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# **J'ACCUSE! ANTISEMITISM AND FINANCIAL MARKETS IN THE TIME OF THE DREYFUS AFFAIR**

Quoc-Anh Do, Roberto Galibati, Benjamin Marx, and Miguel A. Ortiz  
Serrano

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

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## Abstract

This paper studies discrimination in financial markets in the context of the “Dreyfus Affair” in 19th century France. The Affair originated from the wrongful conviction of a Jewish officer, Alfred Dreyfus, and revealed the depth of antisemitism in French society. We show that firms with Jewish board members experienced abnormal stock returns after several salient events of the Affair. However, in the long run, these firms experienced higher returns during the media campaign sparked by *J'Accuse...!*, a famous editorial that paved the way for Dreyfus' rehabilitation. Our preferred interpretation is that media coverage of the Affair changed beliefs among antisemitic investors, allowing those who bet on Jewish-connected firms to capture excess returns through arbitrage. Our findings provide novel evidence on the existence of rents from discrimination and the economic impacts of antisemitism.

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

**Keywords:** Antisemitism, Financial Markets, Discrimination

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# 1 Introduction

Discrimination, in theory, generates rents. Unbiased agents may capture these rents as long as other agents with incorrect beliefs are willing to forego profitable investment opportunities. In the case of labor markets, rents accrue to employers paying employees from the group exposed to discrimination a wage below their marginal product (Becker, 1957). In financial markets, investors may also be able to “beat the market” by exploiting other investors’ biased beliefs (Wolfers, 2006). Financial markets in theory provide an ideal setting to estimate these rents from discrimination, since frictions are limited and stock prices may correctly reflect societal changes in discriminatory attitudes.

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 (Shleifer and Vishny, 1997). Uncertainty surrounding the behavior of biased investors creates risk, which in practice limits arbitrage opportunities (De Long et al., 1990). We show that such arbitrage can occur when societal beliefs towards a group exposed to discrimination are rapidly changing. In this context, investors who bet on assets associated with the discriminated group can earn excess returns.

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”, a societal crisis that revealed the depth of antisemitism in 19th century France. The Affair was centered around Alfred Dreyfus, a French Jewish army captain who was wrongfully convicted for treason in late 1894. This episode divided French society between Dreyfus’ supporters and his detractors, whose rhetoric was heavily antisemitic. 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, starting with the publication of a famous editorial (known by its title, “J’Accuse...!”) in January 1898. This implies that some investors captured the rents from discrimination by other investors—the key ingredient behind Becker’s prediction that competitive dynamics act as a force in reducing discrimination.

Our analysis combines stock market data with comprehensive data on the board composition of publicly traded firms between 1894 and 1899, 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 Affair. Our analysis combines a standard event-study approach with a difference-in-differences strategy exploiting the exogenous timing of “J’Accuse”, an unexpected news event that dramatically altered the course of the Dreyfus Affair.

Our results can be summarized as follows. First, we show that four salient episodes of the Affair affected the stock returns of firms with Jewish board members in the short run. This analysis estimates firm-specific cumulative abnormal returns (CARs) in narrow time windows around each event. The four episodes include Dreyfus’ military degradation in January 1895, the publication of “J’Accuse” in January

1898, the appointment of the pro-Dreyfus Waldeck-Rousseau cabinet in June 1899, and the pardon of Dreyfus in September 1899. The first of these episodes marked a peak in France's antisemitic outburst, while the last one brought the salient phase of the Affair to an end. All four episodes are recognized by historians as major turning points of the Dreyfus Affair (Section 2.2 provides a detailed timeline). Firms with Jewish board members experienced large negative CARs after the degradation of Dreyfus, a robust result that holds across a range of alternative specifications. "J'Accuse" had a negative, but more imprecisely measured effect in the short run. However, Jewish-connected firms experienced positive CARs around the latter two episodes, which contributed to Dreyfus' rehabilitation. Other important events of the Dreyfus Affair did not affect the CARs of firms with Jewish board members, perhaps because these events did not affect antisemitic attitudes in a meaningful way.

We then examine the differential performance of firms with Jewish connections subsequent to the publication of "J'Accuse", a widely publicized pamphlet that condemned the rise of antisemitism, denounced the conspiracy against Dreyfus, and started a media campaign demanding his rehabilitation. To identify the causal effects of this campaign on the returns of Jewish-connected firms, we estimate a difference-in-differences specification comparing these firms with other firms before and after the publication of "J'Accuse". Firms with Jewish board members experienced higher daily and monthly returns on average, and a faster growth of their market valuation throughout this campaign. While the volatility of Jewish-connected stocks also increased, the higher returns more than compensated investors for the increased risk. For example, having at least one Jewish board member increased monthly returns by 0.10 standard deviation (SD), and having a Jewish chairman of the board increased returns by 0.19 SD. 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. 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.

Using original data on media coverage of the Dreyfus Affair by five major newspapers, we also show that news revelations about Dreyfus contributed to the higher returns experienced by firms with Jewish board members. Daily coverage of the Affair is associated with higher returns for these firms. This positive relationship is driven by Dreyfusard coverage (coverage by *L'Aurore* and by *Le Siècle*, a mainstream newspaper that progressively became pro-Dreyfus), while anti-Dreyfusard coverage by Catholic or antisemitic outlets has the opposite effect. Media revelations about Dreyfus' innocence likely contributed to change beliefs among investors, allowing those who bet on Jewish-connected firms (either before or shortly after "J'Accuse") to earn excess returns.

Our preferred interpretation is that the market included a fraction of antisemitic investors who held pessimistic views towards Jewish assets before "J'Accuse" and experienced debiasing as a result of Dreyfus' rehabilitation campaign. This interpretation is consistent with extensive work by historians documenting the high prevalence of antisemitism in France at the onset of the Affair (Byrnes, 1950). Building on De Long et al. (1990)'s seminal model of noise traders, we propose a simple framework where demand for stocks emanates from two types of agents: neutral investors with unbiased beliefs, and antisemitic investors who hold pessimistic views of Jewish stocks and optimistic views of other stocks. In this model,

asset prices deviate from fundamentals because of short-term shocks and long-term biases in antisemitic beliefs, as well as uncertainty caused by the presence of antisemitic investors. As a result, Jewish assets can be severely underpriced. However, as in [De Long et al. \(1990\)](#), uncertainty surrounding the beliefs and behavior of antisemitic traders creates risk and limits arbitrage.

Our main results can be interpreted in light of this model. Exogenous shocks in antisemitism at the onset of the Affair—such as Dreyfus’ degradation—increased the pessimistic bias of antisemitic investors, leading to negative but short-lived market reactions on Jewish stock prices. Later shocks surrounding Dreyfus’ rehabilitation had the opposite effect. On the other hand, “J’Accuse” durably rattled beliefs in society, increasing risk in the short run but also debiasing antisemitic beliefs in the long run. In the model, debiasing can explain the gradual appreciation of Jewish stocks via two mechanisms. Antisemitic traders, whose bias was reduced by the media campaign, started investing in Jewish assets. In addition, the reduced uncertainty caused by the debiasing of antisemitic investors increased arbitrage by all investors. Overall, our model sheds light on how increased arbitrage allowed investors to earn excess returns by betting on Jewish-connected firms. However, importantly, such arbitrage was neither riskless nor instantaneous because of the uncertainty created by the presence of antisemitic investors.

We provide additional evidence to rule out alternative mechanisms. Another potential explanation could be that the Dreyfus Affair affected the profitability of Jewish-connected firms, owing to shifting expectations of discrimination by the market or the state. For example, investors might have divested from Jewish-connected firms in the early stages of the Affair as a result of political uncertainty ([Kelly et al., 2016](#)) or because they anticipated a backlash against these firms that would affect their fundamentals, and repurchased these assets later on. Overall, we find little evidence supporting this explanation. First, Jewish-connected firms did not experience negative returns after the appointment of several anti-Dreyfusard government cabinets. Second, Jewish-connected firms that were less exposed to a backlash by the state or the market (firms operating in foreign countries and firms without retail activities) also experienced higher returns during Dreyfus’ rehabilitation campaign.<sup>1</sup> Third, Jewish-connected stocks did not yield higher dividends in 1898-99, after the beginning of this campaign. We provide a detailed discussion of these potential alternative mechanisms in [Section 6](#).

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 demonstrate the existence of rents from discrimination in financial markets. The presence of such rents is essential to trigger the competitive dynamics at the core of neoclassical discrimination theory. In related work, [Szymanski \(2000\)](#) shows that English soccer clubs employing more Black players achieve higher league rankings controlling for the wage bill. [Pager \(2016\)](#) shows that firms engaging in hiring discrimination are less likely to survive in the long run. Other studies provide cross-sectional evidence of this mechanism in the context of discrimination against women employees ([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 prejudice. In contrast to these studies, we exploit exogenous antisemitic shocks that are plausibly orthogonal to firms’ unobservables.

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<sup>1</sup>The absence of discrimination by the state is one of the main differences between our context and Nazi Germany, where antisemitic legislation was gradually introduced between 1933 (civil service and citizenship laws) and 1935 (Nuremberg laws).

Several studies have explored the distortionary impacts of ethnic preferences on investment and firm value. [Fisman et al. \(2014\)](#) show that deteriorating Sino-Japanese relations in 2005 and 2010 adversely affected the performance of firms involved in bilateral economic 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. Overall, the literature has mainly focused on the efficiency consequences of these behaviors. There is much less evidence of investor biases generating profitable investment opportunities for other investors. Our results are consistent with a long-standing hypothesis that unbiased investors can “beat the market” in the presence of discrimination ([Wolfers, 2006](#)).

Arbitrage by some investors led to a convergence of the value of firms with Jewish connections towards the price predicted by their fundamentals. Nonetheless, we do not claim that all the effects of discrimination necessarily disappear in equilibrium. As shown in a vast literature, discrimination can survive as an equilibrium outcome in many settings when agents do not have perfect information about individuals’ characteristics ([Arrow, 1973](#)) or where mechanisms of identity signaling are present ([Peski and Szentes, 2013](#); [Dewan and Wolton, 2019](#)). These elements however are unlikely to be at work in our setting, since the Dreyfus case did not provide relevant information about differences in the quality of firms with Jewish connections. Indeed, the relationship between Jewish board membership and firm returns holds across different sectors and different levels of exposure to government policy. Furthermore, the composition of boards of directors remains stable over our period of study and is unaffected by major events of the Dreyfus Affair.

We also contribute to a growing literature on the economics of ethnic and religious discrimination, including 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 \(2008\)](#) examine the performance of firms with connections to the Nazi movement, and [Huber et al. \(2019\)](#) study the consequences of mass dismissals of Jewish managers in Nazi Germany after 1933. Importantly, while [Huber et al. \(2019\)](#) study the effect of the removal of Jewish managers under an openly antisemitic regime, we identify the effects of antisemitic shocks while keeping firms’ structure and management unchanged.<sup>2</sup> [Doerr et al. \(2019\)](#) further show that exposure to a failing bank led by a Jewish Chairman increased Nazi voting after Germany’s 1931 banking crisis. This paper provides novel evidence on the consequences of the Dreyfus Affair, a major chapter in the global history of antisemitism which took place in a democratic society: the French Third Republic (see section 2.1).

Finally, our empirical setup allows us to study negative as well as positive shocks to antisemitism, in the context of Dreyfus’ initial sentencing and his rehabilitation through a media campaign. The finding of a debiasing of investors speaks to a large literature on the impact of information ([Adida et al., 2018](#); [Grigorieff et al., 2018](#)) and quota policies ([Beaman et al., 2012](#)) on destigmatization and the debiasing of

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<sup>2</sup>The French government never enacted antisemitic policies at the time of the Dreyfus Affair, nor were there expectations that this would occur. In particular, no viable force advocated for antisemitic economic policies. A handful of antisemitic candidates competed in the 1898 legislative elections, but these candidates only garnered 1.7% of the vote.

prejudice (see also [Bertrand and Duflo, 2016](#)).<sup>3</sup> We provide suggestive evidence that destigmatization can occur as a result of a media campaign and affect price movements in financial markets.

The rest of the paper is organized as follows. We provide relevant background on the Dreyfus Affair in Section 2. Section 3 describes our data and Section 4 presents our empirical framework and identification strategies. Our main results are presented in Section 5. Section 6 presents our model and provides additional evidence in support of our preferred interpretation. 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. We defer historical background on the Paris Stock Exchange to the following section.

### 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. The country's public and secular primary education system was established in 1882. In 1905, a landmark law introducing a strong separation between the church and the state was introduced. This law has remained in effect to this day.

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, Jewish citizens were well-integrated in French business, culture, and politics.<sup>4</sup>

However, this integration faced substantial antisemitic opposition stemming from conservative and monarchist forces hostile to secularization. In 1886, a writer named Edouard Drumont published a best-selling book entitled *La France Juive* ("The Jewish France") arguing that Jews were involved in a conspiracy to destroy 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 France and its army to justify the defeat against Germany 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 French citizens, antisemitism and antisemitic propaganda were rife at the onset of the Dreyfus Affair.

<sup>3</sup>Other work on destigmatization can be found across the social sciences, with leading examples in sociology ([Lamont, 2018](#)).

<sup>4</sup>Prominent French Jewish citizens under the Third Republic included the philosopher Henri Bergson, the historian Marc Bloch, the politicians Léon Blum (who served twice as Prime Minister between 1936-38) and Georges Mandel, the industrialist André Citroën, the sociologist Emile Durkheim, the poet Max Jacob, and the painter Camille Pissarro, among many others.

## 2.2 Timeline of the Dreyfus Affair

On September 27, 1894, a French agent working undercover at the German Embassy in Paris discovered a note announcing the imminent delivery of documents concerning French national defense. This information was transferred to French military intelligence and reached General Auguste Mercier, the Minister of War. Under political pressure at the time, Mercier mandated an intelligence officer named Colonel Hubert Henry to identify the author of the note (known as the *bordereau*) and close the case as swiftly as possible. Henry manufactured a file against Captain Alfred Dreyfus, 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 particularly 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—panel (a) of Figure A.1 shows the frontpage of *Le Petit Journal* after this episode.<sup>5</sup> Antisemitic outlets emphasized the Jewish origins of Dreyfus and provided derogatory coverage denigrating all French Jews. 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 Ferdinand Esterhazy. Having informed his hierarchy of these findings, Picquart was removed from the case in 1897. This information, however, reached non-military circles. A first attempt to reopen the Dreyfus file led by Auguste Scheurer-Kestner (a senator) failed in December 1897. Meanwhile, Esterhazy was found innocent by military judges on January 11, 1898, 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—formally an open letter to the French President Félix Faure—publicly revealed all the facts pointing to the wrongful conviction of Dreyfus and accused the military hierarchy of voluntarily suppressing evidence to hide their own negligence. In addition, the pamphlet condemned the rise of antisemitism in French society that led to Dreyfus being falsely accused. For example, Zola writes:

"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 extraordinary imagination of Major du Paty de Clam, the clerics surrounding him, and the hunt for "dirty Jews" that brings shame upon our time. (...) It is a crime to

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<sup>5</sup>A 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).

lead public opinion astray (...) under the disguise of that odious antisemitism that, unchecked, will destroy the great liberal France.”

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

*L’Aurore* sold 300,000 copies on the day “J’Accuse” was published—roughly ten times its average circulation—and reached a large share of public opinion. Zola was prosecuted for libel and found guilty in February 1898. Yet in spite of this verdict, “J’Accuse” broke the consensus about Dreyfus’ culpability and signaled the beginning of a broader advocacy campaign demanding his rehabilitation.<sup>6</sup> During this campaign, the press became increasingly divided between antisemitic and anti-Dreyfusard outlets and a moderate press that became overtly pro-Dreyfus. In August 1898, the arrest and suicide of Colonel Henry provoked a cascade of resignations in the military hierarchy. Archival work suggests that public opinion became increasingly pro-Dreyfus from this point onwards. For example, [Wilson \(2007\)](#) lists 138 revisionist (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 decision by the French Supreme Court 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 September 1899, Dreyfus was again found guilty, this time with attenuating circumstances, and sentenced to 10 years’ imprisonment. However, at the request of the Waldeck Rousseau government, President 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 Alfred Dreyfus was not fully rehabilitated until 1906. [Figure A.3](#) shows that media coverage of the Affair peaked after “J’Accuse” and fell rapidly after Dreyfus’ pardon.

### 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 Dreyfusard and anti-Dreyfusard newspapers.

#### 3.1 Financial data

**Background.** The Paris Stock Exchange assumed its modern form 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.<sup>7</sup> Throughout the 19th century, the Stock

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<sup>6</sup>Edouard 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).

<sup>7</sup>In practice, the *Bourse* was comprised of two different markets: the *Parquet* or *Marché Officiel*, subject to strict regulations by the CAC, and the *Coulisse* or *Marché en Banque* operating independently of these regulations. Our analysis focuses on the official market, the *Marché Officiel*, since there is no reliable daily data on transactions in the *Marché en Banque*.

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. Both episodes are regarded as milestones in the history of French antisemitism. In 1889, *La Croix* wrote: “*L'Union Générale* was assassinated because it was competing successfully 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).

**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. Finally, the yearbooks also include daily price data for contemporary government bonds (*Rentes*), which we use as the risk-free rate. Table A.1 reports summary statistics on this data. In total, we observe these characteristics for 140 firms listed in the Paris Stock Exchange between 1894-1899, including 130 firms listed during the entire period.<sup>8</sup>

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 members of 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, all of which appear in the board membership data. 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 board members out of 1,244 individuals belonging to any board across the 1894-1899 period. Our measures of Jewish board membership at the firm level include the fraction of Jewish board members, an indicator for firms with at least one Jewish board member, and an indicator for firms with a Jewish chairman of the board. We also use a different registry from Lévy (1960) to check the accuracy of

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<sup>8</sup>We restricted this data collection to firms whose stocks were liquid at least 20% of market days during this period. Liquidity defined in this way is uncorrelated with our various measures of Jewish connections.

the Grange (2016) list.<sup>9</sup> Our measures of Jewish connections computed using both databases are strongly correlated. For example, the correlation between the fraction of Jewish board members in the Grange (2016) list and the corresponding fraction using Lévy (1960) is 0.83.

Importantly, individuals with a name listed in Grange (2016) or Lévy (1960) may have held religious beliefs other than Judaism, and they may not have been involved in the Jewish community. Indeed, Section 2.1 argues that many French Jewish citizens forged a secular social identity throughout the 19th century. Nonetheless, it is reasonable to assume that these individuals were exposed to the antisemitic sentiment prevailing in this time period, to the extent that they were perceived as being connected to prominent Jewish families. These families were, in fact, regularly targeted by the antisemitic press.<sup>10</sup>

At the time of the Dreyfus Affair, board members (*membres du conseil d'administration*) 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.<sup>11</sup> The identity of board members was widely publicized and well-known to investors. The chairman of the board (*président du conseil*) typically exerted the function of Chief Executive Officer (*président directeur général* or PDG, the French equivalent to CEOs).

Table A.2 provides descriptive statistics on Jewish board membership across the full sample, and by sector. Overall, 39% of firms have at least one Jewish board member, 14% have a Jewish chairman of the board, 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 (section 5.1), or we include firm fixed effects absorbing all time-invariant firm characteristics (section 5.2 and onwards). 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 camp and published Zola’s “J’Accuse...!” in January 1898. It went into circulation in mid-October 1897. *La Libre*

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<sup>9</sup>The Lévy (1960) database is less accurate since it only includes last names. In addition, Lévy (1960) lists names with a Jewish origin rather than names associated with French Jewish families during the 19th century.

<sup>10</sup>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 Rothschild” (Wilson, 2007).

<sup>11</sup>We are not aware of any historical data source of 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.

*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. The front-page contained the headline and a summary of the important news of the day. The second and third page expanded on the headline items and also covered regional and international information. The last page contained advertisements. We count the number of paragraphs devoted to the Dreyfus Affair both in absolute terms and as a fraction of total coverage (excluding advertisements).<sup>12</sup> A paragraph is coded as covering the Dreyfus Affair if it contains any of 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 four key actors of the Affair: Zola, Esterhazy, Mercier, and Picquart.

## 4 Empirical Framework

### 4.1 Event study framework

We first estimate the short-term effects of major episodes of the Dreyfus Affair on the financial 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,  $JewishBoardMembers_i$  (in our baseline specification) 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, guarantee type, whether the firm has investments abroad, foreign ownership, and the number of politicians sitting in the board of directors. Cumulative Abnormal Returns (CAR) are estimated as follows. First, we estimate firm-specific betas via a 1-factor CAPM, using a capitalization-weighted market index, in a [-300,-60] estimation window before the news of Dreyfus’ arrest on November 2, 1894.<sup>13</sup> 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 salient events of the Affair. If no trading occurred on the event date, the event window is centered around the subsequent trading day.

In Table 1, cumulative abnormal returns are estimated via CAPM and summed over a [0,2] window around 4 major episodes: the military degradation of Dreyfus (January 5, 1895), the publication of “J’Accuse..!” (January 13, 1898), the appointment of the Waldeck-Rousseau cabinet (June 22, 1899), and

<sup>12</sup>This data was manually collected and coded since the low quality of the newspaper scans did not allow for OCR processing.

<sup>13</sup>In the Appendix, we also use a 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.

Dreyfus’ presidential pardon (September 19, 1899). We provide additional background on these episodes in the next section, and we examine other episodes in Appendix Tables A.5 and A.6.

## 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. Figure A.3 illustrates the dramatic increase in the media coverage of the Affair by two widely circulated outlets: *Le Siècle* and *La Croix*. Based on our newspaper data, the fraction of total coverage dedicated to Dreyfus went from 1.4% in 1897 to 21.6% in 1898 for *Le Siècle*, and from 3.8% in 1897 to 14% in 1898 for *La Croix*.

Our next specification estimates the effect of this media campaign starting with “J’Accuse.” We estimate the following equation:

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

where  $i$ ,  $s$ ,  $d$  and  $m$  denote firm, sector, trading day, and month, respectively. We estimate equation (2) on the balanced panel of 130 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).  $\text{JewishBoardMembers}_i$  is a measure of Jewish presence in firm  $i$ ’s board of directors. As described in Section 3, we use the fraction of Jewish board members, an indicator for firms having at least one Jewish board member, or an indicator for firms with a Jewish board chairman based on Grange (2016). 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.9 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  $\delta_i$ , day fixed effects  $\delta_d$ , and sector by month fixed effects  $\delta_{sm}$ . Standard errors are heteroskedasticity-robust and clustered by firm. Tables 2 and 3 report estimates from equation (2), and Appendix Tables A.9 through A.13 report robustness checks.

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.<sup>14</sup>

<sup>14</sup>The intuition behind our difference-in-differences is related 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).

### 4.3 Media Coverage

We also estimate the relationship between daily coverage of the Dreyfus Affair and the stock returns of firms with Jewish connections. To do this, we run:

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

where  $\text{MediaCoverage}_{(t-1)}$  is the total 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  $\text{MediaCoverage}_{(t-1)}$  is absorbed by the day fixed effects,  $\delta_t$ . In Section 5.3, we also disentangle the effects of Dreyfusard and anti-Dreyfusard coverage by interacting  $\text{JewishBoardMembers}_i$  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  $\text{MediaCoverage}_{(t-1)}$  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 a number of ways. In the short run, investors may have divested these assets in response to news arrivals about the alleged treason and degradation of Dreyfus, if these events contributed to increase antisemitic prejudice. Events leading to the rehabilitation of Dreyfus would have had the opposite effect. We test these hypotheses in Section 5.1.

In the long run, media revelations about the conspiracy against Dreyfus may have convinced some investors that Jewish stocks were underpriced by the market as a result of antisemitic prejudice. This would have encouraged arbitrage and increased demand for Jewish-connected stocks after the publication of "J'Accuse". Section 5.2 presents these results and Section 5.3 provides evidence on the impact of media coverage. We provide a detailed discussion of potential mechanisms in the following section.

### 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 1-factor CAPM and summed over a [0,2] window around each event. Our preferred measure of Jewish connections is the fraction of Jewish board members computed using Grange (2016). Appendix Table A.4 looks at alternative measures of Jewish connections and Appendix Table A.5 shows robustness to alternative estimation strategies. Finally, Appendix Table A.6 presents estimates of the effect of Jewish connections around government cabinet changes.

The military degradation of Dreyfus took place on January 5, 1895, in front of a large crowd shouting

**Table 1: Cumulative Abnormal Returns of Firms with Jewish Board Members**  
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	-4.714*** (1.523)	-1.996 (1.509)	6.566** (3.012)	2.433** (1.200)
Constant	0.112 (0.499)	-0.063 (0.491)	-2.810*** (0.901)	-0.050 (0.525)
Observations (Firms)	134	137	137	137
R <sup>2</sup>	0.17	0.18	0.29	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 CAPM in a [-300,-60] estimation window before Dreyfus' arrest on November 2, 1894. 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 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 board members with political connections.

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

antisemitic abuse.<sup>15</sup> This event received widespread media coverage and allegedly marked a peak of France's antisemitic outburst (see Section 2.2 and Figure A.1). On January 7, 1895, the newspapers in our data dedicated 15% of their total 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 4.7 percentage point decline in returns relative to a firm with zero Jewish connections. 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, this publication 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 anti-semitic prejudice could have been confirmed in their beliefs about the existence of a conspiracy against the state.<sup>16</sup> 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

<sup>15</sup>We center the event window around Monday January 7, 1898, which is the first trading day occurring after the degradation.

<sup>16</sup>In the editorial, Zola accused high-ranking army officials and government members of gross misconduct in their handling of the Dreyfus case. These accusations may have increased distrust towards the elites among readers whose priors conflicted with this new evidence (see Barrera et al., 2020).

points immediately around the publication of “J’Accuse”. Figure 1, discussed below, suggests 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 explicit task of forming a unity government to solve the Dreyfus Affair. The anti-Dreyfusard opposition famously labelled his cabinet as the “Dreyfus Ministry”. Column 3 of Table 1 shows that firms with Jewish connections experienced abnormal positive returns following the appointment of Waldeck-Rousseau. This estimate is robust to other methods for computing CARs (see Appendix Table A.6). The increased demand for Jewish-connected stocks could have reflected a more optimistic climate around these firms following the appointment of Waldeck-Rousseau. Or, this appointment could have led investors to realize 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 government 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. We report this estimate as Loubet’s pardon led to Dreyfus’ release and is generally recognized as the event that brought the salient phase of the Affair to an end—even though Dreyfus was not fully rehabilitated until 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 that led to 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 starting in January 1898. In Section 6 and Appendix B, we explain both effects in the context of a model of antisemitic traders where exogenous antisemitic shocks affect asset prices 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, 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 Tables A.4, A.5, and A.6 present robustness checks on the key findings in Table 1. In Appendix Table A.4, we look at three alternative measures of Jewish board membership: the fraction of Jewish board members based on Lévy (1960), a dummy variable indicating the firm has at least one Jewish board member, and an indicator for firms with a Jewish chairman of the board. 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 using the binary measures of Jewish connections,

suggesting that investors responded to Jewish board membership along the intensive margin.

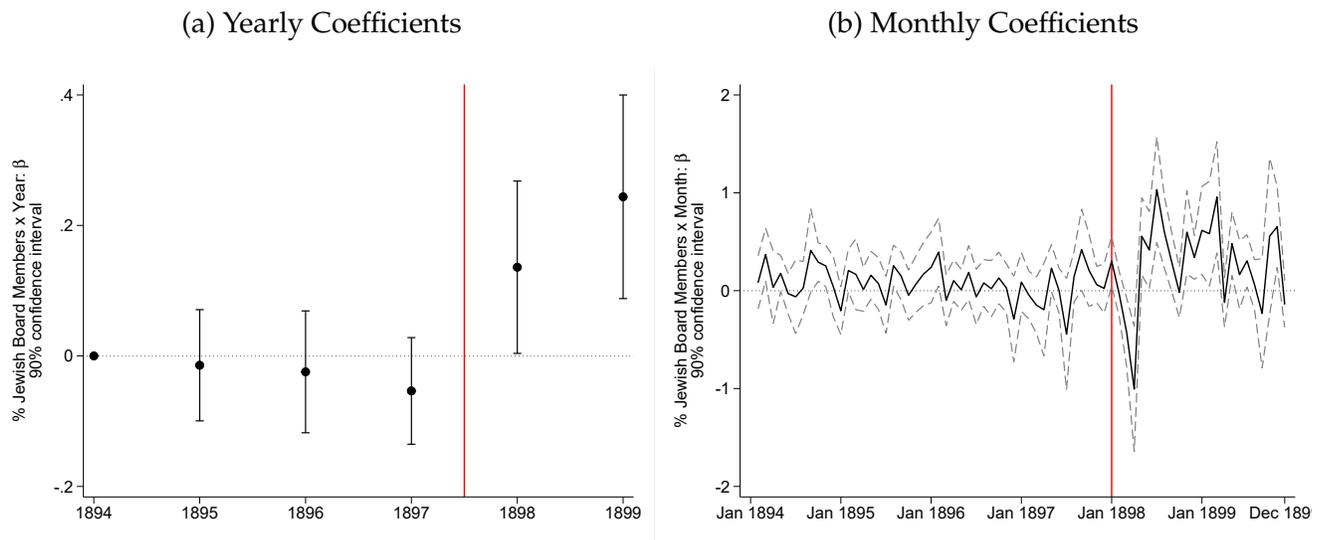
Appendix Table A.5 looks at alternative strategies and measures CARs around four additional episodes: the first news of Dreyfus’ arrest (November 2, 1894), the conviction of Dreyfus by a martial court (December 22, 1894), the revelation of the suicide of Colonel Henry, a key actor in the forgery of documents that supported Dreyfus’ initial sentencing (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 Dreyfus Affair, and shows robustness to alternative ways of computing these returns. Among all these government changes, only the Waldeck-Rousseau appointment has a significant effect on the CARs of firms with Jewish board members. The appointment of the Méline and Dupuy II cabinets, two anti-Dreyfusard cabinets hostile to a revision of the Dreyfus trial, do not have a negative effect on the CARs of these firms.

## 5.2 Rehabilitation Campaign

We now turn to our exploration of how Dreyfus’ rehabilitation campaign, initiated with the unexpected diffusion of “J’Accuse”, affected the returns of firms with Jewish board members. Figure 1 shows that “J’Accuse” represented a turning point for the financial performance of these firms.

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



Notes: This figure reports estimates from the following specification:  $y_{itp} = \sum_t \beta_t(\%BoardMembers)_i \times Period_t + \delta_i + \delta_t + \varepsilon_{it}$ , where  $Period$  denotes years in panel (a) and months in panel (b).  $y_{it}$  are daily stock returns measured for firm  $i$  on day  $t$ .  $\delta_i$  and  $\delta_t$  are firm and trading fixed effects, respectively. The specification also includes sector-by-month fixed effects as in Table 2. In panel (b), the dashed grey line indicates 90% confidence intervals. Standard errors are clustered by firm. The vertical red line highlights the publication of “J’Accuse” on January 13, 1898.

Here we report year-to-year and month-to-month effects of Jewish board membership on daily stock returns. We interact the fraction of Jewish board members 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).

Between 1894 and 1897, the stock returns of Jewish-connected firms do not differ markedly from those of other firms.<sup>17</sup> This changes dramatically in 1898, the year when Dreyfus' rehabilitation campaign began in earnest. On average, Jewish-connected firms experience significantly higher daily returns in both 1898 and 1899 (panel a). As we show later in Table 5, this is not matched by a corresponding increase in firm dividends. A closer look at monthly coefficients 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 (panel b). This is consistent with the short-term estimate presented in column 2 of Table 1. Overall, firms with a greater fraction of 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.

**Stock Returns and Valuation Gains.** Table 2 reports estimates from equation (2). We look at four different measures of stock returns and firm value: daily and monthly stock returns in columns 1 and 2, respectively, and daily and monthly gains in firm value in columns 3 and 4, respectively. 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). Panels (a), (b), and (c) examine three different measures of Jewish board membership, which we describe below. In Appendix Table A.7, we report identical specifications looking at a firm's market-to-book ratio (the ratio of the stock's listed price to its nominal price) as a measure of firm valuation. The market-to-book ratio closely approximates 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 equation (2)—the same measure used in Table 1 and Figure 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 (a 0.13 SD effect), and a 7 percentage point increase in monthly returns (a 0.8 SD effect) after “J’Accuse”. Both estimates are significant at 5%. In addition, the firms would have experienced a 0.12 SD (0.88 SD) increase in their daily (monthly) market capitalization. While these are large effects, note that no firm has 100% of Jewish individuals in their board of directors—the maximum value of this variable is 70%.

Panel (b) looks at an extensive margin measure of Jewish connections: whether a firm had at least one Jewish board member. This indicator is also associated with higher daily and monthly returns (columns 1-2) and a higher growth of the firm's market capitalization (columns 3-4) after “J’Accuse”. For example, having at least one Jewish board member is associated with a 0.03 SD increase in daily returns and a 0.12 SD effect in monthly returns (columns 1 and 2).

Finally, in Panel (c) we interact the post-“J’Accuse” dummy with an indicator for firms with a Jewish

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<sup>17</sup>In addition, Appendix Figure A.4 shows that total market capitalization did not decrease in the initial stages of the Dreyfus Affair, suggesting that Dreyfus' sentencing did not trigger a capital flight away from the Stock Exchange.

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

	<b>Stock Returns</b>		<b>Firm Value Gains</b>	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly
<i>(a) % of Jewish Board Members</i>				
% Board Members × Post J’Accuse	0.203** (0.088)	7.339** (3.356)	0.281** (0.121)	8.911** (3.621)
R <sup>2</sup>	0.02	0.13	0.01	0.12
Mean Dep Var	0.021	0.512	0.029	0.638
Firms	130	130	130	130
Observations	237550	9204	237938	9204
<i>(b) ≥ 1 Jewish Board Member</i>				
≥ 1 Board Member × Post J’Accuse	0.042*** (0.013)	1.079** (0.433)	0.050** (0.020)	1.656*** (0.584)
R <sup>2</sup>	0.02	0.13	0.01	0.12
Mean Dep Var	0.021	0.512	0.029	0.638
Firms	130	130	130	130
Observations	237550	9204	237938	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman × Post J’Accuse	0.077*** (0.027)	1.622** (0.715)	0.056** (0.028)	1.803** (0.745)
R <sup>2</sup>	0.02	0.13	0.01	0.12
Mean Dep Var	0.021	0.512	0.029	0.638
Firms	130	130	130	130
Observations	237550	9204	237938	9204

*Notes:* This table reports estimates from equation (2). In columns 1 and 2, the dependent variables 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 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 at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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.

chairman of the board. The difference-in-differences coefficient is again positive across all columns and statistically significant throughout. The presence of a Jewish board chairman could have rendered a firm’s Jewish connections more salient to investors. Indeed, we find slightly larger effects of this measure

on daily and monthly returns, relative to the extensive margin measure used in panel (b). Having a Jewish chairman increases daily returns by 0.05 SD and monthly returns by 0.18 SD. The corresponding increases for the growth in market capitalization are 0.02 and 0.18 SD, respectively (columns 3 and 4).

In Section 6, we show that this increase in returns after “J’Accuse” was not accompanied by an increase in profitability as measured by corporate 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 stock performance of firms with Jewish board members may have come from diminished antisemitic attitudes among some investors. The revelations about the miscarriage of justice against Dreyfus may have convinced these investors that Jewish assets were likely underpriced by the market, and persuaded them to engage in arbitrage. Before turning to this interpretation, however, we explore another potential channel behind these results: the possible impact of Dreyfus’ rehabilitation campaign on the volatility of Jewish-connected stocks.

**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 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.

Overall, we find suggestive evidence that the rehabilitation campaign increased the volatility of Jewish-connected stocks, and robust evidence that it increased risk-adjusted returns. In panel (a), a larger fraction of Jewish board members is associated with larger squared daily and monthly returns (columns 1 and 2). This positive effect is not robust to using alternative measures of Jewish connections—having at least one Jewish board member, or a Jewish board chairman—in panels (b) and (c).

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 standard deviation of returns calculated within each firm (the Sharpe ratio). Across all three measures of Jewish board membership, the difference-in-differences estimate remains 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 0.10 SD. Having at least one Jewish board member increased monthly returns by 0.09 standard deviation (SD), and having a Jewish chairman of the board increased these returns by 0.19 SD. While the volatility of stocks associated with Jewish-connected firms may have increased after the publication of “J’Accuse”, investors who bet on these firms were more than compensated for this increased risk.

We further probe this result in Appendix Table A.8. 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). Our estimates of the effect of Dreyfus’ rehabilitation campaign on the risk-adjusted returns of Jewish-connected firms are robust to these alternative specifications.

**Robustness Checks.** Appendix Tables A.9 through A.13 report robustness checks for our core results

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

	Squared Returns		Risk-Adjusted	
	(1) Daily	(2) Monthly	(3) Daily	(4) Monthly
<i>(a) % of Jewish Board Members</i>				
% Board Members × Post J’Accuse	16.510** (8.123)	840.151* (458.522)	0.104** (0.041)	0.628** (0.279)
R <sup>2</sup>	0.01	0.09	0.02	0.21
Mean Returns	2.566	78.962	0.017	0.087
Firms	130	130	130	130
Observations	237550	9204	237550	9204
<i>(b) ≥ 1 Jewish Board Member</i>				
≥ 1 Board Member × Post J’Accuse	3.662 (2.768)	89.793 (64.482)	0.020** (0.008)	0.096* (0.051)
R <sup>2</sup>	0.01	0.09	0.02	0.21
Mean Returns	2.566	78.962	0.017	0.087
Firms	130	130	130	130
Observations	237550	9204	237550	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman × Post J’Accuse	9.024 (6.188)	103.978* (55.307)	0.036*** (0.012)	0.192** (0.079)
R <sup>2</sup>	0.01	0.09	0.02	0.21
Mean Returns	2.566	78.962	0.017	0.087
Firms	130	130	130	130
Observations	237550	9204	237550	9204

*Notes:* This table reports estimates from equation (2). The dependent variables are demeaned squared returns in columns 1-2, 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 board members with a Jewish origin based on [Grange \(2016\)](#). Panel (b) looks at whether the firm has at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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.

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. In Appendix Table A.9, we look at an intent-to-treat measure of Jewish connections on the right-hand side of

equation (2): namely Jewish board membership measured on November 2, 1894—the day when Dreyfus’ arrest was first revealed to the public. This ensures that our results are not driven by changes in the board composition of firms. Appendix Table A.10 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, foreign ownership, whether the firm has investments abroad, and political connections in the board of directors. This specification ensures that our difference-in-differences estimator is not picking up differential effects of these variables after “J’Accuse”. Appendix Table A.11 reports estimates from equation (2) also including firm-specific linear time trends. Appendix Table A.12 looks at measures of Jewish board membership computed using Lévy (1960). Finally, in Appendix Table A.13 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, our core results are robust to these specification checks.

### 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 opinion throughout the crisis (Reinach, 1901; Bousset, 1960; Miquel, 2003). The Affair also coincided with a rapid growth of the written press in France: sales of daily newspapers increased from 2.2 million in 1880 to 10 million in 1914 (Noiriel, 2019). The press in the time of the Dreyfus Affair “played ‘a sort of double role, giving information but also distorting it, mixing revelation and calumny” (Wilson, 2007, p.87).

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 indicator 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—using a measure of intensity (the average fraction of paragraphs) instead of volume delivers similar results. Section 3.3 provides relevant background on each of the five outlets, and Figure A.3 illustrates the dramatic increase in media coverage of the Dreyfus Affair by *Le Siècle* and *La Croix*, the two newspapers with the largest readership on each side of the political spectrum. Panel (a) looks at the average fraction of paragraphs dedicated to Dreyfus, and panel (b) looks at the total number of paragraphs in each newspaper.<sup>18</sup>

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<sup>18</sup>In 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. However, all our estimates are robust to using December 1897 instead of January 1898 as the turning point.

**Table 4: Stock Returns and Media Coverage**

	Daily Returns		Monthly Returns	
	(1)	(2)	(3)	(4)
(a) % of Jewish Board Members				
% Board Members × Media Coverage	0.160*		6.948**	
	(0.089)		(3.463)	
% Board Members × Dreyfusard Coverage		0.425		22.354*
		(0.412)		(13.110)
% Board Members × Anti-Dreyfusard Coverage		-0.154		-11.462
		(0.344)		(13.440)
R <sup>2</sup>	0.02	0.02	0.13	0.13
Mean Returns	0.021	0.020	0.512	0.512
Firms	130	130	130	130
Observations	237550	237420	9204	9204
(b) ≥ 1 Jewish Board Member				
≥ 1 Board Member × Media Coverage	0.030*		1.001*	
	(0.016)		(0.547)	
≥ 1 Board Member × Dreyfusard Coverage		0.086		3.867**
		(0.087)		(1.935)
≥ 1 Board Member × Anti-Dreyfusard Coverage		-0.037		-2.424
		(0.079)		(2.160)
R <sup>2</sup>	0.02	0.02	0.13	0.13
Mean Returns	0.021	0.020	0.512	0.512
Firms	130	130	130	130
Observations	237550	237420	9204	9204
(c) Jewish Chairman of the Board				
Jewish Chairman × Media Coverage	0.056**		1.429*	
	(0.027)		(0.799)	
Jewish Chairman × Dreyfusard Coverage		0.111		9.064**
		(0.127)		(3.708)
Jewish Chairman × Anti-Dreyfusard Coverage		-0.008		-7.693**
		(0.114)		(3.358)
R <sup>2</sup>	0.02	0.02	0.13	0.13
Mean Returns	0.021	0.020	0.512	0.512
Firms	130	130	130	130
Observations	237550	237420	9204	9204

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 at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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.

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". Columns 1 and 3 show a positive and significant association between stock returns and the interaction of our 3 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 (c) of column 4, where we use Jewish board chairmans as our measure of Jewish connections.

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.

## 6 Interpretation

Our empirical 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, we document a large relative increase in the returns and valuation of the same firms after the publication of "J'Accuse", the starting point of a media campaign denouncing the antisemitic conspiracy against Dreyfus. In this section, after taking stock of these results and potential mechanisms (section 6.1), we outline a model that provides intuition for our preferred interpretation (section 6.2), and we report additional tests to rule out alternative interpretations (section 6.3).

### 6.1 Overview of Mechanisms

The first natural explanation for our empirical findings is that the Dreyfus Affair changed the economic environment in which firms with Jewish board members operate. These firms could have faced an antisemitic backlash by the state or the market, or investors may have expected that such a backlash would occur even if it did not materialize in practice. For example, an antisemitic stance by the government could have translated into adverse procurement policies or regulations 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 or other face-to-face commercial activities. This would have reduced the likelihood of an antisemitic backlash by customers. Second, while the political class was deeply 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 mainstream politics.<sup>19</sup> Our empirical setup in that sense differs from that of [Huber et al. \(2019\)](#), who study the impact of widespread dismissals of Jewish managers in the context of a regime (Nazi Germany) overtly implementing antisemitic policies. Third, these alternative mechanisms rely on the idea that some investors responded to the initial outburst of antisemitism in the early stages of the Affair by divesting their Jewish-connected assets. Yet, the lack of pre-trends in [Figure 1](#) suggests this was likely not the case. In addition, [Appendix Figure A.4](#) shows that the early stages of the Affair did not trigger a capital flight away from the Stock Market as a whole.<sup>20</sup>

Our preferred interpretation is that the market included a fraction of antisemitic investors who overlooked Jewish-owned assets before “J’Accuse” and experienced debiasing as a result of Dreyfus’ rehabilitation campaign. This interpretation is consistent with the large historical record indicating a high prevalence of antisemitism among the business community in late 19th century France. We describe this interpretation in the next section, before providing additional evidence to rule out other mechanisms.

## 6.2 Investor Discrimination and Debiasing

The media campaign organized to rehabilitate Dreyfus revealed to the public that deeply entrenched antisemitic attitudes had led to Dreyfus’ wrongful conviction. As such, the campaign contained valuable information about the pervasiveness of antisemitism in all spheres of French society. We hypothesize that some antisemitic investors had previously overlooked Jewish-owned assets until “J’Accuse” and experienced debiasing as a result of this rehabilitation campaign. Debiasing led these investors to realize that Jewish-connected stocks were underpriced by the market, increasing demand for those stocks. This would have allowed some investors to earn excess returns through increased arbitrage.

**Model.** We summarize this interpretation with a model expanding on [De Long et al. \(1990\)](#) where demand for stocks emanates from two types of investors: neutral investors with unbiased beliefs, and antisemitic investors. The formal derivations are presented in [Appendix B](#). 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  $\gamma$  is the coefficient of absolute risk aversion and  $w$  is the expected final wealth. Here, agents can purchase two types of risky assets: a representative stock of Jewish firms  $J$

<sup>19</sup>These candidates won 10 parliamentary seats (out of 585), gathering 1.7% of the vote. An antisemitic parliamentary group was then formed with 23 MPs, but did not succeed in passing meaningful legislation. The group was disbanded in 1901.

<sup>20</sup>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 political upheaval and uncertainty around gold production in South Africa ([Van-Helten, 1985](#)).

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. Antisemitic traders, representing a share  $\mu$  of the population, hold a bias  $\rho_t^N$  on the price  $p_t^N$  of non-Jewish stocks and  $\rho_t^J$  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  $\rho^{*J}$  and  $\rho^{*N}$  are respectively negative and positive, and  $\boldsymbol{\Sigma}_\rho$  denotes the variance-covariance matrix between the antisemitic investors' two biases.<sup>21</sup>

Under these assumptions, as described in Appendix B, the main asset pricing equation in the model (equation (P)) shows that stock prices deviate from fundamentals because of short-term shocks and long-term biases in antisemitic beliefs, as well as 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 unbiased 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.

Our main empirical findings can be interpreted in light of this model. Exogenous shocks in anti-semitism trigger negative market reactions on Jewish stock prices but are unlikely to persist and can be quickly reversed when new values of the antisemitic bias are drawn. Thus, episodes at the onset of the Affair (such as Dreyfus' degradation) led to a negative shock in the bias of antisemitic investors, resulting in negative CARs among Jewish-connected firms, while positive shocks in later stages (e.g. Dreyfus' pardon) had the opposite effect. Fundamentally different from the events that pushed public opinion unequivocally against Dreyfus, "J'Accuse" was a major disruption that rattled beliefs in society. Akin to a shock on the variances of antisemitic investors' biases, "J'Accuse" increased the volatility of Jewish stocks in the short run, as seen in Figure 1. However, the media campaign that ensued also reduced anti-semitic bias in the long run, causing a gradual appreciation of Jewish stocks relative to non-Jewish ones. Specifically, debiasing in the model has two types of effects on portfolio decisions. First, antisemitic investors become themselves more likely to invest in Jewish stocks, increasing demand for these assets. Second, the reduced uncertainty coming from antisemitic investors increases arbitrage opportunities for unbiased agents, who earn excess returns as a result.

The fact that "J'Accuse" had a negative effect in the short run, but a positive effect on the returns of Jewish-connected firms in the long run suggests that it affected both the expected mean and variance of

<sup>21</sup>While 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.

the price of Jewish-connected stocks (see Appendix Section B.2). The debiasing of antisemitic investors occurred over a period of time, as a result of continuous media coverage of the Affair. Hence, while the evidence on the existence of rents from discrimination provides some support for the Beckerian view that markets can arbitrage discrimination away, this gradual debiasing suggests that discriminatory behavior did not instantly disappear after “J’Accuse”. In the model, even though the reduction of uncertainty caused by antisemitic investors allows for more aggressive arbitrage, antisemitic investors can still survive when their optimistic bias towards non-Jewish stocks exceeds the pessimistic bias towards Jewish stocks. Thus, the model rationalizes our empirical results even without assuming that all antisemitic investors experienced debiasing during this period. Indeed, antisemitism remained widespread in France in the aftermath of Dreyfus’ pardon (Reinach, 1901; Byrnes, 1950; Wilson, 2007).

### 6.3 Alternative Interpretations

Our empirical results lend themselves to other potential interpretations. Here we provide additional evidence to rule out these alternative mechanisms.

**Firm Profitability and Dividends.** Table 5 looks at the effect of the Dreyfus rehabilitation campaign on the dividends of firms with Jewish board members, which we use as a proxy for actual profitability. 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. 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: 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 all 3 measures of Jewish board membership, we find no evidence that the profitability of Jewish-connected firms improved in 1898-99, after the publication of “J’Accuse”. Jewish board membership has a negative effect on log dividends in panels (a) and (c), and a positive but non-significant effect in panel (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.

**Heterogeneity by Government and Retail Exposure.** We then test whether our estimates of the effect of Jewish connections on stock returns after “J’Accuse” are driven by shifting expectations of discrimination by the state or the market. Table 6 compares our baseline estimates with estimates obtained for firms that did not face the likely prospect of an antisemitic backlash. More specifically, we estimate equation (2) for two subsamples of interest: firms operating in foreign countries 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.

**Table 5: Jewish Connections and Firm Dividends**

	Log Dividends		Dividends/Price	
	(1)	(2)	(3)	(4)
<i>(a) % of Jewish Board Members</i>				
% Board Members $\times$ Post-J'Accuse	-0.171 (0.583)	-0.210 (0.624)	0.001 (0.041)	-0.006 (0.048)
R <sup>2</sup>	0.79	0.81	0.44	0.46
Mean Dividends	2.885	2.885	0.042	0.042
Sector*Year Effects		✓		✓
Firms	130	130	130	130
Observations	910	910	910	910
<i>(b) <math>\geq 1</math> Jewish Board Member</i>				
$\geq 1$ Board Member $\times$ Post-J'Accuse	0.155 (0.145)	0.180 (0.148)	0.005 (0.010)	0.004 (0.011)
R <sup>2</sup>	0.80	0.81	0.44	0.46
Mean Dividends	2.885	2.885	0.042	0.042
Sector*Year Effects		✓		✓
Firms	130	130	130	130
Observations	910	910	910	910
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman $\times$ Post-J'Accuse	-0.105 (0.204)	-0.085 (0.199)	-0.012 (0.017)	-0.016 (0.018)
R <sup>2</sup>	0.79	0.81	0.44	0.47
Mean Dividends	2.885	2.885	0.042	0.042
Sector*Year Effects		✓		✓
Firms	130	130	130	130
Observations	910	910	910	910

*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 at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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.

First, 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.

**Table 6: Stock Returns of Jewish-Connected Firms After “J’Accuse”**  
Heterogeneity by Government and Retail Exposure

	Daily Returns			Monthly Returns		
	(1) Baseline	(2) Foreign	(3) No Retail	(4) Baseline	(5) Foreign	(6) No Retail
<i>(a) % of Jewish Board Members</i>						
% Board Members × Post J’Accuse	0.203** (0.088)	0.558* (0.284)	0.199** (0.095)	0.073** (0.034)	0.169* (0.085)	0.074** (0.035)
R <sup>2</sup>	0.02	0.06	0.02	0.13	0.33	0.13
Mean Returns	0.021	0.025	0.020	0.005	0.006	0.005
Firms	130	29	113	130	27	112
Observations	237550	53128	206408	9204	1917	7926
<i>(b) ≥ 1 Jewish Board Member</i>						
≥ 1 Board Member × Post J’Accuse	0.042*** (0.013)	0.045 (0.039)	0.043*** (0.016)	0.011** (0.004)	0.015 (0.012)	0.011** (0.005)
R <sup>2</sup>	0.02	0.06	0.02	0.13	0.32	0.13
Mean Returns	0.021	0.025	0.020	0.005	0.006	0.005
Firms	130	29	113	130	27	112
Observations	237550	53128	206408	9204	1917	7926
<i>(c) Jewish Chairman of the Board</i>						
Jewish Chairman × Post J’Accuse	0.077*** (0.027)	0.083* (0.043)	0.077*** (0.027)	0.016** (0.007)	0.026** (0.012)	0.016** (0.007)
R <sup>2</sup>	0.02	0.06	0.02	0.13	0.33	0.13
Mean Returns	0.021	0.025	0.020	0.005	0.006	0.005
Firms	130	29	113	130	27	112
Observations	237550	53128	206408	9204	1917	7926

*Notes:* This table reports estimates from equation (2). The dependent variables are daily returns in columns 1 to 3 and monthly returns in columns 3 to 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 at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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.

Firms with the core of their business operations abroad should have been less exposed to the prospect of adverse government policies or regulations. If our key result of positive returns after “J’Accuse” was driven by improved expectations about the policy environment faced by Jewish-connected firms, then there should be no effect of the Dreyfus rehabilitation campaign among firms in this subsample.<sup>22</sup>

<sup>22</sup>Recall 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.10 shows robustness to

Columns 2 and 5 of Table 6 show that firms with Jewish board members and operating in foreign countries did, in fact, experience larger returns after “J’Accuse”. While these estimates are imprecisely estimated due to the small sample size, 4 out of the 6 coefficients of interest are statistically significant and all estimates are larger in magnitude than the baseline estimates obtained with the full sample.

Second, 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 food and water products, and department stores.<sup>23</sup> Like foreign-owned firms, the firms remaining in the sample should have had little exposure to a market backlash via antisemitic customers. However, in column 3 and 6 of Table 6 we again find strong positive effects on returns among this subsample. Overall, Table 6 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.

In Appendix Table A.6, we further examine the hypothesis that investors responded to the Dreyfusard or anti-Dreyfusard stance of various governments. This provides a relevant benchmark for the estimate in column 3 of Table 1, where we looked at the effect of the Waldeck-Rousseau cabinet on the cumulative abnormal returns of firms with Jewish board members. Based on the available historical evidence, four cabinets with a clear stance on the Affair governed France 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 all these cabinet appointments, only the last one had large and significant effects 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. This speaks against the interpretation that the investors’ response to various developments of the Affair were driven by expectations of hostile government policy towards firms with Jewish board members.

## 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. Revelations about the conspiracy against Dreyfus exposed the deep entrenchment of antisemitism within all spheres of French society. We show that the stocks of firms with Jewish connections yielded excess returns during this rehabilitation campaign. To the best of our knowledge, this is the first successful attempt to uncover evidence of rents from discrimination in financial markets. The existence of such rents is essential to trigger the competitive dynamics at the core of neoclassical discrimination theory: without investors being able to arbitrage away discrim-

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controlling for this variable interacted with the post-“J’Accuse” dummy.

<sup>23</sup>The 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).

inatory attitudes, market competition cannot act as a positive force in reducing discrimination.

We hypothesize that changing attitudes in society after the publication of “J’Accuse” encouraged arbitrage and enabled some investors to capture these rents. The media campaign organized to rehabilitate Dreyfus repeatedly emphasized how the captain’s Jewish origins had led to his wrongful conviction. As a result, the campaign contained valuable information about the pervasiveness of antisemitic attitudes in political and economic circles, including the financial market. This information may have been sufficient for some investors to realize the extent of antisemitic bias in the market as a whole. Overall, this points to the fundamental role of impartial media in steering markets away from discriminatory or incorrect attitudes and beliefs—even in the context of a crisis that should have been of little consequence for financial markets. The convergence of the mainstream media towards accurate and truthful reporting ultimately favored a convergence of the price of Jewish-connected stocks towards their fundamentals. Without a neutral and vibrant media playing this debiasing role, discrimination is likely to impose substantial costs on society.

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# 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



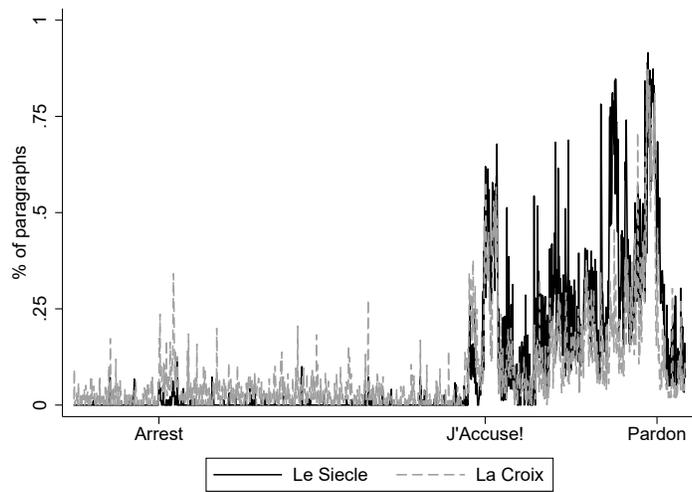
(a) Antisemitic Front Page by *La Libre Parole*



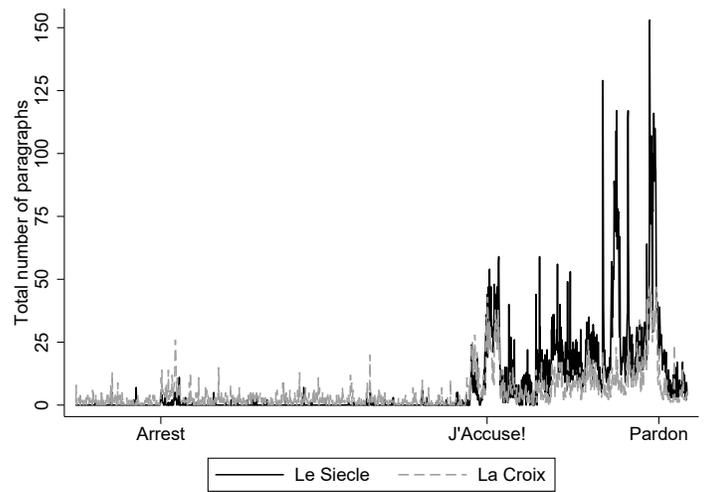
(b) Antisemitic Caricature

**Figure A.3: Media Coverage of the Dreyfus Affair (1894 - 1899)**

(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:** Market Capitalization in the Paris Stock Exchange (1894 - 1899)



*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 (1894-1899)

	Mean	SD	N
<b>Financial data</b>			
Liquidity	0.69	0.462	248,470
Stock price (Fr.)	776.01	739.18	248,470
Daily returns	0.02	1.617	247,927
Monthly returns	0.512	8.887	9,204
Market Capitalization (Million Fr.)	89.287	218.963	248,470
Number of shares	98,834.0	153,000	249,080
Capital (Nominal, Million Fr.)	52.139	154.733	249,080
Market-to-Book Ratio	2.598	7.365	248,470
Government guarantee	0.188	0.391	249,080
Headquarters abroad	0.134	0.341	249,080
<b>Board Composition</b>			
Board Size	9.868	4.903	249,080
Number of Jewish Board Members	0.615	0.934	249,080
% Jewish Board Members	0.067	0.111	249,080
≥ 1 Jewish Board Member	0.393	0.488	249,080
Jewish Chairman of the Board	0.155	0.362	249,080
% Jewish Board Members (Lévy list)	0.104	0.132	249,080
<b>Media Coverage</b>			
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 (1894-1899)

	Firms (1)	% Board Members (2)	$\geq 1$ Board Member (3)	Jewish Chairman (4)
<b>(a) Jewish Connections by Sector</b>				
<i>Sector</i>				
Railways	26	0.078	0.492	0.289
Banking	22	0.044	0.327	0.178
Mining	19	0.056	0.327	0.068
Gas/Electricity	12	0.177	0.667	0.386
Insurance/Real Estate	11	0.039	0.127	0.091
Iron/Heavy Industry	10	0.012	0.080	0.080
Transports	10	0.051	0.362	0.149
Food, Liquors & Tobacco	7	0.056	0.429	0.143
Water	5	0.087	0.6	0
Telephone & Telegraphs	3	0.057	0.583	0
Docks/Warehouse	2	0.033	0.5	0
Media	2	0.053	0.5	0
Other	11	0.083	0.340	0
<b>Total (average)</b>	140	0.067	0.393	0.155
St. Dev.		(0.111)	(0.488)	(0.362)
Q1		0	0	0
Median		0	0	0
Q3		0.111	1	0
<b>(b) Firm Characteristics and Jewish Connections</b>				
Liquidity	0.69	-0.113 (0.18)	0.042 (0.03)	-0.019 (0.05)
Stock price (Fr.)	768.16	18.07 (591.78)	56.231 (125.3)	-219.486 (160.13)
Daily returns	0.02	-0.025 (0.02)	-0.006 (0.01)	0.014 (0.01)
Market Capitalization (Million Fr.)	86.88	-2.419 (107.76)	54.821 (41.16)	-4.788 (59.26)
Shares (thousands)	98.32	139.998 (141.13)	68.447** (30.19)	51.965 (49.9)
Capital (Nominal, Million Fr.)	51.08	88.132 (77.31)	51.725** (23.54)	44.444 (31.26)
Market-to-Book Ratio	2.57	-3.796 (3.37)	-0.94 (0.95)	-1.672** (0.78)
Government guarantee	0.18	0.054 (0.29)	0.004 (0.06)	0.102 (0.11)
Headquarters abroad	0.15	0.798** (0.4)	0.169** (0.07)	0.42*** (0.12)
Board Size	9.86	-2.224 (2.97)	1.135 (0.82)	-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 board chairman (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		≥ 1 Board Member		Jewish Chairman	
	(1)	(2)	(3)	(4)	(5)	(6)
1895	-0.001 (0.003)	-0.000 (0.003)	0.008 (0.011)	0.008 (0.009)	0.002 (0.012)	0.001 (0.012)
1896	0.001 (0.003)	-0.000 (0.003)	-0.002 (0.013)	-0.000 (0.012)	0.001 (0.016)	-0.001 (0.015)
1897	-0.000 (0.003)	-0.001 (0.003)	-0.008 (0.011)	-0.007 (0.009)	-0.001 (0.012)	-0.001 (0.012)
1898	-0.000 (0.003)	-0.001 (0.003)	-0.008 (0.011)	-0.007 (0.009)	-0.001 (0.012)	-0.001 (0.012)
Constant	0.067*** (0.009)	0.067*** (0.001)	0.395*** (0.041)	0.394*** (0.002)	0.155*** (0.029)	0.155*** (0.003)
R <sup>2</sup>	0.00	0.92	0.00	0.95	0.00	0.85
Mean Dep Var	0.067	0.067	0.393	0.393	0.155	0.155
Firm Fixed Effects		✓		✓		✓
Firms	140	140	140	140	140	140
Observations	814	814	814	814	812	812

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  $\delta_i$ . 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)
Baseline (Table 1)	-4.714*** (1.523)	-1.996 (1.509)	6.566** (3.012)	2.433** (1.200)
% Board Members (Lévy list)	-4.695*** (1.507)	-0.068 (1.563)	5.467** (2.275)	1.601 (1.103)
≥ 1 Jewish Board Member	-0.704 (0.501)	-0.364 (0.412)	1.073** (0.499)	0.520* (0.296)
Jewish Board Chairman	-0.594 (0.546)	-0.398 (0.429)	2.558** (1.066)	0.985 (0.659)

*Notes:* This table reports estimates from equation (1). Each cell reports the coefficient of interest ( $\beta$ ) 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 CAPM 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 whether the firm has at least one Jewish board member. The fourth panel look at whether the firm has a Jewish Chairman of the Board. 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 board members with political connections.

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

**Table A.5: Cumulative Abnormal Returns: Robustness**

All Episodes, Alternative Specifications

	Abnormal Returns		Cumulative Abnormal Returns			
	CAPM	Fama-French	CAPM [0,2]	Fama-French [0,2]	CAPM [-1,1]	Fama-French [-1,1]
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Dreyfus' Arrest</b> November 2, 1894	0.149 (0.769)	-0.014 (0.837)	1.721* (1.005)	1.543 (1.063)	1.331 (1.175)	0.963 (1.247)
<b>Dreyfus found guilty</b> December 22, 1894	0.175 (0.965)	0.091 (0.990)	1.677 (1.422)	1.190 (1.602)	0.758 (1.303)	0.115 (1.445)
<b>Degradation of Dreyfus</b> January 5, 1895	-2.961* (1.568)	-2.740* (1.503)	-4.714*** (1.523)	-4.938*** (1.486)	-3.735** (1.551)	-3.795** (1.520)
<b>J'Accuse...!</b> January 13, 1898	-0.754 (0.595)	-0.382 (0.696)	-1.996 (1.509)	-1.036 (1.724)	-0.747 (1.235)	-0.518 (1.294)
<b>Suicide of Colonel Henry</b> August 31, 1898	-0.964 (1.977)	-0.885 (2.060)	-0.962 (2.019)	-0.238 (2.655)	-0.118 (2.093)	0.496 (2.406)
<b>Dreyfus granted new trial</b> October 29, 1898	0.225 (0.774)	-0.033 (0.846)	0.521 (1.320)	-0.872 (1.739)	-1.027 (1.313)	-1.953 (1.848)
<b>Appeals Court overturns 1894 verdict</b> June 3, 1899	0.735 (1.748)	0.918 (1.770)	0.732 (1.889)	0.374 (2.287)	2.450 (2.102)	2.381 (2.288)
<b>Presidential Pardon</b> September 19, 1899	0.456 (0.802)	-0.081 (0.545)	2.433** (1.200)	1.683 (1.125)	1.105 (1.342)	0.741 (1.398)
<i>N</i>	137	137	137	137	137	137

*Notes:* This table reports estimates from equation (1). Each cell reports the coefficient of interest ( $\beta$ ) 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 board members with political connections. 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 CAPM in odd-numbered columns, and a 3-factor Fama-French model in even-numbered columns. The Fama-French 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.6: Cumulative Abnormal Returns Around Government Changes**

	Abnormal Returns		Cumulative Abnormal Returns			
	CAPM	Fama-French	CAPM [0,2]	Fama-French [0,2]	CAPM [-1,1]	Fama-French [-1,1]
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Ribot</b> January 26, 1895	-2.660 (1.869)	-2.674 (1.851)	-2.135 (2.053)	-2.133 (2.043)	-2.618 (1.729)	-2.345 (1.716)
<b>Bourgeois</b> November 1, 1895	-0.549 (0.996)	-0.924 (1.177)	0.142 (1.872)	0.075 (1.872)	0.714 (1.552)	0.487 (1.529)
<b>Méline</b> April 29, 1896 <i>Anti-Dreyfusard</i>	-0.493 (0.521)	-0.439 (0.523)	1.034 (1.104)	0.759 (1.158)	1.455 (2.089)	1.763 (2.189)
<b>Brisson</b> June 28, 1898 <i>Dreyfusard</i>	-0.846 (0.749)	-0.025 (0.938)	1.576 (1.579)	2.361 (2.039)	0.666 (1.567)	0.989 (1.899)
<b>Dupuy II</b> October 31, 1898 <i>Anti-Dreyfusard</i>	-0.304 (1.008)	-0.799 (1.199)	2.449 (3.136)	0.202 (3.386)	0.521 (1.320)	-0.872 (1.739)
<b>Waldeck-Rousseau</b> June 22, 1899 <i>Dreyfusard</i>	6.969** (3.308)	4.950 (3.267)	6.566** (3.012)	4.340 (3.133)	6.282** (3.038)	4.342 (3.079)
<i>N</i>	137	137	137	137	137	137

Notes: This table reports estimates from equation (1). Each cell reports the coefficient of interest ( $\beta$ ) 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 board members with political connections. 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 CAPM in odd-numbered columns, and a 3-factor Fama-French model in even-numbered columns. The Fama-French 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:** Additional Evidence on Valuation Gains

	<b>Market-to-Book Gains</b>	
	(1) Daily	(2) Monthly
<i>(a) % of Board Members</i>		
% Board Members $\times$ Post J'Accuse	0.342*** (0.127)	8.036** (3.385)
R <sup>2</sup>	0.01	0.12
Mean Dep Var	0.026	0.553
Firms	130	130
Observations	237938	9204
<i>(b) <math>\geq 1</math> Jewish Board Member</i>		
$\geq 1$ Board Member $\times$ Post J'Accuse	0.064*** (0.017)	1.255*** (0.441)
R <sup>2</sup>	0.01	0.12
Mean Dep Var	0.026	0.553
Firms	130	130
Observations	237938	9204
<i>(c) Jewish Board Chairman</i>		
Jewish Chairman $\times$ Post J'Accuse	0.081*** (0.027)	1.662** (0.716)
R <sup>2</sup>	0.01	0.12
Mean Dep Var	0.026	0.553
Firms	130	130
Observations	237938	9204

*Notes:* This table reports estimates from equation (2). The dependent variable is the growth rate of the firm's market-to-book ratio (listed price divided by nominal price) measured either daily or monthly. 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 at least one Jewish board member. Panel (c) looks at whether the firm has a Jewish Chairman of the Board. 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:** 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 × Post J'Accuse	0.122* (0.067)	0.826 (0.507)	0.108*** (0.038)	0.663** (0.267)
R <sup>2</sup>	0.02	0.19	0.02	0.12
Mean Returns	0.018	0.089	0.019	0.115
Firms	130	130	130	130
Observations	237550	9204	237550	9204
<i>(b) ≥ 1 Jewish Board Member</i>				
≥ 1 Board Member × Post J'Accuse	0.034** (0.014)	0.145** (0.067)	0.019** (0.008)	0.100* (0.060)
R <sup>2</sup>	0.02	0.19	0.02	0.12
Mean Returns	0.018	0.089	0.019	0.115
Firms	130	130	130	130
Observations	237550	9204	237550	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman × Post J'Accuse	0.063** (0.029)	0.234** (0.092)	0.032** (0.013)	0.176** (0.086)
R <sup>2</sup>	0.02	0.19	0.02	0.12
Mean Returns	0.018	0.089	0.019	0.115
Firms	130	130	130	130
Observations	237550	9204	237550	9204

*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 at least one Jewish board member. Panel (c) look at whether the firm has a Jewish Chairman of the Board. 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: 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	0.157* (0.084)	0.088** (0.038)	0.054* (0.031)	0.509* (0.264)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(b) <math>\geq 1</math> Jewish Board Member</i>				
$\geq 1$ Board Member $\times$ Post J'Accuse	0.042*** (0.013)	0.021*** (0.008)	0.011** (0.004)	0.100** (0.048)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman $\times$ Post J'Accuse	0.058** (0.024)	0.023* (0.012)	0.013** (0.006)	0.132* (0.076)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204

*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 at least one Jewish board member on November 2, 1894. Panel (c) looks at whether the firm has a Jewish Chairman of the Board on November 2, 1894. 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.10: 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 × Post J'Accuse	0.148** (0.071)	0.082** (0.036)	0.058* (0.030)	0.501** (0.247)
R <sup>2</sup>	0.02	0.02	0.05	0.12
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(b) ≥ 1 Jewish Board Member</i>				
≥ 1 Board Member × Post J'Accuse	0.032** (0.013)	0.018** (0.008)	0.008* (0.004)	0.082* (0.048)
R <sup>2</sup>	0.02	0.02	0.05	0.12
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman × Post J'Accuse	0.063** (0.026)	0.029** (0.012)	0.011* (0.006)	0.148** (0.073)
R <sup>2</sup>	0.02	0.02	0.05	0.12
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204

*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 political connections in the board of directors interacted with the post-“J’Accuse” dummy. Political connections are measured as the fraction of politicians in the board in panel (a) and as a dummy for any politician sitting in the board in panels (b) and (c). 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 at least one Jewish board member. Panel (c) looks at whether the firm has a Jewish Chairman of the Board. 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.11:** Stock Returns: Robustness to Firm-Specific Linear Trends

	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	0.240** (0.106)	0.133** (0.052)	0.086** (0.035)	0.805** (0.369)
R <sup>2</sup>	0.02	0.02	0.14	0.23
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(b) <math>\geq 1</math> Jewish Board Member</i>				
$\geq 1$ Board Member $\times$ Post J'Accuse	0.046** (0.020)	0.017 (0.012)	0.012* (0.007)	0.043 (0.090)
R <sup>2</sup>	0.02	0.02	0.14	0.23
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman $\times$ Post J'Accuse	0.076** (0.037)	0.023 (0.020)	0.018* (0.011)	0.133 (0.136)
R <sup>2</sup>	0.02	0.02	0.14	0.23
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204

*Notes:* This table reports estimates from equation (2) including firm-specific linear trends. 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 at least one Jewish board member. Panel (c) looks at whether the firm has a Jewish Chairman of the Board. 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: 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 $\times$ Post J'Accuse	0.144** (0.061)	0.076** (0.032)	0.047** (0.023)	0.402* (0.217)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(b) <math>\geq 1</math> Jewish Board Member</i>				
$\geq 1$ Board Member $\times$ Post J'Accuse	0.029** (0.011)	0.014* (0.007)	0.008* (0.004)	0.060 (0.049)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	237550	237550	9204	9204
<i>(c) Jewish Chairman of the Board</i>				
Jewish Chairman $\times$ Post J'Accuse	0.070*** (0.025)	0.033*** (0.012)	0.015** (0.007)	0.189** (0.073)
R <sup>2</sup>	0.02	0.02	0.13	0.21
Mean Returns	0.021	0.017	0.005	0.087
Firms	130	130	130	130
Observations	236938	236938	9180	9180

*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 at least one Jewish board member. Panel (c) looks at whether the firm has a Jewish Chairman of the Board. 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.13: 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)	0.203** (0.088)	0.104** (0.041)	0.073** (0.034)	0.628** (0.279)
Dropping Banks	0.190** (0.088)	0.111** (0.044)	0.076** (0.036)	0.712** (0.303)
Dropping Food, Liquors and Tobacco	0.212** (0.091)	0.111** (0.042)	0.075** (0.035)	0.649** (0.288)
Dropping French Railways	0.185** (0.085)	0.087** (0.038)	0.070** (0.034)	0.564** (0.277)
Dropping Colonial/Foreign Railways	0.126* (0.067)	0.060* (0.033)	0.056* (0.034)	0.339 (0.255)
Dropping Gas and Electricity	0.271*** (0.101)	0.124** (0.051)	0.104*** (0.038)	0.865** (0.331)
Dropping Insurance/Real Estate	0.230** (0.101)	0.124*** (0.045)	0.082** (0.038)	0.726** (0.314)
Dropping Iron/Heavy Industry	0.201** (0.089)	0.101** (0.041)	0.074** (0.034)	0.612** (0.281)
Dropping Mining	0.190** (0.088)	0.095** (0.040)	0.071** (0.035)	0.580** (0.283)
Dropping Transports (Cars/Ocean Liners)	0.209** (0.091)	0.110** (0.042)	0.074** (0.035)	0.623** (0.285)
Dropping Water Supply	0.201** (0.090)	0.106** (0.042)	0.074** (0.034)	0.650** (0.287)

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.

## B Model: Antisemitic Traders with Incorrect, Noisy Beliefs

This section extends De Long et al.'s (1990) overlapping generations 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.<sup>1</sup> All traders, antisemitic or not, are risk averse, hence they do not bet everything they own against the other type who holds the wrong belief in their perception, for fear of continued biases in the second period when they need to liquidate their position to consume.<sup>2</sup> 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  $\mu$  of the population of investors) hold a bias  $\rho_i^N$  on the

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<sup>1</sup>We 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 that may come from, among other sources, beliefs about how customers discriminate against Jewish firms.

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

price  $p_t^N$  of non-Jewish stocks and  $\rho_t^J$  on the price  $p_t^J$  of Jewish stocks:

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

We expect the average biases  $\rho^{*J}$  and  $\rho^{*N}$  to be respectively negative and positive (a net bias against Jewish stocks), and the covariance of the two biases  $\sigma_\rho^{NJ}$  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  $\gamma$  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  $\mathbb{E}(U) = w - \gamma\sigma_w^2$ . Denote the unbiased investor's holdings of Jewish and non-Jewish stocks as  $\lambda_t^{iJ}$  and  $\lambda_t^{iN}$  respectively, and  $\boldsymbol{\lambda}^i = \begin{pmatrix} \lambda_t^{iN} \\ \lambda_t^{iJ} \end{pmatrix}$ . Her investment decision maximizes the following expression:

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

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  $\mathbb{V}_t [\mathbf{p}'_{t+1} \boldsymbol{\lambda}^i] = \mathbb{V}_t [\lambda_t^{iN} p_{t+1}^N + \lambda_t^{iJ} p_{t+1}^J]$  the variance of the portfolio in expectation in  $t$ .

Similarly, denote the antisemitic investor's holdings of Jewish and non-Jewish stocks as  $\lambda_t^{aJ}$  and  $\lambda_t^{aN}$  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  $\rho_t^N$  and  $\rho_t^J$ .

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

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

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

The market clearance condition that  $\mu \boldsymbol{\lambda}_t^a + (1-\mu) \boldsymbol{\lambda}_t^i = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \stackrel{def}{=} \mathbf{1}$  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  $t$ .<sup>3</sup> Taking equation (B.5) one period ahead and 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  $\mathbb{V}_t\mathbf{p}_{t+1}$ . This follows from (B.8), which contains only one stochastic term  $\frac{\mu}{1+r}(\boldsymbol{\rho}_t - \boldsymbol{\rho}^*)$  on the right hand side, the variance of which is  $\frac{\mu^2}{(1+r)^2}\boldsymbol{\Sigma}_\rho$ . 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  $\sigma_\rho^{N2}$  and  $\sigma_\rho^{J2}$ .

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 different 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 anti-

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

semitic traders experience a large, negative shock in  $\rho^J$ , 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  $\rho_t$  are drawn.<sup>4</sup> 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  $\rho^{J*}$ ) and when the events raised the uncertainty regarding antisemitic beliefs (in  $\sigma_\rho^{J2}$ ).

Fundamentally different from the events that pushed public opinion unequivocally against Dreyfus, the publication of “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  $\Sigma_\rho$ , as can also be seen in Figure A.1. According to (P), it 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. The rehabilitation campaign following “J’Accuse” likely made a significant positive impact on the long-term antisemitic bias  $\rho^{J*}$ . During the campaign, news coverage of the Affair by pro-Dreyfus newspapers likely led to improvements in  $\rho^{J*}$ , causing a gradual appreciation of Jewish stocks versus non-Jewish ones.

The other two major events, namely the formation of the Waldeck-Rousseau government and the pardon of Dreyfus, were both instrumental in significantly reducing uncertainty on the market. 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  $\Sigma_\rho$  as possibly an improvement in  $\rho^{J*}$ , the long-term bias against Jewish firms.<sup>5</sup>

### 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.

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

<sup>4</sup>This 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  $\rho^*$ . 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.

<sup>5</sup>Remember 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  $\rho^{J*}$  (i.e., pushing it up to zero) by reducing the bias on antisemitism in the population at large.

as follows:

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

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

$$\mathbf{X}_t = \frac{2\gamma\mu^2}{(1+r)^2} \boldsymbol{\Sigma}_\rho \mathbf{1} - \mu \boldsymbol{\rho}_t. \quad (\text{B.9})$$

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:

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

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:

$$\mathbb{E}[\Delta R_{a-i,t}] = \rho^{*N} + \rho^{*J} - \frac{(1+r)^2}{2\gamma\mu} [\boldsymbol{\rho}^{*'} \boldsymbol{\Sigma}_\rho^{-1} \boldsymbol{\rho}^* + 2]. \quad (\text{B.10})$$

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,  $\mathbb{E}[\Delta R_{a-i,t}] \geq 0$  when the two biases  $\rho^{*N}$  and  $\rho^{*J}$  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.10) is not too large compared to the biases. This last term is small when the following are large: the absolute risk aversion coefficient  $\gamma$ , the share of antisemitic investors  $\mu$ , 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.<sup>6</sup>

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  $\mathbb{E}[\Delta R_{a-i,t}]$ .

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),  $\mathbb{E}[\Delta R_{a-i,t}]$  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.

<sup>6</sup>Apart from this "hold more" effect, De Long et al. (1990) explains the other effects at work in the condition  $\mathbb{E}[\Delta R_{a-i,t}] \geq 0$  (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  $\gamma$ , it may as well be dominated by the "hold more" effect, so antisemitic investors are not weeded out in the long run.