rest of the paper is organized as follows. We provide relevant background on the Dreyfus Affair in Section 2. Sections 3 and 4 describe our data and our empirical framework, respectively. Our main results are presented in Section 5. Section 6 discusses our conceptual framework. Section 7 concludes.

2 The Dreyfus Affair

We first describe the social and political context that led to high levels of antisemitism in late 19th century France. We then provide a detailed timeline of the Dreyfus Affair.

2.1 Political and Social Context

At the end of the 19th century, France was a democratic republic. The regime, known as Third Republic was established after the Franco-Prussian War of 1870-71 and lasted until 1940. During this time, international politics was characterized by recurring tensions with Germany while domestic policy involved major extensions of civic and social rights and a secularization of the state. A landmark law guaranteeing religious freedom and introducing the separation between church and state was adopted in 1905.

In this context, Jewish citizens enjoyed full civic and political rights. The process leading to the social integration of ethnic and religious minorities started with the French Revolution and continued throughout the 19th century, during which many Jewish citizens increasingly followed a path of assimilation. This process implied not only a larger participation in French society, but also a progressive abandonment of Jewish traditions and the adoption of a new social identity. By the end of the 19th century, many Jewish citizens were well-integrated in French business, culture, and politics.

However, this integration faced substantial antisemitic opposition stemming from conservative forces hostile to secularization. In 1886, a writer named Edouard Drumont published a best-selling antisemitic book entitled *La France Juive* (“The Jewish France”). The Catholic newspaper *La Croix* and openly antisemitic outlets such as *La Libre Parole* (created in 1892 by Drumont) and *L’Antijuif* (“The Anti-Jew”) regularly accused Jews of undermining the Catholic fabric of the country and fomenting the corruption of French culture. In addition, Jews were often used as scapegoats for the French defeat against Prussia in 1871. For example, *La Libre Parole* published a series of articles condemning the presence of Jewish officers in the military. Thus, while Jewish citizens nominally enjoyed the same civic rights as other citizens, antisemitism and antisemitic propaganda were rife at the onset of the Dreyfus Affair.

2.2 Timeline of the Dreyfus Affair

In September 1894, a French spy at the German Embassy in Paris discovered a note announcing the delivery of confidential French military documents. This information reached General Mercier, the Minister of War, who mandated an intelligence officer named Colonel Henry to identify the author of the note, the so-called *bordereau*. Henry manufactured a file against Alfred Dreyfus, an army captain, essentially composed of forgeries under the pretext that the *bordereau* bore some resemblance with Dreyfus’

writing. On the basis of this file, Dreyfus was summarily convicted for high treason by a martial court in December 1894, and deported to Devil's Island in French Guiana in February 1895.

The Dreyfus case was first made public on November 2, 1894, when *La Libre Parole* revealed the arrest of a Jewish captain on accusations of espionage. As described above, this occurred in a social context prone to antisemitism. Antisemitic coverage of the Dreyfus case peaked in January 1895, when the degradation of Dreyfus made national headlines. Newspapers gave a detailed account of the degradation ceremony of "the traitor" that took place at the *Ecole Militaire* in Paris, in front of a large crowd shouting antisemitic abuse. Appendix Figure A.1 (a) shows the frontpage of *Le Petit Journal* after this episode.⁴ Antisemitic outlets emphasized the Jewish origins of Dreyfus and provided derogatory coverage denigrating all French Jews. Appendix Figure A.2 provides two graphic examples of such coverage.

After Dreyfus' deportation, his brother and a few supporters started gathering evidence to prove the miscarriage of justice. Meanwhile, an intelligence officer named Picquart uncovered evidence suggesting the real culprit was a different officer named Esterhazy. This information was dismissed by Picquart's hierarchy. On January 11, 1898, Esterhazy was found innocent by military judges, making any revision of Dreyfus' trial impossible. Until that point, the mainstream media remained anchored to the initial consensus that Dreyfus was the treacherous author of the *bordereau*.

J'Accuse...! The turning point of the Dreyfus Affair occurred on January 13, 1898, with the publication of "J'Accuse" by the writer Emile Zola on the frontpage of the newspaper *L'Aurore*. This editorial revealed all the facts pointing to the wrongful conviction of Dreyfus. In addition, the pamphlet condemned the rise of antisemitism in French society that led to Dreyfus being falsely accused:

"These, Sir, are the facts that explain how a miscarriage of justice came about; The evidence of Dreyfus's moral values, his affluence, the lack of motive and his continuous claim of innocence combine to show that he is the victim of ... the hunt for "dirty Jews" that brings shame upon our time."

Emile Zola, "J'accuse...!", *L'Aurore*, 13 January 1898 (authors' translation).

L'Aurore's circulation increased tenfold on the day "J'Accuse" was published as the editorial reached a large share of public opinion. While Zola was subsequently prosecuted for libel, "J'Accuse" broke the consensus about Dreyfus' culpability and signaled the beginning of a broader campaign demanding his rehabilitation.⁵ During this campaign, the press became increasingly divided between antisemitic and anti-Dreyfusard outlets and a moderate press that became overtly pro-Dreyfus. Archival work suggests that public opinion also became increasingly pro-Dreyfus throughout the year 1898. Wilson (2007) lists 138 pro-Dreyfus public meetings across 64 locations in metropolitan France between October 1898 and December 1899, compared to 23 anti-Dreyfusard meetings outside Paris in the same period.

On June 22, 1899, subsequent to a judicial decision to authorize a revision of the Dreyfus trial, a new French president (Emile Loubet) appointed the liberal politician Waldeck-Rousseau as head of government with the mission of forming a unity government to bring the Dreyfus Affair to an end. In

⁴A contemporary observer described: "A huge crowd, held off with difficulty by the police, danced for joy, seethed with excitement, whistled, shouted cries of hatred: 'Death to the Jews! ... Death to the traitor ... Death to Judas!'" (Wilson, 2007, p.10).

⁵Edouard Herriot, a prominent politician recalled: "From then on it was impossible not to take sides. Zola's open letter forced us to rise up, either against an outrageous slanderer, or against an unspeakable ruling clique" (Wilson, 2007, p.13).

September 1899, Dreyfus was again found guilty, this time with attenuating circumstances. However, at the request of Waldeck Rousseau, Loubet extended a presidential pardon to Dreyfus on September 22, 1899. Dreyfus was released shortly thereafter. This marked the end of the most salient and controversial phase of the Affair, although Dreyfus was not fully reinstated until 1906. Appendix Figure A.3 shows that media coverage of the Affair peaked after “J’Accuse” and fell rapidly after Dreyfus’ pardon. With the resolution of the Dreyfus case, antisemitism lost its appeal as a broad-based ideology and became associated with extreme-right wing politics, in which it would experience a resurgence in the 1930s.

3 Data

This section describes the data we collected from three main sources. Our analysis combines stock market data with data on Jewish board membership among publicly traded firms, as well as newspaper data on coverage of the Affair by pro-Dreyfus and anti-Dreyfus newspapers (see also Appendix C).

3.1 Financial data

Background. The Paris Stock Exchange (*Bourse de Paris*) was established in the early 19th century. Conceived as a centralized marketplace for financial trading, the Stock Exchange fell under the purview of a monopolistic organization controlled by the government, the *Compagnie des Agents de Change* (CAC) in charge of registering, authorizing, and supervising all transactions. The *Bourse* was comprised of two different markets: the *Parquet* or *Marché Officiel* regulated by the CAC, and the *Coulisse* or *Marché en Banque* operating independently of these regulations. Our analysis focuses on the official market, the *Parquet*, since there is no reliable daily data on transactions in the *Coulisse*. Hautcoeur and Riva (2011) describe the *Parquet* as “a structured organization which minimized transaction costs thanks to very efficient settlement and compensation procedures,” analogous to other major marketplaces of this era. Throughout the 19th century, the Stock Exchange experienced rapid growth as well as several scandals including the controversial crash of a major bank named *L’Union Générale* in 1882, and a corruption scandal associated the construction of the Panama Canal in 1892.⁶

Data Sources. To conduct the analysis presented in this paper, we hand-collected firm-specific information from the *Annuaire des Agents de Change*, a registry of stock broker yearbooks published by the CAC and available from the archives of the French Ministry of Finance. The yearbooks include data on firm capitalization, the book value of shares, dividends, the location of firm headquarters, surnames of board members, and whether a firm’s assets are guaranteed by the French state. We use this data to construct daily measures of market capitalization, stock returns, and various market indices. The yearbooks also include daily price data for contemporary government bonds (*Rentes*), which we use as the risk-free rate. Appendix Table A.1 reports summary statistics from this data. In total, we observe 140 firms listed in

⁶Both episodes are considered milestones in the history of French antisemitism. In 1889, *La Croix* wrote: “*L’Union Générale* was assassinated because it was competing with the Jews, because its directors were leading Catholics... The Panama Company is left to die because it tried to get along without placing itself under the tutelage of Jewish financiers” (Wilson, 2007).

the Paris Stock Exchange between 1894-1899, including 131 firms listed during the entire period.⁷

The information from the yearbooks was complemented with three other sources. Daily stock price data was collected from the *Bulletin de la Cote*, the daily spreadsheet published by the CAC available from the French National Library (BNF). This includes two types of stocks: stocks tradable in cash (*Au Comptant*) and stocks tradable as cash and forward (*Au Comptant et A Terme*). The latter category was traded much more frequently, and the firms issuing them were generally better known. Additional data on the board composition of firms was obtained from the *Archives du Crédit Agricole* and the *Annuaire Chaix*. As we describe below, changes in the board composition of firms are infrequent and firms with Jewish board members do not experience more changes after the beginning of the Dreyfus Affair.

3.2 Jewish board membership

We use information on boards of directors (*conseils d'administration*) to identify firms with connections to prominent French Jewish families of the time. The list of families comes from Grange (2016), a comprehensive study on this topic which identifies 40 large French Jewish families between 1870 and 1940. Examples of such dynasties include the Pereire, Rothschild, Stern, and Louis-Dreyfus families. We identify a board member as Jewish if the individual's first and last name exactly match a full name in the Grange (2016) list. In total, we observe 45 unique Jewish individuals out of 1,244 board members between 1894-1899. Our two measures of Jewish connections are the fraction of Jewish board members and an indicator for firms with a Jewish CEO. We also use a different registry from Lévy (1960) to check the accuracy of the Grange (2016) list.⁸ The measures of Jewish connections computed using both databases are strongly correlated. For example, the correlation between the fraction of Jewish board members in Grange (2016) and the corresponding fraction in Lévy (1960) is 0.83.

While individuals with a name listed in Grange (2016) may have held religious beliefs other than Judaism, it is reasonable to assume that they were heavily exposed to the antisemitic sentiment prevailing in this period. Prominent Jewish families were regularly targeted by the antisemitic press which published lists of Jewish businessmen, as did *L'Antijuif* in late 1898 (Tillier, 1997). One among many instances is a statement made by Drumont in 1891: "The Third Republic is no longer the Republic of the French, but the Kingdom of the Rothschilds" (Wilson, 2007).

In addition, because of the tight links between many firms and a few prominent founding families, the identity of board members was widely publicized and well-known to investors. The contemporary press and literature regularly chronicled the business rivalries between some of these families, the most famous of which opposed the Pereire (active in banking, gas lighting, public transit, railways, and transatlantic travel) to the Rothschild family, who controlled a large conglomerate encompassing banks, mines, and railway companies. Similarly, the Hottinguer family was associated with various railway firms, while the Louis-Dreyfus dynasty established by Léopold Dreyfus (1833-1915) was closely associ-

⁷The first row of Table A.1 shows that on an average day 69% of the stocks are traded. Given the level of liquidity of financial markets at the time, we use a stock's share of traded days during the study period as a proxy for its liquidity, and exclude those that were traded less than 20% of days. Liquidity defined in this way is uncorrelated with our various measures of Jewish connections. In addition, we show in Appendix Table A.11 that our results are not driven by low liquidity.

⁸The Lévy (1960) database is less accurate since it only includes last names.

ated with naval shipyards and food processing.

At the time of the Dreyfus Affair, board members typically acted as non-independent directors with various degrees of involvement in corporate management. Given the much discussed high concentration of ownership in French firms and the prevalence of strong control by founding families (Landes, 1949, 1969), board members were most commonly the firm's founders, the founders' offspring, and/or the largest shareholders.⁹ The chairman of the board (*président du conseil*) typically exerted the function of CEO (*président directeur général* or PDG in French).

Appendix Table A.2 provides descriptive statistics on Jewish connections across the full sample, and by sector. Overall, 14% have a Jewish CEO, and the average fraction of Jewish board members is 6.7%. These families are most represented in the gas/electricity, railways, and banking sectors (panel a). Panel (b) looks at correlates of Jewish connections in terms of other firm characteristics. Firms with Jewish board members are more likely to be headquartered abroad, and are slightly more capitalized in nominal terms. In our analysis, we either control for these characteristics, or we include firm fixed effects absorbing all time-invariant firm characteristics. Jewish connections are stable throughout the period since few firms experience changes in their board composition, as we show in Appendix Table A.3.

3.3 Media coverage

We collected daily data on the coverage of the Dreyfus case by five contemporary newspapers: *Le Siècle*, *La Croix*, *Le Petit Journal*, *L'Aurore*, and *La Libre Parole*. *Le Siècle*, a mainstream outlet perceived as liberal and close to moderate republicans, started to actively support Dreyfus starting in late 1897. *La Croix*, a Catholic newspaper still in circulation today, was anti-Dreyfusard throughout the period and played a key role in the diffusion of antisemitism (Sorlin, 1967)—in 1890, *La Croix* proclaimed itself to be “France's most anti-Jewish Catholic newspaper.” *L'Aurore* was the leading outlet for the Dreyfusard (pro-Dreyfus) camp and published Zola's “J'Accuse...!” in January 1898. It went into circulation in mid-October 1897. *La Libre Parole* was an antisemitic outlet founded by Edouard Drumont, the leading antisemitic public figure of this era. The outlet's only goal was to spread hatred against French Jews. Finally, *Le Petit Journal* was another popular anti-Dreyfusard newspaper, covering national and international news.

Newspapers in this period typically had four pages. We count the number of paragraphs devoted to the Dreyfus Affair both in levels and as a fraction of total coverage, excluding advertisements. This data was manually collected and coded since the low quality of the newspaper scans did not allow for OCR processing. After applying a broad word filter,¹⁰ we systematically read all newspaper issues mentioning the Dreyfus case and hand-coded all the paragraphs discussing the Affair. In total, more than 61,000 paragraphs were dedicated to the Dreyfus Affair across the 5 newspapers between January 2, 1894 and December 30, 1899. After “J'Accuse”, these newspapers together dedicate 84 paragraphs on

⁹We are not aware of any historical data documenting ownership stakes among board members. Murphy (2007) discusses at length the literature on the history of corporate ownership in France that took deep root in the 18th and 19th centuries.

¹⁰The filter contained the following words: *Dreyfus*, *capitaine* (captain), *affaire* (affair), *traître* (traitor), *trahison* (treason), *juif* or *juives* (Jewish), *juiverie* (Jewry, an antisemitic term), *israélites* (Israelites), *cherche-midi* (a prison where Dreyfus was jailed), *Ile-du-Diable* (the island where Dreyfus was sent into exile), *jugement* (judgment), *syndicat* (syndicate, a common term in antisemitic discourse), *espion* (spy), *espionnage* (espionage), as well as the names of key actors of the Affair.

average (24% of the total coverage) to Dreyfus. This coverage is approximately equally split between Dreyfusard and anti-Dreyfusard outlets (see Appendix Table A.1).

4 Empirical Framework

4.1 Event study framework

We first estimate the short-term effects of major episodes of the Dreyfus Affair on the market performance of firms with Jewish board members. This analysis is conducted in a standard event study framework, as summarized in the following specification:

$$CAR_i = \beta_0 + \beta_1 JewishBoardMembers_i + \Omega X_i + \varepsilon_i \quad (1)$$

where i denotes a firm, $JewishBoardMembers_i$ denotes the fraction of Jewish board members based on Grange (2016), and X_i is a vector of controls including sector dummies, type of admission in the Paris Stock Exchange (i.e., stocks tradable in cash or as cash and forward), guarantee type (a dummy indicating whether a stock is guaranteed by the French state), a dummy for whether the firm has investments abroad, foreign ownership, and the number of outstanding shares. We include all available controls from the information contained in the CAC stock broker yearbooks (see Section 3.1).

In equation (1), cumulative abnormal returns (CARs) are estimated as follows. First, we estimate firm-specific betas via a one-factor arbitrage pricing model (i.e., the so-called market model where the factor is the market). We use a capitalization-weighted market index in a [-300,-60] estimation window before the news of Dreyfus' arrest on November 2, 1894. In the Appendix, we also use a 3-factor Fama-French model which includes the market return, the difference in returns between firms with capitalization below sample median and firms with capitalization above sample median, and the difference in returns between firms in the first tercile and firms in the third tercile of book-to-market ratio. Second, we calculate abnormal returns for each firm i and each trading day as the difference between actual returns (relative to the risk-free asset) and predicted returns. Third, we sum abnormal returns in narrow time windows ([-1,1] or [0,2]) around each event. If no trading occurred for any firm on the event date, the event window is centered around the subsequent trading day.¹¹

In Table 1, cumulative abnormal returns are estimated via a 1-factor model and summed over a [0,2] window around 4 major episodes: the degradation of Dreyfus, the publication of "J'Accuse", the appointment of the Waldeck-Rousseau cabinet, and Dreyfus' presidential pardon. We provide background on these episodes in the next section, and we examine other episodes in Appendix Tables A.5 and A.6.

¹¹Our analysis follows the standard event study method, as described in Campbell et al. (1997), chapter 4, which is the most common method to study important and abrupt events in financial markets. Given that stock prices are usually subject to large amounts of idiosyncratic noise over time, other methods to examine the longer time series (such as structural break tests) are usually not efficient in this context.

4.2 Difference-in-differences

The Dreyfus Affair took a dramatic turn on January 13, 1898, with the publication of “J’Accuse” in *L’Aurore*. “J’Accuse” provided new evidence about the Dreyfus case and signaled the beginning of a media campaign aiming to rehabilitate Dreyfus (see Appendix Figure A.3). Our next specification estimates the effect of this media campaign starting with “J’Accuse”:

$$y_{it} = \alpha + \beta \text{JewishConnections}_i \times \mathbf{1}\{t \geq \text{J’Accuse}\}_t + \delta_i + \delta_t + \delta_{sm} + \varepsilon_{it} \quad (2)$$

where i , s , d and m denote firm, sector, trading day, and month, respectively. We estimate equation (2) on the balanced panel of 131 firms. We use several measures of returns and valuation as the dependent variable y_{it} : stock returns, growth in market capitalization, growth in the market-to-book ratio (a proxy for Tobin’s Q), squared returns (a proxy for volatility), and risk-adjusted returns (the Sharpe ratio).¹²

$\text{JewishConnections}_i$ is a measure of Jewish presence in firm i ’s board of directors. We either use the fraction of Jewish board members or an indicator for firms with a Jewish CEO. In our baseline specification, we use the average of these measures throughout the period. Appendix Table A.3 shows that firms with Jewish connections did not experience differential changes in board composition during the Dreyfus Affair. In addition, Appendix Table A.12 shows that our results are robust to using an intent-to-treat measure of Jewish connections, namely Jewish board membership measured at the beginning of the Dreyfus Affair on November 2, 1894. The baseline specification includes firm fixed effects δ_i , day fixed effects δ_d , and sector-by-month fixed effects δ_{sm} . Standard errors are heteroskedasticity-robust and clustered by firm. Tables 2 and 3 report estimates from equation (2).

The key identifying assumption for equation (2) is a parallel trends assumption—conditional on firm, day, and sector-by-month fixed effects, firms with Jewish connections should not have yielded excess returns in the absence of the rehabilitation campaign. Figure 1 supports this assumption by showing the absence of pre-trends. We also show in Appendix Table A.3 that the campaign did not affect the board composition of firms, an important check to interpret our difference-in-difference estimates as causal. Finally, there should have been no correlated shocks affecting Jewish-connected firms differentially after “J’Accuse”. We provide a battery of robustness checks to alleviate these concerns in Section 5.2.

4.3 Media Coverage

To examine the relationship between media coverage and stock returns, we estimate:

$$y_{it} = \alpha + \beta \text{JewishConnections}_i \times \text{MediaCoverage}_{(t-1)} + \delta_i + \delta_t + \delta_{sm} + \varepsilon_{it} \quad (3)$$

where $\text{MediaCoverage}_{(t-1)}$ is the number of paragraphs dedicated to the Dreyfus Affair on day $(t - 1)$ across all newspapers in our data. All other variables are defined as in equation (2). The main effect of

¹²The intuition behind our difference-in-differences is similar to that of a portfolio exercise in which investors take a long position on firms with Jewish board members and a short position on other firms. Compared to this strategy, our specification additionally controls for sector-by-month and firm fixed effects, thus better addresses firm-specific determinants of stock performance over the period as well as any sector-wide monthly shocks. A recent literature takes a similar approach to estimate the effect of the Panama Papers on stock returns (Bennedsen and Zeume, 2017; O’Donovan et al., 2019).

$MediaCoverage_{(t-1)}$ is absorbed by the day fixed effects, δ_t . In Section 5.3, we also disentangle the effects of Dreyfusard (pro-Dreyfus) and anti-Dreyfusard coverage by interacting $JewishConnections_i$ separately with coverage by Dreyfusard newspapers (*Le Siècle* and *L'Aurore*) and coverage by anti-Dreyfusard newspapers (*La Croix*, *Le Petit Journal* and *La Libre Parole*). In all these specifications, standard errors are two-way clustered by firm i and by day t since $MediaCoverage_{(t-1)}$ takes the same value for all firms on a given day. We provide evidence on the effects of media coverage in Table 4.

5 Results

The Dreyfus Affair could have affected the returns of firms with Jewish board members in several ways. In the short run, investors may have divested these assets in response to news arrivals about the alleged treason of Dreyfus. Events leading to Dreyfus' rehabilitation would have had the opposite effect. We test these hypotheses in Section 5.1. In the long run, media revelations about Dreyfus' innocence may have encouraged arbitrage and increased demand for Jewish-connected stocks. Section 5.2 presents these results and Section 5.3 explores the impact of media coverage. Finally, Section 5.4 examines whether the returns of Jewish-connected firms can be explained by differential expectations about profitability.

5.1 Short-Term Effects

We first explore the short-term effects of salient episodes of the Affair on firm-specific abnormal returns. Table 1 reports estimates from equation (1) for 4 major events: the military degradation of Dreyfus, the publication of "J'Accuse", the appointment of the Waldeck-Rousseau cabinet, and Dreyfus' pardon. Cumulative abnormal returns are estimated using a one-factor arbitrage pricing model (i.e., the market model where the factor is the market) and summed over a [0,2] window around each event.

The degradation of Dreyfus took place on January 5, 1895, in front of a large crowd shouting antisemitic abuse. This event received widespread media coverage and marked a peak of France's antisemitic outburst (see Section 2.2 and Figure A.1).¹³ On January 7, 1895, the newspapers in our data dedicated 15% of their coverage to Dreyfus. Column 1 of Table 1 shows that firms with a greater fraction of Jewish board members experienced abnormally negative returns after the degradation, which we interpret as the result of a major antisemitic outburst. This result is robust to a range of alternative methods for calculating CARs (see Appendix Table A.5) and large in magnitude: a firm with 100% Jewish board members would have experienced a 4.5 percentage point decline in returns relative to a firm without Jewish board members. The rest of the market did not experience abnormal returns after this episode.

"J'Accuse" was published by the newspaper *L'Aurore* on January 13, 1898. A major turning point of the Dreyfus Affair, the editorial could have affected the stock market in a number of ways. On the one hand, the evidence uncovered in the editorial may have convinced investors that Dreyfus had been the victim of a state conspiracy owing to his Jewish origins. On the other hand, those holding antisemitic prejudice could have been confirmed in their beliefs about the existence of a conspiracy against

¹³We center the event window around Monday January 7, 1898, which is the first trading day occurring after the degradation.

Table 1: Cumulative Abnormal Returns of Firms with Jewish Connections
Four Major Episodes of the Dreyfus Affair

	January 5, 1895 Degradation of Dreyfus (1)	January 13, 1898 "J'Accuse" (2)	June 22, 1899 Waldeck-Rousseau Cabinet (3)	September 19, 1899 Pardon of Dreyfus (4)
% Jewish Board Members	-4.524*** (1.507)	-1.891 (1.484)	6.473** (3.099)	2.499** (1.202)
Constant	-0.260 (1.041)	-0.680 (1.019)	-0.193 (0.669)	-0.225 (0.579)
Observations (Firms)	134	138	137	137
R ²	0.17	0.19	0.30	0.16

Notes: This table reports estimates from equation (1). The dependent variables are cumulative abnormal returns estimated over a [0,2] time window around each event. Firm-specific betas are estimated via a 1-factor model in a [-300,-60] estimation window before Dreyfus' arrest on November 2, 1894. Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). See Section 3 for details. All regressions control for sector dummies, type of admission in the Paris Stock Exchange, guarantee by the French state, whether the firm has investments abroad, foreign ownership, and the number of outstanding shares. * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors in parentheses.

the state.¹⁴ Finally, the editorial could have increased expectations that French society would polarize further around the Dreyfus case. Overall, in column 2 of Table 1 we find that firms with a greater share of Jewish board members experienced negative, non-significant abnormal returns of about 2 percentage points immediately around the publication of "J'Accuse". Figures 1 and 2, discussed below, suggest this may also have been accompanied by a short-term increase in volatility. As with the degradation of Dreyfus, the rest of the market is unaffected by this episode.

We then look at another major turning point of the Dreyfus Affair: the appointment of the Waldeck-Rousseau cabinet on June 22, 1899. Waldeck-Rousseau was given the mission to form a unity government to solve the Dreyfus Affair. Column 3 of Table 1 shows that firms with Jewish connections experienced abnormal positive returns following Waldeck-Rousseau's appointment. The increased demand for Jewish-connected stocks could have reflected a more optimistic climate around these firms. Or, this appointment could have convinced investors that these stocks were overlooked by other investors and to bet on Jewish-connected firms themselves. Yet, Appendix Table A.6 shows that Jewish-connected firms did not experience similar upswings in returns around other cabinet changes. For example, the appointment of the Dreyfusard Brisson cabinet in June 1898 did not lead to positive returns, while successive anti-Dreyfusard governments did not yield negative returns for Jewish-connected firms.

Finally, column 4 of Table 1 shows that Jewish-connected firms also experienced abnormal positive returns following the pardon of Dreyfus on September 19, 1899. Loubet's pardon led to Dreyfus' release and brought the salient phase of the Affair to an end—even though Dreyfus was not fully reinstated until

¹⁴For example, Zola's accusations could have increased distrust towards the elites among readers whose priors conflicted with the new evidence (see Barrera et al., 2020).

1906. Appendix Table A.5 shows that this coefficient remains positive but loses statistical significance when we use alternative ways of computing CARs.

Overall, the positive coefficients in columns 3 and 4 of Table 1 indicate that firms with a larger fraction of Jewish board members experienced positive returns around episodes associated with the rehabilitation of Dreyfus. In the following section, we show that these firms experienced, in fact, higher returns throughout the media campaign organized to obtain Dreyfus' rehabilitation. In Section 6, we explain both effects in the context of a model of antisemitic traders where exogenous antisemitic shocks affect stock prices and volatility in the short run and the long run.

Importantly, among the four events examined in Table 1, only "J'Accuse" is likely to have occurred as a total surprise to investors. As a result, similar to Huberman and Regev (2001), the investors' short-term response to these events likely included a behavioral component—the emotional effect of antisemitic outbursts on portfolio decisions—in addition to the standard effect of new information about Dreyfus' guilt or innocence. We return to this interpretation in Section 6.

Robustness Checks. Appendix Figure A.4 shows that the point estimates from the four event studies in Table 1 capture distinctive differences between the distributions of CARs of Jewish-connected and non-Jewish-connected firms, and not driven by a small number of outliers. The estimated cumulative distributions of CARs are most separate at the arrival of Waldeck-Rousseau, and closest around "J'Accuse", which is consistent with the low precision of the corresponding estimate in Table 1.

Appendix Tables A.4 through A.6 present robustness checks on the findings in Table 1. In Appendix Table A.4, we estimate equation (1) using either the fraction of Jewish board members based on Lévy (1960) or an indicator for firms with a Jewish CEO on the right-hand side. Results obtained using the Lévy (1960) list are similar to those in Table 1. The negative coefficient on the degradation falls in magnitude and loses significance when estimating the effect of Jewish CEOs.

Appendix Table A.5 looks at alternative strategies and measures CARs around four additional episodes: the first news of Dreyfus' arrest (November 2, 1894), the conviction of Dreyfus by a martial court (December 22, 1894), the revelation of the suicide of Colonel Henry, a key actor in the forgery of documents used to incriminate Dreyfus (August 31, 1898), and the announcement that Dreyfus was granted a new trial (October 29, 1898). None of these events appears to have affected the CARs of firms with Jewish board members. Overall, investors responded primarily to salient episodes of the Affair (episodes most likely to generate antisemitic outbursts), as opposed to events with a higher news content such as Henry's suicide or Dreyfus' initial arrest.

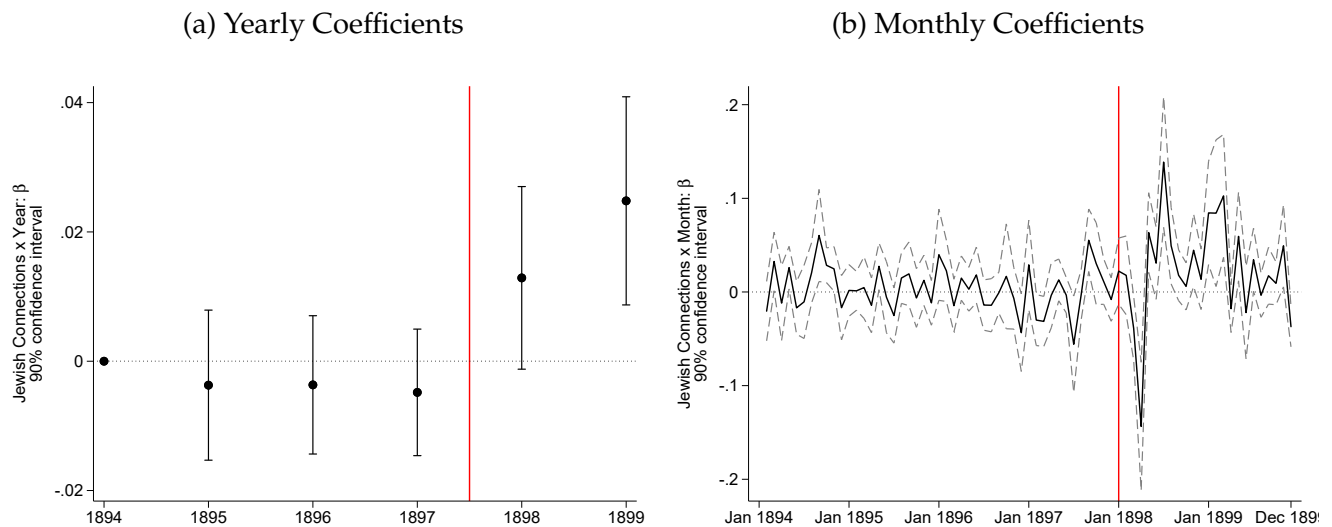
Finally, Appendix Table A.6 estimates CARs for each cabinet reshuffle during the Affair. Based on the available historical evidence, four cabinets with a clear stance on the Affair governed during the period: the Méline cabinet (anti-Dreyfusard, appointed in April 1896), the Brisson cabinet (Dreyfusard, June 1898), the Dupuy II cabinet (anti-Dreyfusard, October 1898), and the Waldeck-Rousseau cabinet (Dreyfusard, June 1899). Among these, only the Waldeck-Rousseau appointment has a significant effect on the CARs of firms with Jewish connections. In particular, there is no evidence that the two anti-Dreyfusard cabinets (Méline and Dupuy II) negatively affected the short-term performance of these firms.

5.2 Rehabilitation Campaign

We now turn to our exploration of how Dreyfus’ rehabilitation campaign, initiated with the unexpected publication of “J’Accuse”, affected the returns of firms with Jewish board members.

Figure 1 shows that “J’Accuse” represented a turning point for the market performance of these firms. Here we report time-varying coefficients on the effect of Jewish connections on daily stock returns. We interact Jewish connections with yearly dummies and monthly dummies in panels (a) and (b), respectively, and we control for firm fixed effects, trading day fixed effects, and sector-by-month fixed effects as in equation (2). Jewish connections are measured as a standardized index of the fraction of Jewish board members and an indicator for firms with a Jewish CEO, the two right-hand side variables used in panels (a) and (b) of Tables 2 through 5.

Figure 1: Daily Returns of Jewish-Connected Firms Before and After “J’Accuse”



Notes: This figure reports estimates from the following specification: $y_{it} = \sum_t \beta_t JewishConnections_i \times Period_t + \delta_i + \delta_t + \delta_{sm} + \varepsilon_{it}$, where $Period$ denotes years in panel (a) and months in panel (b). y_{it} are daily stock returns measured for firm i on day t . δ_i , δ_t , and δ_{sm} are firm, day, and sector-by-month fixed effects, respectively. $JewishConnections_i$ is a standardized index of the two measures of Jewish connections we use in Tables 2 through 5, namely the fraction of Jewish board members and a dummy for firms with a Jewish CEO. In panel (b), the dashed grey line indicates 90% confidence intervals. Standard errors are clustered by firm. The red line highlights the publication of “J’Accuse” on January 13, 1898.

Between 1894 and 1897, the returns of Jewish-connected firms do not differ markedly from those of other firms. This changes dramatically after the beginning of Dreyfus’ rehabilitation campaign. On average, Jewish-connected firms experience higher daily returns in both 1898 and 1899 (panel a). Panel (b) shows that Jewish-connected firms first experience a decline in returns after January 1898, before experiencing a substantial rebound that more than offsets the initial drop. This is consistent with the short-term estimate presented in Table 1, column 2. Overall, firms with more Jewish board members experience consistently higher returns between mid-1898 and late 1899. Investors who bet on Jewish-connected firms either before or shortly after “J’Accuse” would have captured excess returns.

Table 2: Returns and Valuation of Jewish-Connected Firms After “J’Accuse”

	Raw Returns		Firm Value Growth		Market-to-book	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly	(5) Daily	(6) Monthly
(a) % of Jewish Board Members						
% Board Members \times Post J’Accuse	0.178** (0.079)	4.823** (2.301)	0.171** (0.083)	6.461** (2.613)	0.197** (0.081)	5.488** (2.374)
R ²	0.02	0.16	0.02	0.13	0.02	0.16
Mean Dep Var	0.019	0.416	0.023	0.552	0.022	0.472
Firms	131	131	131	131	131	131
Observations	239730	9301	239730	9301	239730	9301
(b) Jewish CEO						
Jewish CEO \times Post J’Accuse	0.059** (0.025)	1.559** (0.712)	0.049* (0.029)	1.734** (0.739)	0.062** (0.025)	1.582** (0.711)
R ²	0.02	0.16	0.02	0.13	0.02	0.16
Mean Dep Var	0.019	0.416	0.023	0.552	0.022	0.472
Firms	131	131	131	131	131	131
Observations	239730	9301	239730	9301	239730	9301

Notes: This table reports estimates from equation (2). In columns 1 and 2, the dependent variables (expressed in percentage points) are stock returns calculated as the daily (column 1) or monthly (column 2) growth rate in stock prices. In columns 3 and 4, the dependent variable is the growth rate of firm value (market capitalization) measured either daily or monthly. In columns 5 and 6, the dependent variable is the growth rate in the firm’s market-to-book ratio (a proxy for Tobin’s Q) measured daily or monthly. In panel (a), Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Stock Returns and Valuation Gains. Table 2 reports the estimate of interest from equation (2). We look at different indicators of market performance: daily and monthly stock returns in columns 1 and 2, daily and monthly gains in firm value in columns 3 and 4, and daily and monthly gains in the firm’s market-to-book ratio in columns 5 and 6, respectively. Stock returns are measured as the growth rate of stock prices between period (day or month) $t - 1$ and t , minus the growth rate of the risk-free asset. Gains in firm value are defined analogously as the growth rate of a firm’s market capitalization (listed price times the number of outstanding shares), while the market-to-book ratio is defined as the ratio of the stock’s listed price to its nominal price. The market-to-book ratio approximates the average Tobin’s Q given the available data, which does not include corporate debt.

Panel (a) of Table 2 looks at the fraction of Jewish board members on the right-hand side of equa-

tion (2)—the same measure used in Table 1. Columns 1 and 2 show that a firm with 100% Jewish board members would have experienced a 0.2 percentage point increase in daily returns and a 5 percentage point increase in monthly returns after “J’Accuse”. In addition, these firms experienced a faster growth of their market valuation (columns 3 and 4) and of their market-to-book ratio (columns 5 and 6). Those figures imply that the discrimination rent that Jewish-connected stocks recuperated over the two-year post-treatment period after “J’Accuse” amounts to 12.7% of their total value and 6.9% of the total value of the French stock market.¹⁵ As the rehabilitation campaign was unable to completely eradicate antisemitism in the French society, this is likely a lower bound on the size of the rent due to antisemitism.

In Panel (b) of Table 2, we interact the post-“J’Accuse” dummy with an indicator for firms with a Jewish CEO. The difference-in-differences coefficient is again positive and statistically significant across all columns. Having a Jewish CEO increases daily returns by 0.06 percentage points and monthly returns by 1.6 percentage points (columns 1 and 2). The magnitude of estimates in panel (b) is approximately one-third the size of the corresponding estimates in panel (a). This means that the effect of a Jewish CEO is approximately equal to that of a 0.33 increase in the fraction of Jewish board members, which ranges between 0 and 0.70 with a standard deviation of 0.11. The effect of a Jewish CEO therefore amounts to a 3 standard deviation increase in the fraction of Jewish board members.

Appendix Table A.7 shows that the effect of Jewish board members is indeed driven by firms who also appoint a Jewish CEO. There, we interact the difference-in-differences term from equation (2) with two indicators for firms with no Jewish CEO and firms with a Jewish CEO. Having a Jewish CEO makes a firm’s Jewish connections particularly salient to investors—the positive effect of Jewish board members on returns after “J’Accuse” is driven by firms with a Jewish CEO.

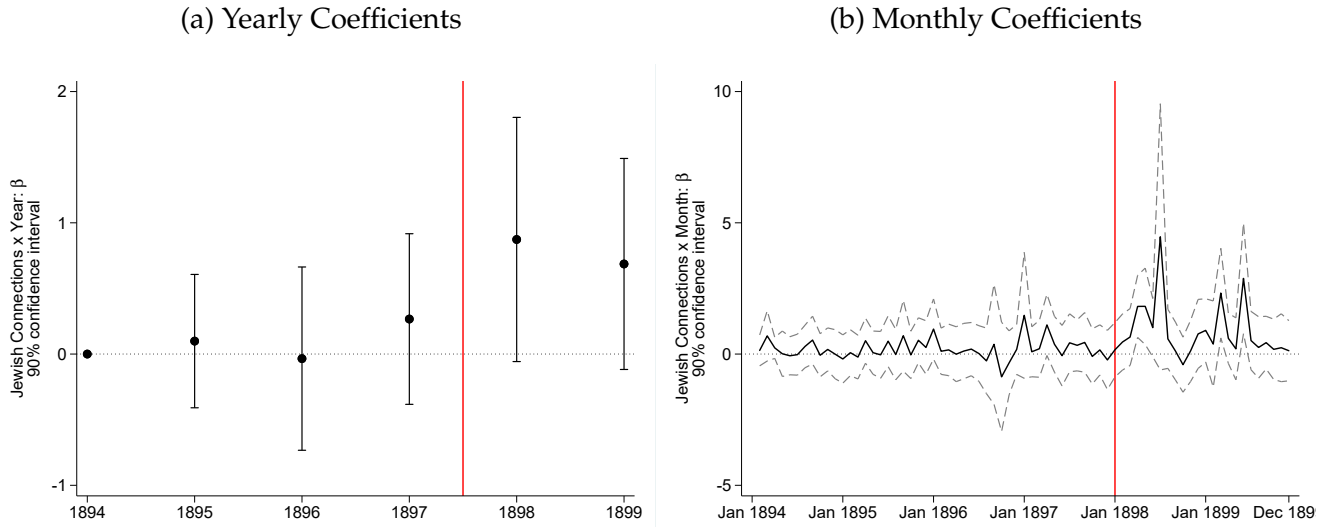
In Section 5.4, we show that the increase in returns after “J’Accuse” was not accompanied by an increase in profitability proxied by dividends. We also show that excess returns were not driven by shifting expectations of discrimination by the market or the state. Instead, we hypothesize that the improved performance of firms with Jewish board members may have come from diminished antisemitic attitudes among some investors. Before turning to this interpretation, however, we explore another potential channel: the impact of Dreyfus’ rehabilitation campaign on stock volatility.

Volatility and Risk-Adjusted Returns. The polarization of French society around the Dreyfus case could have increased the stock volatility of firms with Jewish board members, if investors perceived this polarization to increase risk. Indeed, panel (b) of Figure 1 suggests that firms with Jewish connections experienced not only higher returns after “J’Accuse”, but also higher stock volatility. We test this hypothesis in Figure 2 and Table 3 by looking at squared returns on the left-hand side of equation (2). We also examine whether the findings in Table 2 are robust to using a measure of risk-adjusted returns.

Figure 2 provides suggestive evidence that “J’Accuse” caused a short-term increase in volatility. Analogous to Figure 1, panel (a) and (b) report time-varying (yearly or monthly) coefficients on the effect of Jewish connections on squared demeaned daily returns. These coefficients are imprecisely esti-

¹⁵To compute those numbers, we first multiply the monthly coefficient from panel (a), column 2 with each firm’s fraction of Jewish board members, accumulate it over 24 months, and then take the weighted average on the subsample of all Jewish-connected firms and on the full population of all listed firms, weighting each firm by its market value at the publication of “J’Accuse”. The results are almost identical if we use instead the estimate in column 1 (based on daily returns).

Figure 2: Stock Volatility of Jewish-Connected Firms Before and After “J’Accuse”



Notes: This figure reports estimates from the following specification: $y_{it} = \sum_t \beta_t JewishConnections_i \times Period_t + \delta_i + \delta_t + \delta_{sm} + \varepsilon_{it}$, where *Period* denotes years in panel (a) and months in panel (b). y_{it} are squared daily stock returns measured for firm i on day t . δ_i , δ_t , and δ_{sm} are firm, day, and sector-by-month fixed effects, respectively. *JewishConnections_i* is a standardized index of the two measures of Jewish connections we use in Tables 2 through 5, namely the fraction of Jewish board members and a dummy for firms with a Jewish CEO. In panel (b), the dashed grey line indicates 90% confidence intervals. Standard errors are clustered by firm. The red line highlights the publication of “J’Accuse” on January 13, 1898.

mated given the noisy nature of the data on squared returns. Nonetheless, Jewish connections seem to be associated with a rise in stock volatility after January 1898. Panel (b) shows that this effect gradually subsides through 1899, as the uncertainty around the Dreyfus case is gradually resolved.

Table 3 provides additional evidence that the rehabilitation campaign increased stock volatility for Jewish-connected firms. We use two measures of volatility: squared daily, demeaned raw returns (column 1) and the within-month standard deviation of daily returns (column 2). Across panels (a) and (b), 3 out of 4 estimates of interest are positive and statistically significant. For example, having a Jewish CEO is associated with a 0.26 SD increase in monthly volatility after “J’Accuse” (panel b, column 2). There is some evidence that this increase in volatility was largest in the immediate aftermath of “J’Accuse” and subsided afterwards—Appendix Table A.8 documents this non-monotonic relationship.¹⁶

Columns 3 and 4 of Table 3 look at a measure of risk-adjusted returns: daily returns (column 3) and monthly returns (column 4) divided by the within-firm standard deviation of returns (the Sharpe ratio). We use the standard deviation calculated within firm-month (for daily returns) in column 3 and within firm-year (for monthly returns) in column 4.¹⁷ Across both measures of Jewish connections,

¹⁶In Appendix Table A.8, we interact the difference-in-differences term in equation (2) with the time (days or months) elapsed since “J’Accuse”. The dependent variables are the same measures of volatility as those used in Table 3. Columns 1 and 3 of this table show the negative association between volatility and time elapsed since “J’Accuse”. Columns 2 and 4, where we additionally interact the relevant terms with dummies for 1898 and 1899, shows that the eventual decline in volatility was strongest during the rest of the year 1898.

¹⁷If a stock is not traded in a given month, we impute the standard deviation at the within-firm average SD of returns.

Table 3: Volatility and Risk-Adjusted Returns After “J’Accuse”

	Volatility		Risk-Adjusted	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly
(a) % of Jewish Board Members				
% Board Members × Post J’Accuse	4.806* (2.712)	0.527 (0.365)	0.126*** (0.041)	0.492* (0.278)
R ²	0.03	0.49	0.02	0.23
Mean Returns	2.217	1.004	0.017	0.091
Firms	131	131	131	131
Observations	239730	9301	239730	9301
(b) Jewish CEO				
Jewish CEO × Post J’Accuse	1.953** (0.911)	0.257** (0.103)	0.032** (0.015)	0.166** (0.084)
R ²	0.03	0.49	0.02	0.23
Mean Returns	2.217	1.004	0.017	0.091
Firms	131	131	131	131
Observations	239730	9301	239730	9301

Notes: This table reports estimates from equation (2). The dependent variables are demeaned squared daily returns in column 1, the monthly standard deviation of daily returns in column 2, and risk-adjusted returns in columns 3–4. Risk-adjusted returns are calculated as raw returns (daily or monthly) divided by the firm-specific standard deviation of raw returns for each firm. In panel (a), Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

the difference-in-differences estimate is positive and significant, and effect sizes are in line with those reported in Table 2. For example, the difference in daily returns between a board with 100% Jewish board members and a board with zero Jewish board member is approximately 0.13 SD. While stock volatility increased after “J’Accuse” for firms with Jewish connections, investors who bet on these firms were more than compensated for this increased risk.¹⁸

Robustness Checks. Appendix Tables A.10 through A.15 report robustness checks for our core results in Tables 2 and 3. Throughout these tables, we look at raw returns and risk-adjusted returns (defined as in column 1–2 of Tables 2 and columns 3–4 of Table 3, respectively) measured either daily or monthly. As we describe below, our results are overall robust to these specification checks.

¹⁸We further probe this result in Appendix Table A.9. There, we divide daily and monthly returns by the firm-specific standard deviation of returns measured either before “J’Accuse” (in columns 1–2), or after “J’Accuse” (columns 3–4).

In Appendix Table A.10, we show that our key robust is robust to controlling for foreign connections interacted with an indicator for trading days after “J’Accuse”. Some prominent Jewish families, such as the Rothschilds, were regularly attacked for their connections with other countries. One concern could be that investments in firms with Jewish connections reflected broader patriotic or nationalistic sentiment rather than antisemitic biases. Here, foreign connections are defined as an indicator capturing firms headquartered abroad or firms with investments abroad. Our estimate of the effect of Jewish connections is unchanged after controlling for this measure of foreign connections.

Appendix Table A.11 shows that our results are not driven by the liquidity of stocks in our data. Compared to contemporary financial data, liquidity is low in our context: 31% of stocks are not traded on any given day. First, we show that the difference-in-differences estimate has little to no impact on liquidity (proxied by trading frequency). We look at two proxies for daily liquidity and monthly liquidity in columns 1 and 2, respectively. Second, we estimate equation (2) on the subsample of stocks with high trading frequency, namely all liquid stocks on any given day (columns 3 and 4) and stocks traded during at least 50% of days in a given month (columns 5 and 6). Our core results hold in this selected subsample.

In Appendix Table A.12, we look at an intent-to-treat measure of Jewish connections on the right-hand side of equation (2): namely Jewish connections measured on November 2, 1894—the day when Dreyfus’ arrest was first revealed. This check ensures that our results are not driven by changes in the board composition of firms. Recall that overall, firms experience few changes in their board composition, and firms with Jewish connections are no more likely to experience such changes (Appendix Table A.3).

Appendix Table A.13 reports estimates from a modified version of equation (2) including the following controls interacted with the post-“J’Accuse” dummy in addition to firm and trading day fixed effects: sector dummies, admission type, guarantee type (a dummy for stocks guaranteed by the French state), foreign ownership, whether the firm has investments abroad, and the number of outstanding shares. This specification ensures that our difference-in-differences estimator is not picking up correlated shocks or other differential effects of these variables after “J’Accuse”.

Appendix Table A.14 looks at Jewish connections computed using Lévy (1960). While our systematic hand-coding of the board membership data makes us confident that we are not overcounting or undercounting Jewish connections in corporate boards (see Section 3.2), the robustness of our results to this alternative measure ensures that our core findings are not driven by (non-classical) measurement error.

Finally, in Appendix Table A.15, we replicate the baseline estimates from Tables 2 and 3 and then report the corresponding estimates after dropping each of the ten largest sectors one at a time. Some of these sectors, notably banking, mining, and food products, were often singled out by the antisemitic press as being controlled by Jewish capital (Wilson, 2007). Overall, the positive returns associated with Jewish board members after “J’Accuse” do not seem driven by firms in any particular sector.

5.3 Media Coverage

To what extent were the excess returns of Jewish-connected firms caused by an increase in media coverage of the Affair—in particular, coverage that revealed the conspiracy against Dreyfus? Extensive work by historians suggests that the newspaper press played a decisive role in triggering shifts in public opin-

Table 4: Stock Returns and Media Coverage

	Daily Returns		Monthly Returns	
	(1)	(2)	(3)	(4)
(a) % of Jewish Board Members				
% Board Members × Media Coverage	0.161*		5.352**	
	(0.086)		(2.551)	
% Board Members × Dreyfusard Coverage		0.489		24.315**
		(0.401)		(11.761)
% Board Members × Anti-Dreyfusard Coverage		-0.229		-17.314
		(0.341)		(10.625)
R ²	0.02	0.02	0.16	0.16
Mean Returns	0.019	0.019	0.416	0.416
Firms	131	131	131	131
Observations	239730	239730	9301	9301
(b) Jewish CEO				
Jewish CEO × Media Coverage	0.049*		1.336	
	(0.027)		(0.810)	
Jewish CEO × Dreyfusard Coverage		0.124		9.253**
		(0.128)		(3.627)
Jewish CEO × Anti-Dreyfusard Coverage		-0.040		-8.127**
		(0.112)		(3.256)
R ²	0.02	0.02	0.16	0.16
Mean Returns	0.019	0.019	0.416	0.416
Firms	131	131	131	131
Observations	239730	239730	9301	9301

Notes: This table reports estimates from equation (3). The dependent variables are daily returns in columns 1–2 and monthly returns in columns 3–4. In panel (a), Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. Media Coverage is defined as the total number of paragraphs (in hundreds) dedicated to the Dreyfus Affair across the following 5 outlets: *Le Siècle*, *Le Petit Journal*, *La Croix*, *L'Aurore*, and *La Libre Parole*. All newspapers are in circulation during the entire 1894–99 period except *L'Aurore* (circulation begins in October 1897). In columns 2 and 4, Dreyfusard coverage is the total number of paragraphs dedicated to Dreyfus across *Le Siècle* and *L'Aurore*. Anti-Dreyfusard coverage is the number of paragraphs dedicated to Dreyfus across *La Croix*, *Le Petit Journal*, and *La Libre Parole*. All regressions include firm fixed effects, trading day fixed effects and sector-by-month fixed effects.

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors two-way clustered by firm and trading day.

ion throughout the crisis (Reinach, 1901; Bousset, 1960; Miquel, 2003). The Affair also coincided with a rapid growth of the written press in France (Noiriel, 2019).

To explore the role of the press in explaining the excess returns from Tables 2 and 3, in Table 4 we report estimates from equation (3). Compared to our baseline specification, here we replace the indi-

cator for trading days after “J’Accuse” with the total coverage of the Dreyfus case on the previous day across five newspapers: *Le Siècle*, *La Croix*, *Le Petit Journal*, *L’Aurore*, and *La Libre Parole*. Our measure of coverage takes the sum of all newspaper paragraphs dedicated to Dreyfus across all outlets.¹⁹ Section 3.3 provides relevant background on each of the five outlets, and Appendix Figure A.3 illustrates the dramatic increase in coverage of the Dreyfus Affair by *Le Siècle* and *La Croix*.²⁰

Table 4 provides suggestive evidence that media coverage of the Affair affected investors’ perceptions of firms with Jewish board members and, in doing so, contributed to the increase in stock returns experienced by these firms after “J’Accuse”. Panel (a) looks at the fraction of Jewish board members, and panel (b) looks at firms with a Jewish CEO. Columns 1 and 3 show a positive and significant association between stock returns and the interaction of our two measures of Jewish connections with total media coverage of the Dreyfus Affair on the previous day.

In columns 2 and 4 of Table 4, we disaggregate this analysis by the type of coverage—Dreyfusard (*L’Aurore* and *Le Siècle*) and anti-Dreyfusard (*La Croix*, *Le Petit Journal* and *La Libre Parole*). The estimates in these columns suggest that the positive effect of media coverage is driven by Dreyfusard reporting by newspapers such as *L’Aurore* and *Le Siècle*. Anti-Dreyfusard coverage by *La Croix*, *Le Petit Journal* and *La Libre Parole* has the opposite effect. The coefficients associated with Dreyfusard and anti-Dreyfusard coverage are significantly different from each other in panel (b) of column 4.

Overall, Table 4 shows that the newspaper press likely played an important role in bringing about the excess returns of Jewish-connected stocks after “J’Accuse”. In the following section, we hypothesize that this media coverage contributed to debiasing antisemitic investors, thereby increasing demand for Jewish-connected stocks and enabling arbitrage by all investors.

5.4 Ruling out expectations of future discrimination

One potential explanation for our findings thus far could be that investors expected an antisemitic backlash against firms with Jewish board members. For example, an antisemitic stance by the government could have translated into adverse procurement policies affecting the returns of firms with Jewish board members. Or, firms engaged in retail activities could have faced an antisemitic backlash from their customer base. These mechanisms, either actual or perceived, could have affected the economic fundamentals of firms with Jewish connections.

While plausible, these mechanisms are unlikely to be driving our results, for the following reasons. First, most firms traded in the Paris Stock Exchange had little exposure to retail activities. This would have reduced the likelihood of an antisemitic backlash by customers. Second, while the political class was divided in terms of how to resolve the Dreyfus crisis, there was no viable political force advocating for antisemitic economic policies. In 1898, a handful of legislative candidates did run under the banner of an “Antisemitic League” led by Edouard Drumont, but these candidates remained on the fringe of

¹⁹Using the average fraction of paragraphs delivers similar results, as we show in Appendix Table A.16.

²⁰In addition to the spike around “J’Accuse”, the figure shows a blip in coverage in December 1897. We attribute this to the efforts of two individuals, Emile Zola and the politician Auguste Scheurer-Kestner, to denounce the conspiracy against Dreyfus. Since these efforts really came to fruition with “J’Accuse”, we use the latter date as the turning point in our difference-in-differences. All our estimates are robust to using December 1897 instead of January 1898 as the turning point.

Table 5: Stock Returns of Jewish-Connected Firms After “J’Accuse”
Heterogeneity by Government and Retail Exposure

	Daily Returns				Monthly Returns			
	(1) Baseline	(2) State Gtd.	(3) Foreign	(4) No Retail	(5) Baseline	(6) State Gtd.	(7) Foreign	(8) No Retail
	(a) % of Jewish Board Members							
% Board Members × Post J’Accuse	0.178** (0.079)	0.567* (0.306)	0.567* (0.281)	0.174** (0.086)	4.823** (2.301)	15.014* (8.493)	17.108* (8.388)	4.696* (2.487)
R ²	0.02	0.05	0.06	0.02	0.16	0.14	0.32	0.16
Mean Returns	0.019	0.012	0.024	0.018	0.416	0.217	0.538	0.407
Firms	131	29	30	114	131	25	28	113
Observations	239730	53070	54900	208620	9301	1775	1988	8023
	(b) Jewish CEO							
Jewish CEO × Post J’Accuse	0.059** (0.025)	0.134* (0.073)	0.085* (0.042)	0.059** (0.026)	1.559** (0.712)	3.322 (1.982)	2.610** (1.185)	1.548** (0.722)
R ²	0.02	0.05	0.06	0.02	0.16	0.14	0.32	0.16
Mean Returns	0.019	0.012	0.024	0.018	0.416	0.217	0.538	0.407
Firms	131	29	30	114	131	25	28	113
Observations	239730	53070	54900	208620	9301	1775	1988	8023

Notes: This table reports estimates from equation (2). The dependent variables are daily returns in columns 1 to 4 and monthly returns in columns 5 to 8. In panel (a), Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. Columns 1 and 5 reproduce our baseline estimates from Table 2. Columns 2 and 6 look at the subsample of state-guaranteed firms. Columns 3 and 7 look at the subsample of firms with no retail activities. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects. * p<0.1, ** p<0.05, *** p<0.01. Robust standard errors clustered by firm.

mainstream politics. The few elected MPs were often ridiculed in Parliament (Joly, 2007). The group was disbanded in 1901 and Drumont himself failed to win reelection in 1902. Liberal French governments never enacted or considered antisemitic policies under the Third Republic, spanning 1870-1940, and no viable party advocated for antisemitic policies until the advent of the Vichy regime.

Third, Figure 1 shows that investors did not respond to the early stages of the Affair by divesting their Jewish-connected assets. The market valuation of these firms did not substantially change during the period before “J’Accuse”. While Dreyfus’ degradation did cause negative abnormal returns among Jewish-connected firms (Table 1), this negative effect was short-lived. Notably, the firms with Jewish connections also did not respond to the Dreyfus Affair by changing their board composition to make their connections less salient to investors (Appendix Table A.3).²¹

²¹In addition, Appendix Figure A.5 shows that the early stages of the Affair did not trigger a capital flight away from the Stock Market as a whole. Total market capitalization experienced a substantial drop in late 1895. This mini-crash occurred as a result of a failed raid against the government of the Transvaal (known as the Jameson raid) leading to uncertainty around gold production in South Africa (Van-Helten, 1985).

Nonetheless, we explore this alternative interpretation in Table 5, where we estimate returns for firms that were not exposed to an antisemitic backlash by the state or the market. We estimate equation (2) for two subsamples of interest: state-guaranteed firms and firms with no substantial retail activities. For comparison, columns 1 and 4 replicate the coefficients from columns 1 and 3 of Table 2. We look at daily returns in columns 1 through 3 and monthly returns in columns 4 through 6.

First, we look at a subsample of state-controlled or state-guaranteed firms. These firms were institutionally protected by the state and therefore sheltered from the threat of adverse government policies. We include in this subset firms benefitting from a state guarantee, firms operating a government monopoly, and firms with a government-appointed director. The guarantee scheme was defined in national laws adopted in 1859 and 1883 and committed the state to guarantee some interest rate (usually 4 percent) on the capital invested by the beneficiary companies. This scheme effectively established a regulated lower bound for the prices of these stocks, thus increased expected prices and reduced policy-related uncertainty. State-granted (French or foreign) monopolies gave companies exclusive privileges over a commodity or infrastructure project, for example Vichy waters or the Suez Canal. These privileges provided monopolistic market power, shielding those stocks and their holders from potential shocks to how the government may have treated Jewish-connected firms. Finally, government appointments of directors (most common among banks) implied *de facto* supervision by the state, which again indicated the state's own strong interest in those firms' operations and profits, hence their limited exposure to potentially discriminatory policies. If our key result of positive returns after "J'Accuse" was mainly driven by changing expectations about policies towards Jewish-connected firms, then the Dreyfus rehabilitation campaign should have had limited effects on firms in this subsample.

Columns 2 and 6 of Table 5 show that state-controlled or guaranteed firms with Jewish board members did, in fact, experience larger returns after "J'Accuse". All the coefficients of interest are larger in magnitude than the baseline estimates obtained with the full sample, and 3 out of these 4 coefficients are statistically significant. Since these firms maintained legally binding institutional connections with the state throughout the period, the increase in returns they experienced after "J'Accuse" could only have come from changing antisemitic sentiment among investors.

Next, we look at firms operating primarily or exclusively in foreign countries, excluding French colonies. These include all foreign-owned firms listed in the Paris Stock Exchange, as well as five additional firms with assets and operations located exclusively abroad. There are 30 such firms in total, operating in Austria, Greece, Italy, the Philippines, Poland, Portugal, Russia, Spain, and the Ottoman Empire. Firms with the core of their business operations abroad should also have been less exposed to the prospect of adverse government policies or regulations.²² Yet, columns 3 and 7 of Table 5 show that firms operating in foreign countries did, in fact, experience larger returns after "J'Accuse" when they had more Jewish board members.

Finally, we look at firms without a substantial retail component in their business operations. We drop from the sample firms with the following activities: retail banks, newspapers and press agencies, retail

²²Recall from Appendix Table A.2 that firms with Jewish connections are more likely to be headquartered abroad. We report this test nonetheless since we find it informative for interpreting our main results. Appendix Table A.13 shows robustness to controlling for this variable interacted with the post-"J'Accuse" dummy.

food and water products, and department stores.²³ The firms remaining in the sample should have had little exposure to a market backlash via antisemitic customers. However, in column 4 and 8 of Table 5 we again find strong positive effects on returns among this subsample. Overall, Table 5 suggests that the key findings in Tables 2 and 3 are unlikely to be driven by diverging expectations about the market environment faced by Jewish-connected firms.

Dividends. Another relevant test involves looking at the Dreyfus Affair’s impact on the actual profitability of firms with Jewish connections. Appendix Table A.17 reports effects on dividends. While dividends only imperfectly respond to changes in profitability, this is the best available proxy given the lack of available data on firms’ balance sheets. Here, we estimate a difference-in-differences specification measuring the dividends of firms with Jewish connections before and after “J’Accuse”. This is analogous to equation (2) except that the regression is now estimated using a dataset at the firm-year level—the level at which dividends are observed. Firms are exposed to the Dreyfus rehabilitation campaign in 1898 and 1899, while the years 1893-1897 are used as comparison years.

We look at two measures of dividends in Appendix Table A.17: log dividends in columns 1 and 2, and dividends as a fraction of the share price in columns 3 and 4; and we report results with and without sector-by-year fixed effects in even-numbered and odd-numbered columns, respectively. Overall, yearly dividends averaged approximately 4% of the share price during this period. Across both measures of dividends and both measures of Jewish connections, we find no evidence that the profitability of Jewish-connected improved in 1898-99, after the publication of “J’Accuse”. Jewish board membership has a negative effect on log dividends in panels (a) and (b). All estimates in columns 3–4 are small in magnitude and statistically insignificant. Overall, there is no evidence suggesting that the Dreyfus Affair affected the profitability of firms with Jewish board members as measured by dividends.

6 Model: Antisemitic Traders with Incorrect, Noisy Beliefs

Our results thus far can be summarized as follows. On the one hand, major episodes of the Dreyfus Affair had sizeable impacts on the stock returns of firms with Jewish board members in the short run. These impacts are negative around Dreyfus’ degradation in 1895, the peak of France’s antisemitic outburst, and positive around events leading to Dreyfus’ rehabilitation. On the other hand, the same firms experienced consistently higher returns after the publication of “J’Accuse”, the starting point of a media campaign denouncing the antisemitic conspiracy against Dreyfus. This was not accompanied by a rise in actual profitability, as measured by dividends. Firms that were not at risk of an antisemitic backlash by the state or the market also experienced this increase in returns.

Our preferred interpretation focuses on the existence of antisemitic investors biased against Jewish stocks. This interpretation builds on the large historical record indicating the ubiquity of antisemitic sentiment in late 19th century France. At the onset of the Affair, antisemitic shocks among these investors

²³The idea that these sectors were controlled by Jewish finance was a common theme in the antisemitic press. A 1898 pamphlet by *La Croix* wrote: “The emporia and the big stores ... are ruining local business. One sees some Lévy or other set up in a place, and by means that the Jew alone knows how to employ, he very soon forces local business to founder in face of the competition which it is impossible to withstand (Wilson, 2007, p.280).

produced short-lived abnormal returns for Jewish-connected firms. “J’Accuse”, on the other hand, increased perceived risk but reduced antisemitic biases in the long run. The media campaign that followed it made these biases more salient and encouraged some investors to engage in arbitrage.

We illustrate this interpretation with a conceptual framework expanding on De Long et al. (1990)’s seminal model of noise traders. We closely follow the minimal setting in De Long et al. (1990), but we introduce two types of risky assets, and we conceptualize noise traders as biased investors who discriminate against Jewish-connected stocks. This section outlines the main takeaways from the model while Appendix B presents the formal derivations.

Model. As in De Long et al. (1990), young agents in a two-period overlapping generations model choose an investment portfolio in the first period, only to sell it to consume when old in the second period. Each agent maximizes a CARA utility function, $U \stackrel{def}{=} -e^{-2\gamma w}$, where γ is the coefficient of absolute risk aversion and w is the expected final wealth. Here, agents can hold two types of risky assets: a representative stock of Jewish firms J and one of non-Jewish firms N . Both stocks and the riskless asset pay the same fixed dividend r in the second period. All investors hold correct beliefs over the riskless rate r , but their beliefs differ for the other two.

Demand for stocks emanates from two types of investors: neutral investors with unbiased beliefs, and antisemitic investors. Antisemitic traders, representing a share μ of the population, hold a bias ρ_t^N on the price p_t^N of non-Jewish stocks and ρ_t^J on the price p_t^J of Jewish stocks:

$$\mathbf{p}_t = \begin{pmatrix} p_t^N \\ p_t^J \end{pmatrix}, \quad \boldsymbol{\rho}_t \stackrel{def}{=} \begin{pmatrix} \rho_t^N \\ \rho_t^J \end{pmatrix} \sim \mathcal{N}(\boldsymbol{\rho}^*, \boldsymbol{\Sigma}_\rho), \quad \text{with } \boldsymbol{\rho}^* \stackrel{def}{=} \begin{pmatrix} \rho^{*N} \\ \rho^{*J} \end{pmatrix}, \quad \boldsymbol{\Sigma}_\rho \stackrel{def}{=} \begin{bmatrix} \sigma_\rho^{N2} & \sigma_\rho^{NJ} \\ \sigma_\rho^{NJ} & \sigma_\rho^{J2} \end{bmatrix}$$

where the average long-term biases ρ^{*J} and ρ^{*N} are respectively negative and positive, and $\boldsymbol{\Sigma}_\rho$ denotes the variance-covariance matrix between the antisemitic investors’ two biases.²⁴ The model is then solved recursively by maximizing each type of investors’ utility in a steady state equilibrium (see Appendix B).

Under these assumptions, the main asset pricing equation in the model (equation (P)) shows that stock prices fluctuate as a result of short-term shocks, long-term biases in antisemitic beliefs, and antisemitic trader risk:

$$\mathbf{p}_t = \mathbf{1} + \frac{\mu}{1+r}(\boldsymbol{\rho}_t - \boldsymbol{\rho}^*) + \frac{\mu}{r}\boldsymbol{\rho}^* - \frac{2\gamma\mu^2}{r(1+r)^2}\boldsymbol{\Sigma}_\rho\mathbf{1}. \quad (\text{P})$$

Since earnings are normalized to 1, asset prices deviate from fundamentals by a term dependent on the short-term shock in antisemitic investors’ beliefs $(\boldsymbol{\rho}_t - \boldsymbol{\rho}^*)$, a term capturing their long-term biases $(\boldsymbol{\rho}^*)$, and the last term that captures the effect of the presence of antisemitic investors among risk-averse investors. Since $\rho^{*J} < 0$ and $\rho^{*N} > 0$, Jewish stocks are underpriced relative to other stocks. In addition, because of the last term in (P), uncertainty surrounding the behavior of antisemitic traders drive all asset prices downward and limits arbitrage opportunities for all agents. Jewish stocks are more affected by the uncertainty effect if there is more uncertainty regarding antisemitic beliefs, namely $\sigma_\rho^{J2} > \sigma_\rho^{N2}$.

²⁴While not needed to deliver the model’s key insights, the positive bias towards non-Jewish stocks intuitively ensures that antisemitic investors can survive in the long run. Note however that the fraction of antisemitic traders is fixed in this setup.

Our main results can be interpreted in light of this model. Salient, exogenous outbursts of anti-semitism trigger idiosyncratic shocks on antisemitic biases, i.e., changes in ρ_t^J that only last as long as each event’s saliency. Thus, episodes at the onset of the Affair, such as Dreyfus’ degradation, produced short-lived negative CARs among Jewish-connected firms, whereas positive news in later stages, e.g., Dreyfus’ pardon, had similarly short-lived but opposite effects.

Fundamentally different from earlier events that pushed public opinion unequivocally against Dreyfus, the publication of “J’Accuse” rattled and polarized beliefs in the French society, and entailed two mechanisms that affected asset prices. Akin to a shock on the variances of antisemitic investors’ biases, “J’Accuse” increased the volatility of Jewish stocks (in σ_ρ^{J2}), which depressed their stock prices by the last term of equation (P). This explains the large dip right after “J’Accuse”, as seen in Figure 1. Following “J’Accuse”, however, the media campaign started to gradually reduce inherent antisemitic biases in ρ^{*J} , causing an appreciation of Jewish stocks relative to non-Jewish ones. In the long run, Dreyfus’ rehabilitation also reduced the uncertainty about antisemitic beliefs, i.e., lowering σ_ρ^{J2} , further contributing to improve the relative prices of Jewish stocks.

Comparison with discrimination in the labor market. The model delivers familiar insights when compared to Becker’s (1957) seminal analysis of discrimination in labor markets, in the sense that discrimination creates rents that can be exploited at the expense of discriminating agents. In both markets, the market price of the minority factor is depressed due to discriminatory biases, and unbiased investors can arbitrage the price gap to some extent.

However, given the emphasis on discrimination in financial markets, our model differs from the Beckerian framework in its emphasis on the importance of risk. Because of risk aversion, every investor in our model, from the most to the least antisemitic, generically chooses to buy or sell both Jewish and non-Jewish stocks—unlike employers in the labor market, investors can buy or sell any quantity of stocks. As a result, any change in the distribution of antisemitic biases induces all investors to re-optimize their portfolios, which eventually affects equilibrium prices. These insights are markedly different from those drawn from the labor market case, in which the most discriminating employers do not hire any minority workers, and only the marginal employers’ bias matters for marketwide discrimination (Heckman, 1998; Charles and Guryan, 2008; Lang and Lehmann, 2012).²⁵

The implication that every investor is affected by changes in the distribution of biases raises the perennial question whether biased investors will be driven out of the market in the long run, a prediction originating from Becker’s model and emphasized by Arrow (1972). While subsequent work on labor market discrimination has shown several reasons why one need not expect competition to drive out discrimination in the long run, such as imperfect information in job search (Black, 1995), rigidity of wage posting (Lang et al., 2005), and discrimination seen as favoritism (Goldberg, 1982), our model provides a different mechanism to explain the persistence of discrimination. Biased agents in our model prefer

²⁵The segregation of minority workers across firms is a strong theme in Becker’s original model, even if it does not predict perfect segregation, and a key result in the following theoretical literature on taste-based discrimination since Arrow (1972). When the second moment of payoffs become important, as in our model of discrimination in the financial market, segregation is no longer a generic possibility.

to invest more in the stocks for which they hold excessively optimistic valuations. Since all stocks are under-priced because of the volatility of biases (the last term in equation (P)), this behavior leads to stronger returns for biased agents, even though it exposes them to higher risks than they expect. Under certain general conditions, such excess returns offset the excess losses they make from underinvesting in the discriminated stocks. Overall, biased investors may earn higher expected net returns than unbiased ones, and survive in the long run—Appendix B.2 elaborates on this possibility. This mechanism builds on De Long et al.’s (1990) insights on the role of noise traders and limited arbitrage in financial markets, and differs fundamentally from existing analyses of taste-based discrimination in labor markets.

Overall, our model highlights how changes in the distribution of biases allow investors to capture rents from discrimination by betting more on Jewish firms. However, this arbitrage is neither riskless nor instantaneous in a world of risk-averse investors facing uncertain biases. In our data, the gradual pace of debiasing (illustrated by the long period during which Jewish-connected firms experienced excess returns) underlines the potential resilience of discriminatory beliefs in financial markets.

7 Conclusion

Firms with Jewish board members experienced substantial financial unrest during the Dreyfus Affair, a major societal crisis in late 19th century France and a milestone in the global history of antisemitism. The Affair first prompted a furious outburst of antisemitism, then polarized French society after evidence about the miscarriage of justice began to emerge. While revelations about the Dreyfus case exposed the deep entrenchment of antisemitism in French society, Dreyfus’ rehabilitation eventually led to its demise as a broad-based ideology. We show that the stocks of firms with Jewish connections yielded excess returns during this rehabilitation campaign, amounting to a discrimination rent of around 7% of the total value of the stock market. In our preferred interpretation, changing attitudes in society after the publication of “J’Accuse” encouraged arbitrage and enabled some investors to capture excess returns. However, the convergence of the price of Jewish-connected stocks towards the price predicted by their fundamentals did not occur instantly, because of the uncertainty surrounding antisemitic beliefs.

Our conceptual framework illustrates how two competing forces affect assets associated with a minority group in times when social norms towards this group are rapidly changing. In the case of the Dreyfus Affair, revelations about the miscarriage of justice debiased some investors and encouraged arbitrage, but the risk and volatility associated with the beliefs of antisemitic investors may have simultaneously deterred and slowed down such arbitrage. The combined effect of these forces led to a gradual appreciation of the market valuation of Jewish-connected firms throughout the course of the Affair. These results highlight the essential role of risk and risk-aversion in the persistence of discrimination in all markets. While arbitrage against discriminators can allow market participants to earn excess returns, the uncertainty surrounding discriminatory beliefs can limit the extent of arbitrage in practice and allow discrimination to survive in the long run.

References

- Adida, Claire L., Adeline Lo, and Melina R. Platas**, "Perspective taking can promote short-term inclusionary behavior toward Syrian refugees," *Proceedings of the National Academy of Sciences*, 2018, 115 (38), 9521–9526.
- Arrow, Kenneth**, "Some Mathematical Models of Race in the Labor Market," in A.H. Pascal, ed., *Racial Discrimination in Economic Life*, Lexington, MA: Lexington Books, 1972.
- Banerjee, Abhijit and Kaivan Munshi**, "How Efficiently Is Capital Allocated? Evidence from the Knitted Garment Industry in Tirupur," *The Review of Economic Studies*, 2004, 71 (1), 19–42.
- Barrera, Oscar, Sergei Guriev, Emeric Henry, and Ekaterina Zhuravskaya**, "Facts, Alternative Facts, and Fact Checking in Times of Post-Truth Politics," *Journal of Public Economics*, 2020, 182.
- Beaman, Lori, Esther Duflo, Rohini Pande, and Petia Topalova**, "Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India," *Science (New York, N.Y.)*, 02 2012, 335, 582–6.
- Becker, Gary**, *The Economics of Discrimination*, University of Chicago Press, 1957.
- Becker, Sascha O. and Luigi Pascali**, "Religion, Division of Labor, and Conflict: Anti-semitism in Germany over 600 Years," *American Economic Review*, May 2019, 109 (5), 1764–1804.
- Bennedsen, Morten and Stefan Zeume**, "Corporate Tax Havens and Transparency," *The Review of Financial Studies*, 2017, 31 (4), 1222–1264.
- Bertrand, Marianne and Esther Duflo**, "Field Experiments on Discrimination," NBER Working Papers 22014, National Bureau of Economic Research February 2016.
- Black, Dan A.**, "Discrimination in an Equilibrium Search Model," *Journal of Labor Economics*, 1995, 13 (2), 309–334.
- Bohren, J. Aislinn, Alex Imas, and Michael Rosenberg**, "The Dynamics of Discrimination: Theory and Evidence," *American Economic Review*, October 2019, 109 (10), 3395–3436.
- Boussel, Patrice**, *L'affaire Dreyfus et la presse*, Armand Colin, 1960.
- Byrnes, Robert Francis**, *Antisemitism in modern France. Volume I: The Prologue to the Dreyfus Affair*, Rutgers University Press, 1950.
- Campbell, John Y, Andrew L. Lo, and A. Craig MacKinlay**, *The Econometrics of Financial Markets*, Princeton University Press, 1997.
- Charles, Kerwin Kofi and Jonathan Guryan**, "Prejudice and wages: an empirical assessment of Becker's *The Economics of Discrimination*," *Journal of Political Economy*, 2008, 116, 773–809.
- D'Acunto, Francesco, Marcel Prokopczuk, and Michael Weber**, "Historical Antisemitism, Ethnic Specialization, and Financial Development," *The Review of Economic Studies*, 04 2018, 86 (3), 1170–1206.
- De Long, J. Bradford, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann**, "Noise Trader Risk in Financial Markets," *Journal of Political Economy*, 1990, 98 (4), 703–738.
- Doerr, Sebastian, Stefan Gissler, José-Luis Peydró, and Hans-Joachim Voth**, "From Finance to Fascism: The Real Effect of Germany's 1931 Banking Crisis," *CEPR Discussion Paper DP12806*, 2019.
- Ferguson, Thomas and Hans-Joachim Voth**, "Betting on Hitler—The Value of Political Connections in Nazi Germany," *The Quarterly Journal of Economics*, 02 2008, 123 (1), 101–137.
- Fisman, Raymond, Daniel Paravisini, and Vikrant Vig**, "Cultural Proximity and Loan Outcomes," *American Economic Review*, 2017, 107 (2), 457–492.

- , **Yasushi Hamao, and Yongxiang Wang**, “Nationalism and Economic Exchange: Evidence from Shocks to Sino-Japanese Relations,” *The Review of Financial Studies*, 2014, 27 (9), 2626–2660.
- Friedman, Milton**, “The Case for Flexible Exchange Rates,” in “Essays in Positive Economics,” Chicago: University of Chicago Press, 1953.
- Goldberg, Matthew S.**, “Discrimination, Nepotism, and Long-Run Wage Differentials,” *Quarterly Journal of Economics*, 1982, 97 (2), 307–319.
- Grange, Cyril**, *Une élite parisienne : les familles de la grande bourgeoisie juive (1870-1939)*, CNRS Edition, 2016.
- Grigorieff, Alexis, Christopher Roth, and Diego Ubfal**, “Does Information Change Attitudes Towards Immigrants? Representative Evidence from Survey Experiments,” *Working Paper*, March 2018.
- Grosfeld, Irena, Seyhun Orcan Sakalli, and Ekaterina Zhuravskaya**, “Middleman Minorities and Ethnic Violence: Anti-Jewish Pogroms in the Russian Empire,” *The Review of Economic Studies*, 01 2019, 87 (1), 289–342.
- Hautcoeur, Pierre-Cyrille and Angelo Riva**, “The Paris financial market in the 19th century: an efficient multi-polar organization?,” *PSE Working Paper no. 2007-31*, 2011.
- Heckman, James**, “Detecting Discrimination,” *Journal of Economic Perspectives*, 1998, 12, 101–16.
- Hellerstein, Judith K., David Neumark, and Kenneth Troske**, “Market Forces and Sex Discrimination,” *Journal of Human Resources*, 2002, 37 (2), 353–380.
- Hjort, Jonas, Changcheng Song, and Christopher Yenkey**, “Ethnic Investing and the Value of Firms,” *Working Paper*, 2019.
- Hong, Harrison and Marcin Kacperczyk**, “The price of sin: The effects of social norms on markets,” *Journal of Financial Economics*, 2009, 93 (1), 15 – 36.
- Huber, Kilian, Volker Lindenthal, and Fabian Waldinger**, “Discrimination, Managers, and Firm Performance: Evidence from “Aryanizations” in Nazi Germany,” *Working Paper*, October 2019.
- Huberman, Gur and Tomer Regev**, “Contagious Speculation and a Cure for Cancer: A Nonevent that Made Stock Prices Soar,” *The Journal of Finance*, 2001, 56 (1), 387–396.
- Joly, Laurent**, “Antisémites et Antisémitisme à la Chambre des Députés sous la IIIe République,” *Revue d’histoire moderne et contemporaine*, 2007, 54 (3), 63–90.
- Kawaguchi, Daiji**, “A market test for sex discrimination: Evidence from Japanese firm-level panel data,” *International Journal of Industrial Organization*, 2007, 25 (3), 441–460.
- Kelly, Bryan, Ľuboš Pástor, and Pietro Veronesi**, “The Price of Political Uncertainty: Theory and Evidence from the Option Market,” *Journal of Finance*, October 2016, 71 (5), 2417–2480.
- Kumar, Alok, Alexandra Niessen-Ruenzi, and Oliver G. Spalt**, “What’s in a Name? Mutual Fund Flows When Managers Have Foreign-Sounding Names,” *The Review of Financial Studies*, 2015, 28 (8), 2281–2321.
- Landes, David S.**, “French entrepreneurship and industrial growth in the nineteenth century,” *Journal of Economic History*, 1949, 9 (1), 45–61.
- , *The unbound Prometheus.*, Cambridge: Cambridge University Press, 1969.
- Lang, Kevin and Jee-Yeon K. Lehmann**, “Racial Discrimination in the Labor Market: Theory and Empirics,” *Journal of Economic Literature*, 2012, 50 (4), 959–1006.
- , **Michael Manove, and William T. Dickens**, “Racial Discrimination in Labor Markets with Posted Wage Offers,” *American Economic Review*, 2005, 95 (4), 1327–40.

- Lévy, Paul**, *Les Noms des Israelites en France. Histoire et dictionnaire*, Paris: Presses Universitaires de France, 1960.
- List, John A.**, "The Nature and Extent of Discrimination in the Marketplace: Evidence from the Field," *The Quarterly Journal of Economics*, 02 2004, 119 (1), 49–89.
- Miquel, Pierre**, *L'affaire Dreyfus*, Presses Universitaires de France, 2003.
- Murphy, Antoin E.**, "Corporate Ownership in France: The Importance of History," in Randall K. Morck, ed., *A History of Corporate Governance around the World*, Chicago, IL: University of Chicago Press, 2007.
- Noiriel, Gerard**, *Le Venin dans la Plume*, La Decouverte, 2019.
- O'Donovan, James, Hannes F. Wagner, and Stefan Zeume**, "The Value of Offshore Secrets: Evidence from the Panama Papers," *The Review of Financial Studies*, 2019, 32 (11), 4117–4155.
- Pager, Devah**, "Are Firms That Discriminate More Likely to Go Out of Business?," *Sociological Science*, 2016, 3 (36), 849–859.
- Reinach, Joseph**, *Histoire de l'Affaire Dreyfus*, La Maison Blanche, 1901.
- Sorlin, Pierre**, "La Croix" et les Juifs (1880-1899): contribution à l'histoire de l'antisémitisme contemporain., Paris: Grasset, 1967.
- Szymanski, Stefan**, "A Market Test for Discrimination in the English Professional Soccer Leagues," *Journal of Political Economy*, 2000, 108 (3), 590–603.
- Tillier, Bertrand**, *La République: La caricature politique en France, 1870-1914.*, Paris: CNRS Editions, 1997.
- Van-Helten, Jean Jacques**, "La France et l'Or des Boërs: Some Aspects of French Investment in South Africa between 1890 and 1914," *African Affairs*, 1985, 84 (335), 247–263.
- Vayanos, Dimitri and Jiang Wang**, "Liquidity and Asset Prices under Asymmetric Information and Imperfect Competition," *Review of Financial Studies*, 2012, 25, 1339–1365.
- Voigtländer, Nico and Hans-Joachim Voth**, "Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany," *The Quarterly Journal of Economics*, 07 2012, 127 (3), 1339–1392.
- Weber, Andrea and Christine Zulehner**, "Competition and Gender Prejudice: Are Discriminatory Employers Doomed To Fail?," *Journal of the European Economic Association*, 2014, 12 (2), 492–521.
- Wilson, Stephen**, *Ideology and Experience: Anti-Semitism in France at the Time of the Dreyfus Affair*, Liverpool University Press, 2007.
- Wolfers, Justin**, "Diagnosing Discrimination: Stock Returns and CEO Gender," *Journal of the European Economic Association*, 2006, 4 (2–3), 531–541.

Appendix (For Online Publication)

A Additional Empirical Results	33
Figures	33
Tables	38
B Model: Formal Derivations and Discussion	55
B.1 Model Setting	55
B.2 Interpretation	57
B.3 The Survival of Antisemitic Investors	58
C Data Appendix	60

List of Figures

1 Daily Returns of Jewish-Connected Firms Before and After “J’Accuse”	15
2 Stock Volatility of Jewish-Connected Firms Before and After “J’Accuse”	18
A.1 Coverage of the Dreyfus Affair in Mainstream Media	33
A.2 Antisemitic Coverage of the Dreyfus Affair	34
A.3 Media Coverage of the Dreyfus Affair	35
A.4 Distributions of Cumulative Abnormal Returns	36
A.5 Market Capitalization in the Paris Stock Exchange	37

List of Tables

1 Cumulative Abnormal Returns of Firms with Jewish Connections	13
2 Returns and Valuation of Jewish-Connected Firms After “J’Accuse”	16
3 Volatility and Risk-Adjusted Returns After “J’Accuse”	19
4 Stock Returns and Media Coverage	21
5 Stock Returns of Jewish-Connected Firms After “J’Accuse”	23
A.1 Summary Statistics	38
A.2 Sectors and Characteristics of Firms with Jewish Connections	39
A.3 Firm Board Changes during the Dreyfus Affair	40
A.4 Cumulative Abnormal Returns: Alternative Measures of Jewish Connections	41
A.5 Cumulative Abnormal Returns: Robustness	42
A.6 Cumulative Abnormal Returns Around Government Changes	43
A.7 Returns and Valuation of Jewish-Connected Firms After “J’Accuse”	44
A.8 Effects on Volatility: Non-Monotonicity	45
A.9 Additional Evidence on Risk-Adjusted Returns	46
A.10 Stock Returns: Jewish Connections and Foreign Connections	47
A.11 Stock Returns and Liquidity	48
A.12 Stock Returns: Intent-to-Treat Estimates	49
A.13 Stock Returns: Robustness to Additional Controls	50
A.14 Stock Returns: Robustness to the Lévy (1960) list	51
A.15 Stock Returns of Jewish-Connected Firms After “J’Accuse”	52
A.16 Stock Returns and Media Coverage: Robustness	53
A.17 Jewish Connections and Firm Dividends	54

A Additional Empirical Results

Figures

Figure A.1: Coverage of the Dreyfus Affair in Mainstream Media



(a) "The Traitor": Degradation of Dreyfus
January 1895



(b) "J'Accuse"
13 January 1898

Figure A.2: Antisemitic Coverage of the Dreyfus Affair



(a) Antisemitic Front Page by *La Libre Parole*

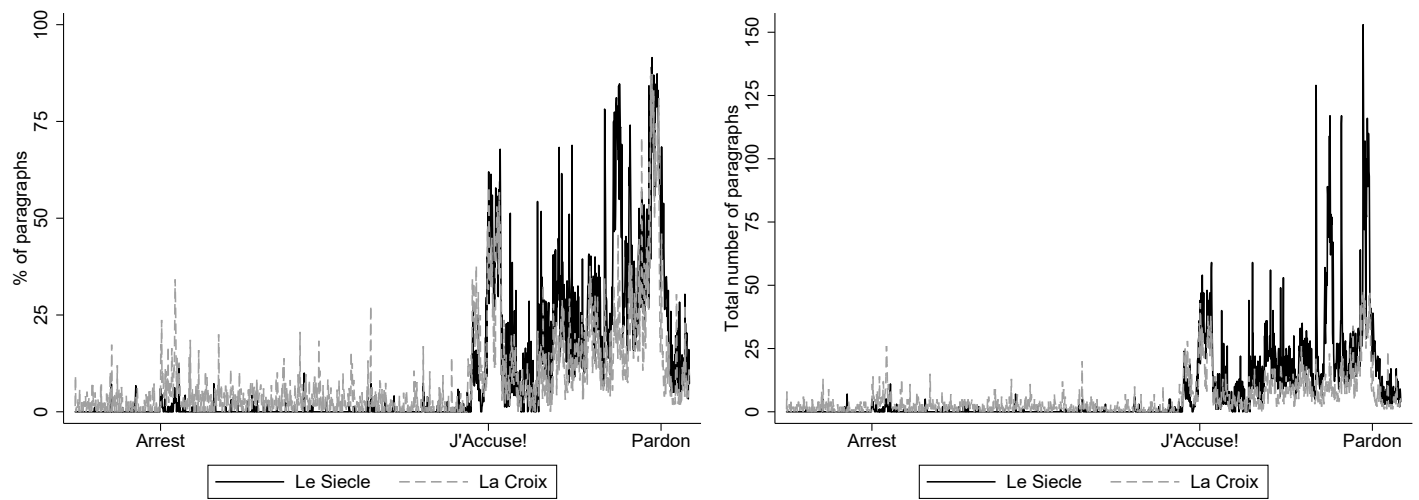


(b) Antisemitic Caricature

Figure A.3: Media Coverage of the Dreyfus Affair

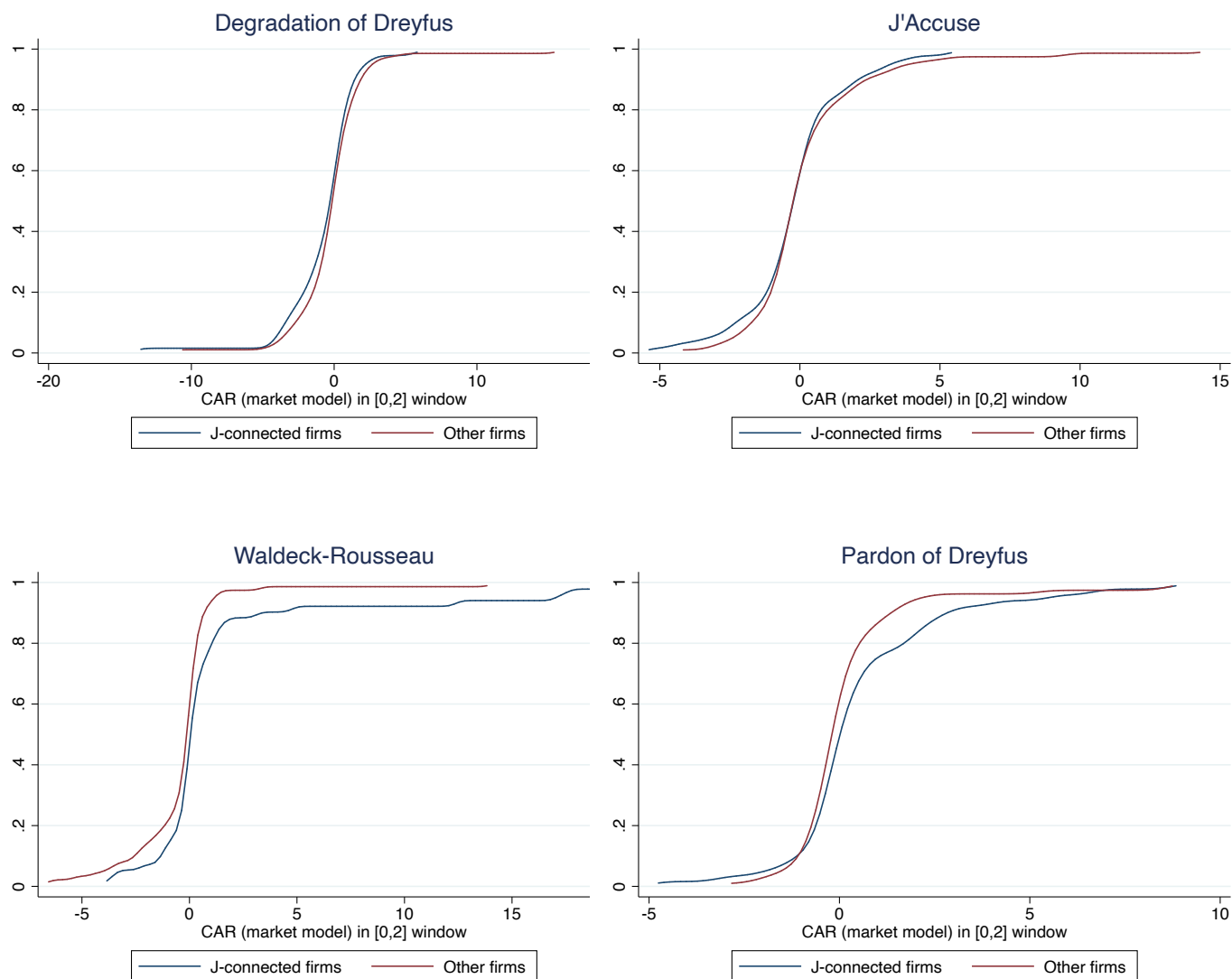
(a) Intensity of coverage

(b) Volume of coverage



Notes: This figure reports the average fraction of paragraphs (panel a) and the total number of paragraphs (panel b) dedicated to the Dreyfus Affair in *Le Siècle* and *La Croix*, the two newspapers with the largest readership on each side of the political spectrum. See Section 3 for details.

Figure A.4: Distributions of Cumulative Abnormal Returns



Notes: This figure reports the cumulative distribution functions of cumulative abnormal returns (CARs) around the same four key events examined in Table 1. J-connected firms are defined as firms with at least one Jewish board member. Other firms are defined as those with zero Jewish board member. We use a Gaussian kernel estimator with a bandwidth of 0.3 and we censor 1% of the distribution on each side. See Section 5 for details.

Figure A.5: Market Capitalization in the Paris Stock Exchange



Notes: This figure reports the total market capitalization of the Paris Stock Exchange between January 2, 1894 and December 30, 1899. The first vertical dashed grey line indicates the first news of Dreyfus' arrest on November 2, 1894. The second vertical dashed grey line indicates the publication of "J'Accuse" on January 13, 1898. The mini-crash in late 1895 was caused by political upheaval and uncertainty around gold production in South Africa ([Van-Helten, 1985](#)).

Tables

Table A.1: Summary Statistics

	Mean	SD	N
Financial data			
Liquidity (traded on any day)	0.685	0.465	239,730
Stock price (Fr.)	772.478	736.18	239,730
Daily returns	0.019	1.489	239,730
Daily value growth	0.023	1.862	239,730
Monthly returns	0.416	6.554	9,301
Monthly value growth	0.552	8.427	9,301
Market Capitalization (Million Fr.)	91.651	222.261	239,730
Number of shares	99,257.5	154,000	239,730
Capital (Nominal, Million Fr.)	45.823	75.811	239,730
Market-to-Book Ratio	2.603	7.489	239,730
Government guarantee	0.221	0.415	239,730
Headquarters abroad	0.165	0.372	239,730
Board Composition			
Board Size	9.89	4.93	239,730
Number of Jewish Board Members	0.603	0.915	239,730
% Jewish Board Members	0.067	0.11	239,730
Jewish CEO	0.155	0.366	239,730
% Jewish Board Members (Lévy list)	0.104	0.132	239,730
Media Coverage			
Media coverage before J'accuse (# paragraphs)	7.76	13.0	160,680
Media coverage after J'accuse (# paragraphs)	84.75	70.09	77,870
Dreyfusard coverage before J'accuse	0.98	4.95	160,680
Dreyfusard coverage after J'accuse	43.98	40.16	77,870
Anti-Dreyfusard coverage before J'accuse	6.78	9.10	160,680
Anti-Dreyfusard coverage after J'accuse	40.77	34.16	77,870

Notes: This table reports summary statistics from our financial data, data on Jewish connections, and data on newspaper coverage. See Section 3 for details. Jewish connections in the board of directors are measured using the [Grange \(2016\)](#) list unless otherwise indicated.

Table A.2: Sectors and Characteristics of Firms with Jewish Connections

	Firms (1)	% Board Members (2)	Jewish CEO (3)
<i>Sector</i>	(a) Jewish Connections by Sector		
Railways	26	0.078	0.289
Banking	22	0.044	0.178
Mining	19	0.056	0.068
Gas/Electricity	12	0.177	0.386
Insurance/Real Estate	11	0.039	0.091
Iron/Heavy Industry	10	0.012	0.080
Transports	10	0.051	0.149
Food, Liquors & Tobacco	7	0.056	0.143
Water	5	0.087	0
Telephone & Telegraphs	3	0.057	0
Docks/Warehouse	2	0.033	0
Media	2	0.053	0
Other	11	0.083	0
Total (average)	140	0.067	0.155
St. Dev.		(0.111)	(0.362)
Q1		0	0
Median		0	0
Q3		0.111	0
	(b) Firm Characteristics and Jewish Connections		
Liquidity (traded on any day)	0.69	-0.106 (0.18)	-0.017 (0.05)
Stock price (Fr.)	763.55	9.348 (601.45)	-211.686 (160.61)
Daily returns	0.02	-0.026 (0.02)	0.011 (0.01)
Market Capitalization (Million Fr.)	87.04	-3.937 (107.66)	-4.993 (59.26)
Number of shares	98.22	140.623 (141.2)	52.112 (49.9)
Capital (Nominal, Million Fr.)	43.99	66.353 (69.39)	28.621 (24.14)
Market-to-book ratio	2.56	-3.809 (3.38)	-1.655** (0.78)
Government guarantee	0.18	0.054 (0.29)	0.102 (0.11)
Headquarters abroad	0.15	0.798** (0.4)	0.42*** (0.12)
Board Size	9.86	-2.224 (2.97)	-0.405 (1.19)

Notes: Panel (a) reports descriptive statistics on Jewish board membership across all sectors in our data. Panel (b) reports the coefficients and standard errors from OLS regressions of the form: $y_i = \alpha + \beta JewishBoardMembers_i + \varepsilon_i$, where Jewish connections are measured as the fraction of Jewish board members (column 2), a dummy for firms with at least one Jewish board member (column 3), or a dummy for firms with a Jewish CEO (column 4). The sample averages differ slightly from those in Table A.1 since here we use data at the firm level instead of data at the firm-day level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Heteroskedasticity-robust standard errors in parentheses.

Table A.3: Firm Board Changes during the Dreyfus Affair

	% Board Members		Jewish CEO		≥ 1 Board Member	
	(1)	(2)	(3)	(4)	(5)	(6)
1895	-0.001 (0.003)	-0.000 (0.003)	0.002 (0.012)	0.001 (0.012)	0.008 (0.011)	0.008 (0.009)
1896	0.001 (0.003)	-0.000 (0.003)	0.001 (0.016)	-0.001 (0.015)	-0.002 (0.013)	-0.000 (0.012)
1897	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.012)	-0.001 (0.012)	-0.011 (0.011)	-0.007 (0.009)
1898	-0.001 (0.003)	-0.001 (0.003)	-0.002 (0.012)	-0.001 (0.012)	-0.011 (0.011)	-0.007 (0.009)
Constant	0.067*** (0.009)	0.067*** (0.001)	0.155*** (0.029)	0.155*** (0.003)	0.395*** (0.041)	0.393*** (0.002)
R ²	0.00	0.93	0.00	0.85	0.00	0.95
Mean Dep Var	0.067	0.067	0.155	0.155	0.392	0.392
Firm Fixed Effects		✓		✓		✓
Firms	140	140	140	140	140	140
Observations	816	816	814	814	816	816

Notes: This table reports estimates from the following specification: $y_{it} = \sum_t \beta_t Year_t + \delta_i + \varepsilon_{it}$, where y_{it} is a measure of Jewish board membership for firm i in year t . We report results with and without the firm fixed effects δ_i . The constant indicates the level of Jewish connections as of 1894.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.4: Cumulative Abnormal Returns: Alternative Measures of Jewish Connections

	January 5, 1895 Degradation of Dreyfus (1)	January 13, 1898 J'Accuse (2)	June 22, 1899 Waldeck-Rousseau Cabinet (3)	September 19, 1899 Pardon of Dreyfus (4)
% Jewish Board Members	-4.524*** (1.507)	-1.891 (1.484)	6.473** (3.099)	2.499** (1.202)
% Board Members (Lévy list)	-4.537*** (1.522)	-0.071 (1.510)	5.285** (2.275)	1.500 (1.148)
Jewish CEO	-0.490 (0.524)	-0.407 (0.419)	2.525** (1.090)	0.965 (0.671)

Notes: This table reports estimates from equation (1). Each cell reports the coefficient of interest (β) estimated from a separate regression. The dependent variables are cumulative abnormal returns estimated over a [0,2] time window around each event. Firm-specific betas are estimated via a 1-factor model in a [-300,-60] estimation window before Dreyfus' arrest on November 2, 1894. In the top panel, Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). See Section 3 for details. In the second panel, we compute the fraction of Jewish board members based on the alternative Lévy (1960) list. The third panel looks at firms with a Jewish CEO. All regressions control for sector dummies, type of admission in the Paris Stock Exchange, guarantee type, whether the firm has investments abroad, foreign ownership, and the number of outstanding shares.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table A.5: Cumulative Abnormal Returns: Robustness

All Episodes, Alternative Specifications

	Abnormal Returns		Cumulative Abnormal Returns			
	1-factor	3-factor	1-factor [0,2]	3-factor [0,2]	1-factor [-1,1]	3-factor [-1,1]
	(1)	(2)	(3)	(4)	(5)	(6)
Dreyfus' Arrest November 2, 1894	0.151 (0.740)	-0.035 (0.823)	1.608 (1.017)	1.455 (1.064)	1.321 (1.035)	0.861 (1.165)
Dreyfus found guilty December 22, 1894	-0.029 (0.988)	-0.112 (0.990)	1.281 (1.428)	0.801 (1.564)	0.377 (1.384)	-0.436 (1.550)
Degradation of Dreyfus January 5, 1895	-2.933* (1.577)	-2.705* (1.523)	-4.524*** (1.507)	-4.713*** (1.480)	-3.670** (1.591)	-3.703** (1.569)
J'Accuse...! January 13, 1898	-0.682 (0.550)	-0.196 (0.705)	-1.891 (1.484)	-0.667 (1.731)	-0.411 (1.249)	0.027 (1.331)
Suicide of Colonel Henry August 31, 1898	-1.006 (2.055)	-0.759 (2.169)	-1.100 (1.982)	-0.965 (2.550)	-0.126 (2.140)	0.004 (2.422)
Dreyfus granted new trial October 29, 1898	0.124 (0.739)	-0.224 (0.837)	0.507 (1.362)	-1.106 (1.804)	-1.185 (1.370)	-2.141 (1.900)
Appeals Court overturns 1894 verdict June 3, 1899	-0.978 (0.740)	-1.004 (0.777)	-0.781 (1.120)	-1.488 (1.703)	0.916 (1.572)	0.502 (1.883)
Presidential Pardon September 19, 1899	0.372 (0.821)	-0.198 (0.591)	2.499** (1.202)	1.699 (1.137)	0.846 (1.363)	0.464 (1.432)
<i>N</i>	137	137	137	137	137	137

Notes: This table reports estimates from equation (1). Each cell reports the coefficient of interest (β) estimated from a separate regression. All regressions control for sector dummies, type of admission in the Paris Stock Exchange, guarantee type, whether the firm has investments abroad, foreign ownership, and the number of outstanding shares. The dependent variables are abnormal returns in columns 1–2 and cumulative abnormal returns in columns 3–6, summed over a [0,2] window in columns 3–4, and over a [-1,1] window in columns 5–6) around each event. Firm-specific betas are estimated in a [-300,-60] estimation window before Dreyfus' arrest (November 2, 1894) using a 1-factor model in odd-numbered columns, and a 3-factor model in even-numbered columns. The 3-factor model includes the market return, the difference in returns between firms with capitalization below sample median and firms with capitalization above sample median, and the difference in returns between firms in the first tercile and firms in the third tercile of book-to-market ratio. Jewish connections are measured as the fraction of Jewish board members based on Grange (2016). See Section 3 for details.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table A.6: Cumulative Abnormal Returns Around Government Changes

	Abnormal Returns		Cumulative Abnormal Returns			
	1-factor	3-factor	1-factor [0,2]	3-factor [0,2]	1-factor [-1,1]	3-factor [-1,1]
	(1)	(2)	(3)	(4)	(5)	(6)
Ribot	-2.416	-2.491	-2.120	-2.153	-2.329	-1.994
January 26, 1895	(1.801)	(1.799)	(2.020)	(2.011)	(1.691)	(1.699)
Bourgeois	-0.569	-0.992	0.232	0.119	0.715	0.442
November 1, 1895	(1.009)	(1.153)	(2.021)	(2.027)	(1.608)	(1.565)
Méline	-0.444	-0.347	1.191	0.868	1.480	1.899
April 29, 1896 <i>Anti-Dreyfusard</i>	(0.541)	(0.567)	(1.084)	(1.174)	(2.075)	(2.220)
Brisson	-0.711	0.155	1.762	2.580	0.983	1.252
June 28, 1898 <i>Dreyfusard</i>	(0.768)	(0.997)	(1.603)	(2.142)	(1.595)	(1.962)
Dupuy II	-0.342	-0.883	-0.680	-1.810	0.507	-1.106
October 31, 1898 <i>Anti-Dreyfusard</i>	(1.051)	(1.253)	(1.350)	(1.654)	(1.362)	(1.804)
Waldeck-Rousseau	6.989**	5.021	6.473**	4.216	6.241**	4.290
June 22, 1899 <i>Dreyfusard</i>	(3.434)	(3.371)	(3.099)	(3.186)	(3.142)	(3.160)
<i>N</i>	137	137	137	137	137	137

Notes: This table reports estimates from equation (1). Each cell reports the coefficient of interest (β) estimated from a separate regression. All regressions control for sector dummies, type of admission in the Paris Stock Exchange, guarantee type, whether the firm has investments abroad, foreign ownership, and the number of outstanding shares. The dependent variables are abnormal returns in columns 1–2 and cumulative abnormal returns in columns 3–6, summed over a [0,2] window in columns 3–4, and over a [-1,1] window in columns 5–6 around each event. Firm-specific betas are estimated in a [-300,-60] estimation window before Dreyfus' arrest (November 2, 1894) using a 1-factor model in odd-numbered columns, and a 3-factor model in even-numbered columns. The 3-factor model includes the market return, the difference in returns between firms with capitalization below sample median and firms with capitalization above sample median, and the difference in returns between firms in the first tercile and firms in the third tercile of book-to-market ratio. Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). See Section 3 for details.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table A.7: Returns and Valuation of Jewish-Connected Firms After “J’Accuse”

	Raw Returns		Firm Value Growth		Market-to-book	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly	(5) Daily	(6) Monthly
% Board Members × Post J’Accuse × No Jewish CEO	0.022 (0.058)	0.285 (1.601)	-0.051 (0.134)	0.360 (2.937)	0.057 (0.063)	1.815 (1.976)
% Board Members × Post J’Accuse × Jewish CEO	0.239** (0.115)	6.773* (3.637)	0.258** (0.116)	5.780* (3.082)	0.251** (0.115)	7.077* (3.641)
R ²	0.02	0.16	0.02	0.14	0.02	0.16
Mean Dep Var	0.019	0.416	0.023	0.553	0.022	0.472
Firms	131	131	131	131	131	131
Observations	239119	9277	239119	9277	239119	9277

Notes: This table reports estimates from a modified version of equation (2) where we interact the difference-in-differences term (% Board Members × Post J’Accuse) with indicators for (i) firms without a Jewish CEO, and (ii) firms with a Jewish CEO. In columns 1 and 2, the dependent variables (expressed in percentage points) are stock returns calculated as the daily (column 1) or monthly (column 2) growth rate in stock prices. In columns 3 and 4, the dependent variable is the growth rate of firm value (market capitalization) measured either daily or monthly. In columns 5 and 6, the dependent variable is the growth rate in the firm’s market-to-book ratio (a proxy for Tobin’s Q) measured daily or monthly. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors clustered by firm.

Table A.8: Effects on Volatility: Non-Monotonicity

	Daily Volatility		Monthly Volatility	
	(1)	(2)	(3)	(4)
<i>(a) % of Jewish Board Members</i>				
% Board Members × Post J'Accuse	5.944 (3.861)	8.675** (3.878)	2.468 (2.413)	7.689* (4.351)
DiD × (Time since J'Accuse)	-0.003 (0.005)		-0.018 (0.022)	
DiD × (Time since J'Accuse) × 1898		-0.023** (0.010)		-0.069* (0.041)
DiD × (Time since J'Accuse) × 1899		-0.007 (0.005)		-0.062* (0.037)
R ²	0.03	0.03	0.49	0.49
Mean Returns	2.217	2.217	1.003	1.003
Firms	131	131	131	131
Observations	239730	239730	9432	9432
<i>(b) Jewish CEO</i>				
Jewish CEO × Post J'Accuse	3.334* (1.918)	3.824** (1.723)	1.534 (1.087)	3.500** (1.720)
DiD × (Time since J'Accuse)	-0.004 (0.003)		-0.012 (0.009)	
DiD × (Time since J'Accuse) × 1898		-0.007*** (0.003)		-0.031* (0.016)
DiD × (Time since J'Accuse) × 1899		-0.005 (0.003)		-0.028* (0.015)
R ²	0.03	0.03	0.50	0.50
Mean Returns	2.217	2.217	1.003	1.003
Firms	131	131	131	131
Observations	239730	239730	9432	9432

Notes: This table reports estimates from equation (2) interacted with the time elapsed since “J’Accuse”. The dependent variables are squared daily returns in columns 1–2 and the within-month standard deviation of daily returns in columns 3–4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector by month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.9: Additional Evidence on Risk-Adjusted Returns

	Adjusted by SD pre-J'Accuse		Adjusted by SD post-J'Accuse	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly
<i>(a) % of Jewish Board Members</i>				
% Board Members \times Post J'Accuse	0.093** (0.044)	0.639** (0.318)	0.083** (0.039)	0.385 (0.265)
R ²	0.02	0.21	0.02	0.20
Mean Returns	0.016	0.089	0.019	0.097
Firms	131	131	131	131
Observations	239730	9301	239730	9301
<i>(b) Jewish CEO</i>				
Jewish CEO \times Post J'Accuse	0.032** (0.014)	0.246*** (0.092)	0.026** (0.013)	0.129 (0.082)
R ²	0.02	0.21	0.02	0.20
Mean Returns	0.016	0.089	0.019	0.097
Firms	131	131	131	131
Observations	239730	9301	239730	9301

Notes: This table reports estimates from equation (2). The dependent variables are risk-adjusted returns calculated as: in columns 1–2, daily or monthly returns divided by the firm-specific standard deviation of returns for each firm **before** 13 January 1898 (the publication date of “J’Accuse”); in columns 3–4, daily or monthly returns divided by the firm-specific standard deviation of returns for each firm **after** 13 January 1898. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on [Grange \(2016\)](#). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.10: Stock Returns: Jewish Connections and Foreign Connections

	Daily Returns		Monthly Returns	
	(1) Raw	(2) Risk-Adjusted	(3) Raw	(4) Risk-Adjusted
(a) % of Jewish Board Members				
% Board Members \times Post J'Accuse	0.175** (0.077)	0.128*** (0.040)	4.740** (2.224)	0.492* (0.278)
Foreign Connections \times Post J'Accuse	0.011 (0.011)	-0.007 (0.009)	0.367 (0.308)	0.002 (0.053)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301
(b) Jewish CEO				
Jewish CEO \times Post J'Accuse	0.058** (0.025)	0.033** (0.015)	1.516** (0.701)	0.167** (0.084)
Foreign Connections \times Post J'Accuse	0.008 (0.011)	-0.008 (0.009)	0.303 (0.317)	-0.005 (0.054)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301

Notes: This table reports estimates from a modified version of equation (2) where we also include a measure of foreign connections interacted with the post-“J'Accuse” dummy. *Foreign connections* is an indicator equal to 1 if the firm is headquartered abroad or has investments abroad. The dependent variables are raw returns in columns 1 and 3 and risk-adjusted returns (defined as in Table 3) in columns 2 and 4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.11: Stock Returns and Liquidity

	Liquidity (proxy)		Stocks with Higher Trading Frequency			
			Daily Returns		Monthly Returns	
	(1) Daily	(2) Monthly	(3) Raw	(4) Risk-Adjusted	Raw	Risk-Adjusted
(a) % of Jewish Board Members						
% Board Members \times Post J'Accuse	0.052 (0.094)	0.055 (0.097)	0.290** (0.143)	0.252*** (0.088)	8.463** (3.436)	0.840** (0.389)
R ²	0.30	0.66	0.03	0.03	0.21	0.27
Mean Returns	0.685	0.685	0.028	0.024	0.635	0.136
Firms	131	131	131	131	131	131
Observations	239730	9301	164204	164204	6919	6919
(b) Jewish CEO						
Jewish CEO \times Post J'Accuse	0.034 (0.024)	0.036 (0.025)	0.090** (0.038)	0.048** (0.024)	2.402** (0.928)	0.223** (0.108)
R ²	0.30	0.66	0.03	0.03	0.21	0.27
Mean Returns	0.685	0.685	0.028	0.024	0.635	0.136
Firms	131	131	131	131	131	131
Observations	239730	9301	164204	164204	6919	6919

Notes: This table reports estimates from equation (2). In column 1, the liquidity proxy is a binary variable equal to 1 if a stock is traded on a given day. In column 2, the liquidity proxy is the average fraction of days during which a firm's stock is traded in a given month. In columns 3 through 6, we restrict the sample to stocks with high trading frequency, namely stocks traded on any given day (columns 3 and 4) or stocks traded during at least half the days in a given month (columns 5 and 6)—the same variables as those used in columns 1 and 2. The dependent variables are raw returns in columns 3 and 5 and risk-adjusted returns (defined as in Table 3) in columns 4 and 6. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.12: Stock Returns: Intent-to-Treat Estimates

	Daily Returns		Monthly Returns	
	(1) Raw	(2) Risk-Adjusted	(3) Raw	(4) Risk-Adjusted
<i>(a) % of Jewish Board Members</i>				
% Board Members \times Post J' Accuse	0.142* (0.074)	0.108*** (0.039)	3.873* (2.130)	0.402 (0.283)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301
<i>(b) Jewish CEO</i>				
Jewish CEO \times Post J' Accuse	0.043* (0.023)	0.019 (0.014)	1.303** (0.635)	0.082 (0.081)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301

Notes: This table reports estimates from equation (2). The dependent variables are raw returns in columns 1 and 3 (defined as in Table 2) and risk-adjusted returns (defined as in Table 3) in columns 2 and 4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016) and measured on November 2, 1894. Panel (b) looks at whether the firm has a Jewish CEO on November 2, 1894. See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector-by-month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.13: Stock Returns: Robustness to Additional Controls

	Daily Returns		Monthly Returns	
	(1) Raw	(2) Risk-Adjusted	(3) Raw	(4) Risk-Adjusted
<i>(a) % of Jewish Board Members</i>				
% Board Members \times Post J' Accuse	0.144** (0.068)	0.127*** (0.039)	3.822** (1.876)	0.404 (0.257)
R ²	0.02	0.02	0.09	0.13
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301
<i>(b) Jewish CEO</i>				
Jewish CEO \times Post J' Accuse	0.043** (0.021)	0.032* (0.017)	1.116* (0.577)	0.144* (0.081)
R ²	0.02	0.02	0.09	0.13
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301

Notes: This table reports estimates from a modified version of equation (2) including sector dummies, admission type, guarantee type, foreign ownership, whether the firm has investments abroad, and outstanding shares interacted with the post-“J' Accuse” dummy. The dependent variables are raw returns in columns 1 and 3 and risk-adjusted returns (defined as in Table 3) in columns 2 and 4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects and trading day fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors clustered by firm.

Table A.14: Stock Returns: Robustness to the Lévy (1960) list

	Daily Returns		Monthly Returns	
	(1) Raw	(2) Risk-Adjusted	(3) Raw	(4) Risk-Adjusted
<i>(a) % of Jewish Board Members</i>				
% Board Members × Post J' Accuse	0.117** (0.054)	0.085** (0.036)	2.864* (1.498)	0.265 (0.204)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301
<i>(b) Jewish CEO</i>				
Jewish CEO × Post J' Accuse	0.059** (0.025)	0.032** (0.015)	1.559** (0.712)	0.166** (0.084)
R ²	0.02	0.02	0.16	0.23
Mean Returns	0.019	0.017	0.416	0.091
Firms	131	131	131	131
Observations	239730	239730	9301	9301

Notes: This table reports estimates from equation (2). The dependent variables are raw returns in columns 1 and 3 and risk-adjusted returns (defined as in Table 3) in columns 2 and 4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Lévy (1960). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. All regressions include firm fixed effects and trading day fixed effects.

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors clustered by firm.

Table A.15: Stock Returns of Jewish-Connected Firms After “J’Accuse”

Dropping one sector at a time

	Daily Returns		Monthly Returns	
	(1) Raw	(2) Risk-Adjusted	(3) Raw	(4) Risk-Adjusted
	<i>% of Jewish Board Members</i>			
Baseline (Tables 2-3)	0.178** (0.079)	0.126*** (0.041)	4.823** (2.301)	0.492* (0.278)
Dropping Banks	0.186** (0.084)	0.143*** (0.043)	5.064** (2.434)	0.579* (0.305)
Dropping Food, Liquors and Tobacco	0.184** (0.082)	0.135*** (0.042)	4.916** (2.374)	0.501* (0.287)
Dropping French Railways	0.158** (0.075)	0.110*** (0.041)	4.365** (2.199)	0.409 (0.268)
Dropping Colonial/Foreign Railways	0.095* (0.053)	0.091** (0.039)	2.486 (1.615)	0.205 (0.230)
Dropping Gas and Electricity	0.222** (0.102)	0.122** (0.052)	5.933** (2.845)	0.760** (0.296)
Dropping Insurance/Real Estate	0.203** (0.091)	0.144*** (0.044)	5.560** (2.651)	0.540* (0.320)
Dropping Iron/Heavy Industry	0.176** (0.080)	0.127*** (0.042)	4.803** (2.331)	0.486* (0.281)
Dropping Mining	0.166** (0.080)	0.120*** (0.042)	4.539* (2.337)	0.428 (0.278)
Dropping Transports (Cars/Ocean Liners)	0.183** (0.082)	0.128*** (0.042)	4.788** (2.367)	0.477* (0.283)
Dropping Water Supply	0.176** (0.081)	0.130*** (0.042)	4.812** (2.348)	0.507* (0.286)

Notes: This table reports estimates from equation (2) dropping one sector at a time. The dependent variables are raw returns in columns 1 and 3 and risk-adjusted returns (defined as in Table 3) in columns 2 and 4. Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). See Section 3 for details. All regressions include firm fixed effects, trading day fixed effects, and sector by month fixed effects.

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors clustered by firm.

Table A.16: Stock Returns and Media Coverage: Robustness

	Daily Returns		Monthly Returns	
	(1)	(2)	(3)	(4)
(a) % of Jewish Board Members				
% Board Members × Media Coverage	0.579*		19.212**	
	(0.294)		(9.142)	
% Board Members × Dreyfusard Coverage		0.638		24.315**
		(0.526)		(11.761)
% Board Members × Anti-Dreyfusard Coverage		-0.217		-17.314
		(0.559)		(10.625)
R ²	0.02	0.02	0.16	0.16
Mean Returns	0.019	0.018	0.416	0.416
Firms	131	131	131	131
Observations	239730	239599	9301	9301
(b) Jewish CEO				
Jewish CEO × Media Coverage	0.186*		4.781	
	(0.099)		(2.924)	
Jewish CEO × Dreyfusard Coverage		0.081		9.253**
		(0.189)		(3.627)
Jewish CEO × Anti-Dreyfusard Coverage		0.108		-8.127**
		(0.218)		(3.256)
R ²	0.02	0.02	0.16	0.16
Mean Returns	0.019	0.018	0.416	0.416
Firms	131	131	131	131
Observations	239730	239599	9301	9301

Notes: This table reports estimates from equation (3). The dependent variables are daily returns in columns 1–2 and monthly returns in columns 3–4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. See Section 3 for details. Media Coverage is defined as the average fraction of paragraphs dedicated to the Dreyfus Affair across the following 5 outlets: *Le Siècle*, *Le Petit Journal*, *La Croix*, *L’Aurore*, and *La Libre Parole*. All newspapers are in circulation during the entire 1894–99 period except *L’Aurore* (circulation begins in October 1897). In columns 2 and 4, Dreyfusard coverage is the fraction of paragraphs dedicated to Dreyfus across *Le Siècle* and *L’Aurore*. Anti-Dreyfusard coverage is the fraction of paragraphs dedicated to Dreyfus across *La Croix*, *Le Petit Journal*, and *La Libre Parole*. All regressions include firm fixed effects, trading day fixed effects and sector by month fixed effects.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors two-way clustered by firm and trading day.

Table A.17: Jewish Connections and Firm Dividends

	Log Dividends		Dividends/Price	
	(1)	(2)	(3)	(4)
<i>(a) % of Jewish Board Members</i>				
% Board Members × Post-J'Accuse	-0.173 (0.581)	-0.209 (0.625)	0.001 (0.041)	-0.006 (0.048)
R ²	0.79	0.81	0.44	0.46
Mean Dividends	2.888	2.888	0.042	0.042
Sector*Year Effects		✓		✓
Firms	131	131	131	131
Observations	917	917	917	917
<i>(b) Jewish CEO</i>				
Jewish CEO × Post-J'Accuse	-0.106 (0.204)	-0.084 (0.199)	-0.012 (0.017)	-0.015 (0.018)
R ²	0.79	0.81	0.44	0.46
Mean Dividends	2.888	2.888	0.042	0.042
Sector*Year Effects		✓		✓
Firms	131	131	131	131
Observations	917	917	917	917

Notes: This table reports estimates from a modified version of equation (2) where the dataset is at the firm-year level and the dependent variable is an annual measure of dividends. We use the log of 1+ raw dividends in columns 1–2 and dividends divided by the average yearly price in columns 3–4. In panel (a), Jewish connections are measured as the fraction of board members with a Jewish origin based on Grange (2016). Panel (b) looks at whether the firm has a Jewish CEO. All regressions include firm fixed effects and trading day fixed effects. In columns 2 and 4, we also include sector by year fixed effects.

* p<0.1, ** p<0.05, *** p<0.01. Robust standard errors clustered by firm.

B Model: Formal Derivations and Discussion

This section extends De Long et al.'s (1990) OLG model of noise traders, who hold biased, uncertain beliefs about asset returns, but are otherwise sophisticated in their understanding of the world and how assets are priced. We introduce two types of risky assets, a representative stock of Jewish firms and one of non-Jewish firms. Noise traders in our model hold antisemitic beliefs about returns on those stocks, which are on average excessively optimistic on non-Jewish stocks and excessively pessimistic on Jewish stocks.¹ All traders, antisemitic or not, are risk averse, hence they do not bet everything they own against the other type (which holds incorrect beliefs in their perception), for fear of continued biases in the second period when they need to liquidate their position to consume.² Thus, biased beliefs are not arbitrated away simply by waiting until asset prices eventually converge to their perceived true values.

In this context, the uncertainty inherent to antisemitic traders' beliefs (and unrelated to fundamentals) reduces asset prices. Due to the average biases in their beliefs, in comparison with unbiased traders, antisemitic ones will over-invest in non-Jewish stocks and under-invest in Jewish stocks. In particular, Jewish stock prices suffer not only from their biases on average and from specific shocks to the biases, but also from increased volatility in the distribution of those biases. All investors miss out some rent on Jewish stocks; however, debiasing effectively allows investors to better capture that rent.

If antisemitic investors only hold pessimistic biases on Jewish stocks, as in De Long et al. (1990) they will make less returns than unbiased investors, which invites the Beckerian mechanism that those should get weeded out of the market in the long run, and might not have existed before the Affair. The existence of both types of biases allows the possibility that antisemitic investors may on average earn higher returns on non-Jewish stocks than unbiased traders, which could compensate for their lower returns on Jewish stocks, and keep them in the market for a long time. What eventually happens following the rehabilitation campaign is that debiasing reduces that possibility of survival by antisemitic investors.

B.1 Model Setting

We follow the minimal setting in De Long et al. (1990), in which young agents in a 2-period OLG model only choose an investment portfolio in the first period (there is no labor supply, no first-period consumption, no bequest), only to sell it to consume when old in the second period. We also refrain from fundamental risk, so all three assets, including the riskless asset, the Jewish stock J , and the non-Jewish stock N pay exactly the same fixed dividend r in the second period. All investors hold the correct belief over the riskless rate r of the riskless asset (priced as the numeraire), but their beliefs differ for the other two. Antisemitic traders (representing a share μ of the population of investors) hold a bias ρ_t^N on the price p_t^N of non-Jewish stocks and ρ_t^J on the price p_t^J of Jewish stocks:

$$\boldsymbol{\rho}_t \stackrel{def}{=} \begin{pmatrix} \rho_t^N \\ \rho_t^J \end{pmatrix} \sim \mathcal{N}(\boldsymbol{\rho}^*, \boldsymbol{\Sigma}_\rho), \quad \text{with } \boldsymbol{\rho}^* \stackrel{def}{=} \begin{pmatrix} \rho^{*N} \\ \rho^{*J} \end{pmatrix}, \quad \boldsymbol{\Sigma}_\rho \stackrel{def}{=} \begin{bmatrix} \sigma_\rho^{N2} & \sigma_\rho^{NJ} \\ \sigma_\rho^{NJ} & \sigma_\rho^{J2} \end{bmatrix}. \quad (\text{B.1})$$

¹We can understand the source of antisemitic investors' bias as either antisemitic preferences against Jewish firms and their stocks, which can be inherent in their utility function, or biased beliefs about firm performance.

²This feature of the OLG model acts as a liquidity shock that limits arbitrage (Vayanos and Wang, 2012).

We expect the average biases ρ^{*J} and ρ^{*N} to be respectively negative and positive (a net bias against Jewish stocks), and the covariance of the two biases σ_ρ^{NJ} to be negative.

Assume that each agent maximizes a utility function that is a constant absolute risk aversion utility function of wealth when old: $U \stackrel{def}{=} -e^{-2\gamma w}$, where γ is the coefficient of absolute risk aversion, and w is the expected final wealth. As returns are normally distributed, the maximization problem is equivalent to maximizing $\mathbb{E}(U) = \mathbb{E}[w] - \gamma\mathbb{V}[w]$. Denote the unbiased investor's net holdings of Jewish and non-Jewish stocks as λ_t^{uJ} and λ_t^{uN} respectively, and $\boldsymbol{\lambda}^u = \begin{pmatrix} \lambda_t^{uN} \\ \lambda_t^{uJ} \end{pmatrix}$ (those quantities can in principle be either positive or negative). Her investment decision maximizes the following expression:

$$\max_{\boldsymbol{\lambda}_t^u} \{ \mathbf{X}'_t \boldsymbol{\lambda}_t^u - \gamma \mathbb{V}_t [\mathbf{p}'_{t+1} \boldsymbol{\lambda}^u] \} = \max_{\lambda_t^{uN}, \lambda_t^{uJ}} \{ \lambda_t^{uN} \mathbb{X}_t^N + \lambda_t^{uJ} \mathbb{X}_t^J - \gamma \mathbb{V}_t [\mathbf{p}'_{t+1} \boldsymbol{\lambda}^u] \}, \quad (\text{B.2})$$

given the vector of expected excess returns from investing in each stock $\mathbf{X}_t = \begin{pmatrix} \mathbb{X}_t^N \\ \mathbb{X}_t^J \end{pmatrix} = \begin{pmatrix} r + \mathbb{E}_t p_{t+1}^N - p_t^N(1+r) \\ r + \mathbb{E}_t p_{t+1}^J - p_t^J(1+r) \end{pmatrix}$, and $\mathbb{V}_t [\mathbf{p}'_{t+1} \boldsymbol{\lambda}^u] = \mathbb{V}_t [\lambda_t^{uN} p_{t+1}^N + \lambda_t^{uJ} p_{t+1}^J]$ the variance of the portfolio in expectation in t .

Similarly, denote the antisemitic investor's net holdings of Jewish and non-Jewish stocks as λ_t^{aJ} and λ_t^{aN} respectively. Her investment decisions are taken with respect to his biased beliefs, and mimic equations (B.2) except for an additional term from the biases ρ_t^N and ρ_t^J .

$$\max_{\boldsymbol{\lambda}_t^a} \{ \mathbf{X}'_t \boldsymbol{\lambda}_t^a - \gamma \mathbb{V}_t [\mathbf{p}'_{t+1} \boldsymbol{\lambda}^a] + \boldsymbol{\rho}'_t \boldsymbol{\lambda}^a \}. \quad (\text{B.3})$$

As the maximands in (B.2) and (B.3) are concave, the solutions are fully characterized by the first order conditions:

$$\begin{aligned} -2\gamma(\mathbb{V}_t \mathbf{p}_{t+1}) \boldsymbol{\lambda}_t^u + \mathbf{X}_t &= 0 & \boldsymbol{\lambda}_t^u &= \frac{1}{2\gamma} (\mathbb{V}_t \mathbf{p}_{t+1})^{-1} \mathbf{X}_t \\ -2\gamma(\mathbb{V}_t \mathbf{p}_{t+1}) \boldsymbol{\lambda}_t^a + \mathbf{X}_t + \boldsymbol{\rho}_t &= 0 & \boldsymbol{\lambda}_t^a &= \frac{1}{2\gamma} (\mathbb{V}_t \mathbf{p}_{t+1})^{-1} (\mathbf{X}_t + \boldsymbol{\rho}_t). \end{aligned} \quad (\text{B.4})$$

The market clearing condition that $\mu \boldsymbol{\lambda}_t^a + (1-\mu) \boldsymbol{\lambda}_t^u = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \stackrel{def}{=} \mathbf{1}$ yields the following expression that serves to calculate asset prices:

$$2\gamma(\mathbb{V}_t \mathbf{p}_{t+1}) \mathbf{1} = \mathbf{X}_t + \mu \boldsymbol{\rho}_t = \begin{pmatrix} r + \mathbb{E}_t p_{t+1}^N - p_t^N(1+r) + \mu \rho_t^N \\ r + \mathbb{E}_t p_{t+1}^J - p_t^J(1+r) + \mu \rho_t^J \end{pmatrix} \quad (\text{B.5})$$

Following De Long et al. (1990), we consider steady state equilibria such that the unconditional distributions of \mathbf{p}_t remain stationary and independent of t .³ Taking equation (B.5) one period ahead and

³See De Long et al.'s (1990) further discussion (in footnote 5) on the existence and possible uniqueness of stationary equilibria.

take the expectation in t , we obtain:

$$2\gamma(\mathbb{V}_t \mathbf{p}_{t+2}) \mathbf{1} = \begin{pmatrix} r + \mathbb{E}_t p_{t+2}^N - \mathbb{E}_t p_{t+1}^N (1+r) + \mu \rho^{*N} \\ r + \mathbb{E}_t p_{t+2}^J - \mathbb{E}_t p_{t+1}^J (1+r) + \mu \rho^{*J} \end{pmatrix} \quad (\text{B.6})$$

Equation (B.6) can be written and solved recursively for $t+1, t+2, t+3 \dots$. Thanks to the equilibrium's stationarity, the solution obtains from equation (B.6) when we set $\mathbb{E}_t \mathbf{p}_{t+1} = \mathbb{E}_t \mathbf{p}_{t+2}$ (and $\mathbb{V}_t \mathbf{p}_{t+2} = \mathbb{E}_t[\mathbb{V}_{t+1} \mathbf{p}_{t+2}] = \mathbb{V}_t \mathbf{p}_{t+1}$):

$$\mathbb{E}_t \mathbf{p}_{t+1} = \mathbf{1} + \frac{\mu}{r} \boldsymbol{\rho}^* - \frac{2\gamma}{r} (\mathbb{V}_t \mathbf{p}_{t+1}) \mathbf{1} \quad (\text{B.7})$$

Replacing (B.7) into (B.5), we obtain the following asset price formula:

$$\mathbf{p}_t = \mathbf{1} + \frac{\mu}{1+r} (\boldsymbol{\rho}_t - \boldsymbol{\rho}^*) + \frac{\mu}{r} \boldsymbol{\rho}^* - \frac{2\gamma}{r} (\mathbb{V}_t \mathbf{p}_{t+1}) \mathbf{1}. \quad (\text{B.8})$$

To fully describe asset prices, it remains to calculate $\mathbb{V}_t \mathbf{p}_{t+1}$. Since equation (B.8) contains only one stochastic term $\frac{\mu}{1+r} (\boldsymbol{\rho}_t - \boldsymbol{\rho}^*)$ on the right hand side, we obtain:

$$\mathbb{V}_t \mathbf{p}_{t+1} = \mathbb{V}_t \left[\frac{\mu}{1+r} (\boldsymbol{\rho}_t - \boldsymbol{\rho}^*) \right] = \frac{\mu^2}{(1+r)^2} \boldsymbol{\Sigma}_\rho. \quad (\text{B.9})$$

Asset prices can now be expressed in the following formula involving only parameters:

$$\mathbf{p}_t = \mathbf{1} + \frac{\mu}{1+r} (\boldsymbol{\rho}_t - \boldsymbol{\rho}^*) + \frac{\mu}{r} \boldsymbol{\rho}^* - \frac{2\gamma\mu^2}{r(1+r)^2} \boldsymbol{\Sigma}_\rho \mathbf{1}. \quad (\text{P})$$

B.2 Interpretation

In short, asset prices deviate from fundamentals (as earnings are normalized at 1) by a term dependent on the short-term shock in beliefs $\boldsymbol{\rho}_t - \boldsymbol{\rho}^*$, a term capturing long-term biases $\boldsymbol{\rho}^*$ (with a potentially large multiplier $\frac{1}{r}$), and the last term that captures the effect of the presence of antisemitic investors among risk-averse unbiased investors, which would drive asset prices downward as much as the variances of noises σ_ρ^{N2} and σ_ρ^{J2} .

Equation (P) shows that Jewish stocks are underpriced because of both the long-term and the short-term biases, and non-Jewish stocks are analogously overpriced. Both types are further underpriced because of the existence of uncertain antisemitic beliefs in the market. Reduction in biases would result in less mispricing, compared with fundamentals.

In essence, asset prices in equation (P) are similar to those in De Long et al.'s (1990) case of a single type of risky assets (equation 12), except for the term due to the covariance of belief biases $\frac{2\gamma\mu^2}{r(1+r)^2} \sigma_\rho^{NJ}$. As this covariance is likely negative, the existence of those two classes of Jewish and non-Jewish stocks alleviates the overall effect of antisemitic traders on stock prices.

The paper's empirical findings can be interpreted in light of the price formula in (P). First, let us consider the four major events in Table 1. At the degradation of Alfred Dreyfus, it is likely that antisemitic

traders experience a large, negative shock in ρ^J , resulting in negative CARs among Jewish firms. Similar waves of antisemitism lead to negative market reactions on Jewish stock prices, but they are unlikely persistent and can be quickly reversed when new values of the antisemitic bias ρ_t are drawn.⁴ They may only have a lasting negative effect on stock Jewish prices when the shock on belief persists in the long run (in the form of ρ^{J*}) and when the events raised the uncertainty regarding antisemitic beliefs (in σ_ρ^{J2}).

Fundamentally different from the events that pushed public opinion unequivocally against Dreyfus, “J’Accuse” was a major disruption that rattled beliefs in the society. It is thus more similar to a large shock on the variances of the biases, namely a large increase in the variances in Σ_ρ . According to (P), this would result in a decrease in stock prices, which corresponds to the negative effect on the CARs of Jewish stocks around “J’Accuse” as found in Table 1, albeit the lack of statistical significance.

Following “J’Accuse”, the rehabilitation campaign following “J’Accuse” likely had two effects. The first is a significant positive impact on the long-term antisemitic bias ρ^{J*} . During the campaign, news coverage of the Affair by pro-Dreyfus newspapers probably led to improvements in ρ^{J*} , causing a gradual appreciation of Jewish stocks versus non-Jewish ones. Second, the campaign also steadily reduced the uncertainty about antisemitic beliefs (a reduction of σ_ρ^{J2} in comparison with σ_ρ^{N2}), resulting in better relative Jewish stock prices.

The other two major events, namely the formation of the Waldeck-Rousseau government and the pardon of Dreyfus, were also instrumental in significantly reducing uncertainty on the market, especially uncertainty related to antisemitism. Waldeck-Rousseau was specifically tasked to end the Affair, and was well-known also for his pro-Dreyfus stance. The pardon was also long overdue, and sent a strong signal of the end of the polarization of public opinions. Those events can be mapped into a decrease of the variances in Σ_ρ and possibly an improvement in ρ^{J*} , the long-term bias against Jewish firms.⁵

B.3 The Survival of Antisemitic Investors

We have showed that the existence of antisemitic investors can explain stock movements at critical events during the Dreyfus Affair that were otherwise unrelated to the performance of firms with Jewish board members. Friedman (1953) argues that traders with incorrect beliefs must earn lower returns than unbiased traders, and so cannot survive in the market in the long run. In the spirit of De Long et al. (1990), we will show that antisemitic investors need not make lower returns than unbiased ones. In essence, antisemitic investors increase the riskiness of assets. If antisemitic investors concentrate in those assets about which they are overly optimistic, namely non-Jewish stocks, their earnings can be on average higher than those of unbiased investors.

⁴This interpretation comes from the fact that the idiosyncratic belief biases $\rho_t - \rho^*$ are uncorrelated over time. In other words, each period in the OLG model corresponds to a wave of heightened antisemitism beyond the long-term level of antisemitism in ρ^* . While this can be relatively short for a “generation” in the OLG model, the important realistic feature of the OLG model lies in the similarity between the second period in the OLG model, in which investors need to liquidate their position to consume, and investors’ demand for liquidity in practice. Historically, during this period stock liquidity was rather limited, and it is quite plausible that investors were commonly subject to liquidity shocks.

⁵Remember that this bias is not restricted to investors’ inherently incorrect beliefs against Jewish firms, but can also exhibit their beliefs on possible antisemitism in the population. Those two events may debias ρ^{J*} (i.e., pushing it up to zero) by reducing the bias on antisemitism in the population at large.

The difference in earnings between antisemitic and unbiased investors, $\Delta R_{a-u,t}$, can be written as:

$$\Delta R_{a-u,t} = (\lambda_t^a - \lambda_t^u)' \mathbf{X}_t = \frac{1}{2\gamma} \boldsymbol{\rho}'_t (\mathbb{V}_t \mathbf{P}_{t+1})^{-1} \mathbf{X}_t.$$

Replacing equations (B.7) and (B.8) into \mathbf{X}_t , we obtain directly the vector of excess returns:

$$\mathbf{X}_t = \frac{2\gamma\mu^2}{(1+r)^2} \boldsymbol{\Sigma}_\rho \mathbf{1} - \mu \boldsymbol{\rho}_t. \quad (\text{B.10})$$

Since $(\mathbb{V}_t \mathbf{P}_{t+1})^{-1} = \frac{(1+r)^2}{\mu^2} \boldsymbol{\Sigma}_\rho^{-1}$, the expected earnings difference between antisemitic and unbiased investors is:

$$\mathbb{E}[\Delta R_{a-u,t}] = \mathbb{E} \left[\frac{1}{2\gamma} \boldsymbol{\rho}'_t \frac{(1+r)^2}{\mu^2} \boldsymbol{\Sigma}_\rho^{-1} \left(\frac{2\gamma\mu^2}{(1+r)^2} \boldsymbol{\Sigma}_\rho \mathbf{1} - \mu \boldsymbol{\rho}_t \right) \right] = \rho^{*N} + \rho^{*J} - \frac{(1+r)^2}{2\gamma\mu} \mathbb{E} [\boldsymbol{\rho}'_t \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}_t].$$

In the last term, $\mathbb{E} [\boldsymbol{\rho}'_t \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}_t] = \mathbb{E} [\text{tr}(\boldsymbol{\rho}'_t \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}_t)] = \mathbb{E} [\text{tr}(\boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}_t \boldsymbol{\rho}'_t)] = \text{tr}(\boldsymbol{\Sigma}_\rho^{-1} \mathbb{E} [\boldsymbol{\rho}_t \boldsymbol{\rho}'_t]) = \text{tr}(\boldsymbol{\Sigma}_\rho^{-1} [\boldsymbol{\rho}^* \boldsymbol{\rho}^{*'} + \mathbb{V} \boldsymbol{\rho}_t]) = \text{tr}(\boldsymbol{\rho}^{*'} \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}^*) + \text{tr}(\boldsymbol{\Sigma}_\rho^{-1} \mathbb{V} \boldsymbol{\rho}_t) = \boldsymbol{\rho}^{*'} \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}^* + 2$. We thus obtain:

$$\mathbb{E}[\Delta R_{a-u,t}] = \rho^{*N} + \rho^{*J} - \frac{(1+r)^2}{2\gamma\mu} [\boldsymbol{\rho}^{*'} \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}^* + 2]. \quad (\text{B.11})$$

This last equation shows the condition under which antisemitic investors perform on average better than unbiased ones, and therefore can survive in the market in the long run. Concretely, $\mathbb{E}[\Delta R_{a-u,t}] \geq 0$ when the two biases ρ^{*N} and ρ^{*J} sum up positive (i.e., when antisemitic investors are more bullish about non-Jewish stocks than they are bearish about Jewish stocks) and when the last term in equation (B.11) is not too large compared to the biases. This last term is small when the following are large: the absolute risk aversion coefficient γ , the share of antisemitic investors μ , and the variances in $\boldsymbol{\Sigma}$. As risk aversion and the amount of risk raised by the uncertainty of antisemitic beliefs reduce the unbiased investors' willingness to arbitrage, they leave room to the "hold more" effect, manifested in $\rho^{*N} + \rho^{*J}$, according to which biased investors hold more of the risky assets they are bullish about than unbiased investors, and those assets produce net positive excess returns for them in comparison with unbiased investors.⁶

We note that while the rehabilitation campaign has improved Jewish stocks' prices compared with non-Jewish stocks', it does not necessarily worsen antisemitic investors' excess returns (as they become less antisemitic). On the other hand, the reduction of uncertainty due to antisemitic beliefs will allow for more aggressive arbitrage by unbiased ones, which reduces those expected excess returns $\mathbb{E}[\Delta R_{a-u,t}]$.

Finally, in case there are only Jewish stocks that suffer from negatively biased beliefs ($\rho^{*J} < 0$) (similar to the risky assets modeled in De Long et al. 1990), $\mathbb{E}[\Delta R_{a-u,t}]$ will be unambiguously negative, hence antisemitic investors will on average make negative excess returns. The inclusion of non-Jewish stocks permits their survival in the long run.

⁶Apart from this "hold more" effect, De Long et al. (1990) explains the other effects at work in the condition $\mathbb{E}[\Delta R_{a-u,t}] \geq 0$ (pp. 714-15), including Friedman's (1953) effect in the term $-\frac{(1+r)^2}{\gamma\mu}$ that presumably drives out biased investors. Since this effect is mitigated by γ , it may as well be dominated by the "hold more" effect, so antisemitic investors are not weeded out in the long run.

C Data Appendix

Stock Market Data

The stock market data was collected from the *Bulletin de la Cote*, the daily spreadsheets of the Paris Stock Exchange published by the *Compagnie des Agents de Change de Paris* and available from the French National Library at: <https://gallica.bnf.fr/ark:/12148/cb32745962x/date>. The data includes stock prices, the nominal value of stocks, the number of shares listed for each firm, and the price of French government bonds (namely the 3% *Rente*, which we use to calculate the free risk rate). We manually entered all the available data from the *Bulletin de la Cote* for all publicly listed firms (excluding those that were traded less than 20% of days) between 1 January 1894 and 31 December 1899.

Data on yearly dividends was collected from the *Annuaire des Agents de Change de Paris* (stock broker yearbooks) for the years 1893–1900. These volumes were obtained from the *Service des archives économiques et financières* (SAEF) in the Archives of the French Ministry of Finance.

From the *Annuaire des Agents de Change de Paris*, we also collected the following firm-specific information: industrial sectors, type of admission in the Paris Stock Exchange namely stocks traded *au comptant* (spot) or *au comptant et à terme* (spot and forward), and indicators for: firms with investments outside of metropolitan France, firms headquartered outside metropolitan France, firms with capital under a state guarantee, firms with government-appointed board members, and firms operating a government-granted monopoly (*monopole d'exploitation*). When this information was missing for particular firms, we complemented it with data from the *Annuaire Chaix* 1893–1901, the yearbooks published by the Imprimerie Chaix (available at: <https://catalogue.bnf.fr/ark:/12148/cb32695714c>).

Jewish Board Members

The individual (first and last) names of board members were collected from three different sources: the *Annuaire des Agents de Change de Paris*, the *Annuaire Chaix*, and the *Archives du Crédit Agricole*. We use the same sources to collect information on board size.

The primary source of information for the names of Jewish individuals is Cyril Grange, *Une élite parisienne: les familles de la grande bourgeoisie juive (1870-1939)* (CNRS Editions, 2016). We identify a board member as Jewish if the first and last name matches the full name of an individual listed in Grange (2016). As a secondary source, we use Paul Lévy, *Les Noms des Israélites en France: Histoire et Dictionnaire* (Presses Universitaires de France, 1960). This source is available from the French National Library (<https://catalogue.bnf.fr/ark:/12148/cb33078695b>) and contains an extensive list of all the French surnames with Jewish origins. As Lévy (1960) does not include information on first names, we identify a board member as Jewish if the last name matches a name listed in Lévy (1960).

Media Coverage

We collected data on media coverage of the Dreyfus Affair from two different sources: the French National Library (Gallica), which allows digital access for a subset of newspaper issues during this period,

and Retronews (www.retronews.fr), an online repository requiring subscription.

The data collection focused on five most relevant contemporary newspapers. *Le Siècle*,¹ a mainstream outlet perceived as liberal and close to moderate republicans, started to actively support Dreyfus starting in late 1897. *La Croix*,² a Catholic newspaper still in circulation today, was anti-Dreyfusard throughout the period and played a key role in the diffusion of antisemitism (Sorlin, 1967). *L'Aurore*³ was the leading outlet for the Dreyfusard (pro-Dreyfus) camp and published Zola's "J'Accuse...!" in January 1898. It went into circulation in mid-October 1897. *La Libre Parole*⁴ was an antisemitic outlet founded by Edouard Drumont, the leading antisemitic public figure of this era, in 1892. The outlet's only goal was to spread hatred against French Jews. Finally, *Le Petit Journal*⁵ was another popular anti-Dreyfusard newspaper, covering national and international news.

Newspapers in this period typically had four pages. The front-page contained a summary of the important news of the day. The second and third page expanded on the headline items and covered regional and international information. The last page contained advertisements. We manually count the number of paragraphs devoted to the Dreyfus Affair both in absolute terms and as a fraction of total coverage, excluding advertisements. The procedure involved two steps. First, we applied a broad filter containing the following words: *Dreyfus*, *capitaine* (captain), *affaire* (affair), *traître* (traitor), *trahison* (treason), *juif* or *juives* (Jewish), *juiverie* (Jewry, an antisemitic term), *israélites* (Israelites), *cherche-midi* (a prison where Dreyfus was jailed), *Ile-du-Diable* (the island where Dreyfus was sent into exile), *jugement* (judgment), *syndicat* (syndicate, a common term in antisemitic discourse), *espion* (spy), *espionnage* (espionage), as well as the names of key actors of the Affair. Second, we systematically read all newspaper issues mentioning the Dreyfus case and hand-coded all the paragraphs discussing the Affair. In total, more than 61,000 paragraphs were dedicated to the Dreyfus Affair across the 5 newspapers between January 2, 1894 and December 30, 1899. After "J'Accuse", these newspapers together dedicate 84 paragraphs on average (24% of the total coverage) to Dreyfus. This coverage is approximately equally split between Dreyfusard and anti-Dreyfusard outlets (see Appendix Table A.1).

¹*Le Siècle* repository on Gallica: <https://gallica.bnf.fr/ark:/12148/cb32868136g/date>

²*La Croix* repository on Gallica: <https://gallica.bnf.fr/ark:/12148/cb343631418/date>

³*L'Aurore* repository on Gallica: <https://gallica.bnf.fr/ark:/12148/cb32706846t/date>

⁴*La Libre Parole* repository on Gallica: <https://gallica.bnf.fr/ark:/12148/cb328070581/date>

⁵*Le Petit Journal* repository on Gallica: <https://gallica.bnf.fr/ark:/12148/cb32895690j/date>