

Reshaping Global Trade: The Immediate and Long-Run Effects of Bank Failures

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Abstract

I study the first modern global banking crisis that began in London in 1866 and provide causal evidence that financial sector disruptions can reshape international trade patterns for decades. Using newly collected archival loan records that link banks to their operations abroad, I estimate that countries exposed to banks whose headquarters in London failed exported 17% less on average to each destination until 1905. Exporters trading with destinations for the first time, facing more competition in goods markets, and with little access to alternative forms of credit experienced more persistent losses, consistent with hysteresis arising from high sunk costs of entry into exporting.

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How much do financial crises affect international trade? Given the frequency of financial sector disruptions in both developing and advanced economies and the importance of trade to output and growth, understanding how aggregate trade flows respond to crises is crucial both for crafting policy responses and for understanding the relationship between temporary shocks and immediate to long-run outcomes.

Yet establishing the causal effect of financial shocks on trade is difficult for multiple reasons. Economic fundamentals simultaneously impact exports and banking sector health. Even when it is possible to isolate an exogenous shock to the financial sector, studies are usually limited to examining short-run outcomes within one country or else to combining episodes from a variety of institutionally dissimilar countries and time periods.¹ Ideally, it would be possible to trace out the long arm of history over uninterrupted decades in a setting where many countries are affected by the same institutions through uniform channels.

I address these problems by studying the 1866 London banking crisis which differentially disrupted trade financing in countries around the world. At the time, Britain was the center of the global financial system, operating in countries that accounted for 98% of world exports and providing over 90% of trade finance globally.² The crisis in London propagated around the world to different degrees based on the network of British banks. This variation in the intensity of the shock allows me to implement a difference-in-difference (DD) specification that compares exports volumes across locations that were more or less exposed to bank failures, before and after 1866.

The banking crisis in this paper provides an ideal setting for causally estimating the international and immediate to long-run effects. It was caused by the unexpected failure of a financial market intermediary—one of London’s largest—the firm Overend & Gurney. This event triggered severe bank runs on London’s deposit-issuing banks and ultimately, 12 percent of multinational banks (by assets) headquartered in London failed and ceased foreign operations.³ Since these banks dealt almost exclusively in trade finance, their institutional similarities in funding sources, investment model, management structure, and operations means that they affected exports through the same channel across locations, as opposed

¹Romer and Romer (2018) documents how in the post-Bretton Woods era, financial crises have very different effects on output depending on policymakers’ ability to enact post-crisis countercyclical policies. The extent to which countries were able or willing to intervene following financial crises varied tremendously over the course of the 19th and 20th centuries, even within the set of developed countries, complicating the interpretation of results averaging over all such events.

²Calculated using the locations and operations of British and non-British banks and values of exports across countries in 1865.

³This incidence of international capital reversals causing cross-border contagion is particularly relevant today. Peek and Rosengren (1997, 2000); Cetorelli and Goldberg (2011); Schnabl (2012) show their effects in a variety of national contexts. In Hale, Kapan and Minoiu (2019), banks with direct or indirect exposure to other banks experiencing systemic crises contract lending, thereby causing lower investment and firm growth.

to the more omnibus bank shocks of the modern period.⁴ The crisis also occurred at the beginning of the First Age of Globalization and was followed by almost five decades of relative global peace and low capital and goods flow restrictions, which provides a unique and ideal setting for tracing out the effect of the shock in the long run, where the estimate is not polluted by major subsequent conflicts.

Although my identification strategy does not rely on randomness of bank failures, I provide narrative and quantitative evidence that the crisis followed a panic scenario where the bank runs were unrelated to the banks’ solvency. I show that the only observable bank characteristic correlated with failure is a publicly observable connection to Overend & Gurney. Crucially, Overend was not itself involved in trade finance or trade-related activities, so this connection was unlikely to be correlated with exports fundamentals in the banks’ operating regions. Consistent with the environment of limited knowledge during the panic, there is also no relationship between the Overend connection and quantitative measures of bank health and risk-taking, or with narrative accounts of the banks’ investment opportunities and growth in their operating regions. This pure panic scenario further distinguishes the setting in this paper from other historical banking crises that have usually arisen from negative real economic shocks.

Identification does rely on the less stringent requirement that there is no simultaneous shock to a location that would cause both its exports to decline and the banks operating there to fail (Borusyak, Hull and Jaravel, 2018). I provide a number of covariate balance tests of bank exposure to location characteristics and additional robustness checks in support of this assumption.

My analysis relies on the construction of several new datasets of historical trade and financing activity around the world, both within and across countries. First, I measure countries’ and cities’ exposure to British bank failures from over 11,000 handwritten archival loan records that represent the distribution of pre-crisis British bank lending relationships around the world.⁵ Second, for each bank, I collect balance sheets, shareholder meeting transcripts, and other narrative sources before and after the crisis. Third, for each country, I assemble a panel of bilateral exports values spanning the period 1850–1914. I complement these country-level measures with the initial industry composition of exports from original trade statistics publications. Fourth, within countries, I measure exporting activity with daily port-level ship movements from the *Lloyd’s List* newspaper for the two year window

⁴While many papers with modern data are able to exploit bank balance sheet data and firm-bank linkages, it is difficult to directly observe trade finance, so they tend to estimate an overall “bank channel.” As noted by Ahn, Amiti and Weinstein (2011) these measurements are often uncorrelated with trade finance.

⁵To my knowledge, these are the only data with global coverage of the dominant financial center’s banking relationships in any time period.

around the crisis. I also track the number of banks operating in each city to track financial sector recovery until 1914.

The conceptual framework for how a temporary financial shock could have long-run effects on the patterns of international trade is based on the hysteresis literature.⁶ Hysteresis arises when exporters face a sunk cost of entering a new market, as in Baldwin (1988), Baldwin and Krugman (1989), or Dixit (1989).⁷ These entry costs generate dynamics where the current period exporting status and volumes depend on previous periods' status. Exporters whose marginal costs have been raised by the financing shock may find their operating profits insufficient to cover the entry costs of selling to a new market. Their unshocked competitors will be relatively advantaged, which induces entry and drives down prices. When goods are highly substitutable and firms face downward sloping marginal revenue curves, these competitive effects during the period of the shock will mean that shocked exporters continue to be disadvantaged even after their marginal costs return to pre-shock levels. In this class of models, failure to gain market share initially due to a shock can lead to being shut out of markets permanently and therefore persistently lower exports.

My first set of results shows that the financing shock lowered exports volumes on the intensive margin. This effect is consistent with the financing shock raising trade costs per unit of good shipped, thereby making an exporter less competitive and reducing its volumes sold. Immediately after the crisis, cities and countries exposed to a one standard deviation increase in bank failures had 8.2% and 10.6% lower exports, respectively.⁸ These results are robust to a large number of checks (Appendix E.1). The availability of financing in neighboring cities did not compensate for the immediate losses exposed exporters faced, suggesting that there was relationship-stickiness in banking (Bernanke, 1983).

Consistent with the sunk cost explanation, in my second set of results, I find that exposed exporters had fewer trade partners and were less likely to trade immediately after the crisis on the extensive margin. In the year after the crisis, a one standard deviation increase in exposure caused cities to have 5.6% fewer trade partners and to be 5.2% less likely to engage in international trade at all. I also find that pre-existing exporters who are exposed were not more likely to exit, as predicted by the framework, as they have already paid the sunk costs.

My third set of results show that the exports losses were highly persistent despite the fast local banking sector recovery. The financing shock lasted five years, after which cities

⁶Hysteresis is defined as effects that persist even after the initial stimulus has been removed.

⁷Sunk costs can be micro-founded from the costs of learning about a new market or in acquiring a customer base, and they are estimated to be high even today when information is much cheaper to obtain (Roberts and Tybout, 1997; Bernard and Jensen, 2004; Das, Roberts and Tybout, 2007)

⁸One standard deviation of bank failure exposure for cities was 19% and for countries 16%.

with above-average exposure to bank failures regained the number of banks lost and had as many banks as cities with below-average exposure. In terms of aggregate exports, countries with above-average exposure experienced a large initial difference in annual growth rates which put them on a permanently lower exporting path after 1866. While annual growth rates re-converged after five years, there was no compensating growth that returned these countries to their pre-shock trend levels, leading to a cumulative difference of 76.8% in aggregate exports between the two groups in 1914.

Effects on aggregate exports may in part be driven by differential demand patterns among countries' trade partners. However, even after controlling for annual demand shocks from importers as well as standard measures of resistance to trade between countries using structural gravity, I find that the average importer bought significantly less each year from more-exposed exporters for four decades. The overall magnitude of the financing shock in partial equilibrium is a 17% disruption in world trade annually. As in the immediate effects, there is a meaningful difference between exporters who were new to a destination and had not paid the sunk cost relative to pre-existing ones, where both the magnitudes and persistence of the effects are more severe for the former group. This pattern of slow recovery is robust to controlling for a wide variety of contemporary shocks and initial macro-economic conditions as well as simulated placebo shocks (Appendix E.2).

In the final section of the paper, I provide cross sectional evidence in line with the existence of sunk costs creating hysteresis. First, affected countries exporting goods more similar to other non-affected countries are less likely to recover in the long-run because exposure to the financing shock positively benefits those non-affected competitor countries' exports. Second, exporters whose exposure to bank failures was likely to be improved by access to alternative sources of financing during the shock were shielded from the hysteretic effects. Third, relationships that are more likely to rely on trade finance, such as those that are more physically distant, experienced more persistent losses than closer relationships.

This partial equilibrium analysis cannot speak to the general equilibrium effects for aggregate global trade, and in particular does not provide a counterfactual for the total amount of world exports lost due to the crisis. However, I provide evidence that aggregate global trade did not suffer persistently. After controlling for income, countries' imports do not appear to be affected by the financing shock, which indicates that importers were able to substitute across exporters and compensate for losses from exposed countries with gains from unexposed countries. This pattern of cross-country substitution by importers also corroborates the conceptual framework that unshocked exporters were able to differentially benefit and gain market share at the expense of their competitors.

The magnitudes of the long-run losses for exporters are large, but they are consistent

with the theoretical results that hysteretic effects from temporary shocks can be permanent and the empirical evidence that export patterns in the absence of shocks appear highly persistent.⁹ However, allowing for technological change and the introduction of new varieties of goods over decades will attenuate the market share effects between trade partners. Ultimately, the rate of attenuation remains an empirical question, and this paper provides the first estimate from a quasi-experimental setting.¹⁰ The preponderance of trade in commodities versus manufactured goods, the long delays in communication times, and the rapid rate of globalization in the 1860s and 70s all likely contributed to the magnitudes in this setting.

This paper contributes to several literatures. First it speaks to the debate on the role of finance in trade.¹¹ Many studies use cross-industry variation in external finance dependence and measure a country or firm’s access to finance, finding that costs of external finance differentially affects exports for countries or firms specializing in financially-dependent sectors (Manova, 2008; Iacovone and Zavacka, 2009; Manova, 2013; Muûls, 2015). The trade response to financial shocks gained prominence following the Great Trade Collapse of 2008, and while some studies using this methodology found financial conditions to be a first-order determinant of trade flows (Chor and Manova, 2012) others taking a structural approach attributed the decline to demand and inventory (Alessandria, Kaboski and Midrigan, 2010; Eaton, Kortum, Neiman and Romalis, 2016). My analysis also focuses on post-crisis outcomes, but I present reduced-form evidence using bank-level variation like Amiti and Weinstein (2011); Paravisini, Rappoport, Schnabl and Wolfenzon (2014) while still being able to extend the analysis to every country over much longer periods.

The paper also provides empirical evidence of the hysteretic effects of a temporary shock to trade costs as modeled in Baldwin (1988). Empirical work such as Roberts and Tybout (1997), Eichengreen and Irwin (1998), and Bernard and Jensen (2004) show that firms’ and countries’ history of exporting matters for contemporary trade patterns, but none provides direct evidence from an exogenous shock nor guidance on how long these effects can last. While the literature in economic geography has shown that fundamental shocks to physical capital and technology can affect initial conditions that lead to agglomeration forces (Davis and Weinstein, 2002; Bleakley and Lin, 2012; Henderson, Squires, Storeygard and Weil, 2017), this paper highlights a separate mechanism showing how financial development affects cross-country differences in trade patterns. In particular, the advantages of

⁹For instance, Bernard and Jensen (2004) find that in a panel of US firms from 1984 to 1992, 87.4% of exporters continue to export while 86.1% of non-exporters do not begin exporting. Eichengreen and Irwin (1998) find that at the country-level, historical trade patterns remain highly predictive of modern ones.

¹⁰It is worth noting that some studies such as Cerra and Saxena (2008) in the macroeconomic literature also find *permanent* effects on the entire economy.

¹¹See Foley and Manova (2015) for a comprehensive review and assessment of the literature.

financial access while integrating into world markets during the First Age of Globalization—a critical juncture in world history—appears to be a source of significant first-mover advantages (Krugman, 1991).

More generally, it relates to the literature that has found that financial crises have long-lasting effects on many components of the economy, such as output and employment, and that they appear to weaken the financial sector and make it more susceptible to other types of crises (Kaminsky and Reinhart, 1999; Cerra and Saxena, 2008; Reinhart and Rogoff, 2009; Schularick and Taylor, 2012; Jordà, Schularick and Taylor, 2013). Studies that focus on the trade effects such as Abiad, Mishra and Topalova (2014) and Benguria and Taylor (2019) also follow this macroeconomic methodology of estimating the average impact over many crises. While this literature has attempted to address the inherent endogeneity concerns arising from correlating indicators of domestic outcomes by using VAR-like techniques or gravity estimations with many controls, they acknowledge that these correlations cannot fully address the issue of reverse causality. I follow the strand of literature that has circumvented these concerns by focusing on crises originating abroad (Peek and Rosengren, 1997, 2000; Cetorelli and Goldberg, 2011), but the recent settings of those studies necessarily prevent them from speaking to long-run effects. By contrast, my historical setting makes it natural to examine decades of outcomes.

Finally, in the modern economy, credit conditions in peripheral countries have been found to be disproportionately associated with capital flows from the current global financial center (Eichengreen and Rose, 2004; Gourinchas, Rey and Truemptler, 2012). Rey (2015) shows that the ultimate source of these credit cycles may be monetary policy transmitted through global banks. The setting of a major shock to the pre-WWI global hegemon in this paper also illustrates how conditions in the dominant financial market affects real activity globally, particularly in sectors sensitive to the costs of external financing.

The paper is organized as follows: the next section discusses the historical context and conceptual framework. Section 2 discusses the historical data sources and Section 3 describes the identification strategy. Section 4 reports the main results, and Section 5 provides evidence on the changes in the patterns of trade. Section 6 concludes.

1 History & conceptual framework

1.1 Historical context

1.1.1 Trade finance & British banking dominance

Contractual frictions were a major barrier to establishing international trading relationships in the 19th century (Reber, 1979), just as they are today (Antràs and Foley, 2015; Schmidt-Eisenlohr, 2013). Due to the long lag between the initial shipment by exporters, the receipt of goods by importers, and their final sale to consumers, purchase and payment was staggered, and there was room for default on both sides. Importers were not willing to directly finance exporters through cash-in-advance payment when the exporter was risky and losses due to disputes over quantity or quality were unlikely to be recouped. These contractual frictions were particularly high for exporters in countries of low institutional quality or in new markets where litigation was costly. Exporters waiting for payments faced higher working capital costs, and contemporary 19th century accounts indicate that uncertainty over payments made it difficult for exporters to operate, creating a role for banks (Reber, 1979, p.75).

Banks were well-positioned to overcome these contractual frictions because they operated locally, which gave them superior knowledge of an exporting firm's risk and allowed them to accept collateral.¹² British banks were created to stimulate international trade and were not permitted to act as general commercial banks and invest in long-term, illiquid assets in their local markets abroad (Chapman, 1984).¹³ Their business model also benefited from a form of exorbitant privilege due to the pound sterling's centrality. Banks paid low rates on domestic liabilities (deposits) in the largest capital pool in the world and received high rates on their foreign assets (trade finance).¹⁴ These structural advantages over local and other European banks, stemming from the London connection, contributed to British banking dominance and global reach such that by 1865, British banks funded over 90% of

¹²For example, the Bank of London and the River Plate "attempted to assess the credit standing of its customers, although a good deal of business was carried on through personal contacts and oral agreements. The board of directors of the bank sought to establish credit guidelines. It stipulated that no credit exceeding £20,000 should be given to any single person or firm. The bank evaluated the respectability and soundness of mercantile houses and curtailed credit when necessary.[...] Each credit case was worked out individually with the house, and the amount of credit extended depended on the bank's knowledge of the customer's reliability," (Reber, 1979, p. 60-61).

¹³For example, it was in the Chartered Bank of India Australia and China's prospectus that it would be "[prohibited from] the making of advances on landed or other immovable Securities, or on growing crops."

¹⁴The English and Swedish Bank described this business model in the following way in their shareholder meeting on January 15, 1867: "When the bank was formed it was intended to receive money in England on deposit at the ordinary rate, and lend it out in Sweden at the high rate which was paid there upon such transactions...Money was cheap in England, but a very high rate could be obtained for it in Sweden."

the world’s trade credit.

The primary instrument used were short-term, often collateralized, loans called a “banker’s acceptance.” Acceptances were “IOUs” written between a borrower (an exporting firm) and a creditor (in this case the British bank) in which the creditor “accepted” that the borrower would repay him in the future (usually after 3–6 months). This source of financing provided exporters with working capital costs during the duration of shipment. Contemporaries emphasized that British banks were not limited to funding trade with Britain, and in fact were integral for trade that had no British counterparties.¹⁵

A banker’s acceptance had the feature of joint liability meaning that in the case of default by the borrower, the acceptor (bank) was responsible for the debt.¹⁶ The bank guarantee transformed these instruments from bearing the idiosyncratic risk of the individual exporter into bearing the bank’s credit risk instead. The bank absorbed the exporting firms’ credit risk by lending to it at the rate it deemed appropriate.

Bills of exchange traded on the London money market, and demand for these bills in London fueled the second half of a bill’s life-cycle: after being “accepted” in the local office, the instrument was remitted to London where the head office “discounted” it in the money market (Jones, 2000, p.23).¹⁷ In return for the remitted bills, the head office in London supplied the local offices with fresh capital to transform into bills.¹⁸ Figure C1 documents the full life cycle of a bill of exchange.

Bills accepted by these multinational banks were discountable at the Bank of England (BoE) because these banks had accounts at the BoE, and the BoE monitored its customers’ ability to meet its acceptance liabilities (Bignon, Flandreau and Ugolini, 2012). This feature meant that the BoE would ultimately absorb the losses if both the original debtor (the exporting firm) and the original lender (the British bank) defaulted.¹⁹

¹⁵For example, “[American imports of] wines from France, coffee from Brazil, sugar from the West Indies, and silk from Hong Kong were paid alike with bills on London,” (Jenks, 1927, p. 69)

¹⁶Contemporaries distinguished the term “banker’s acceptance” from the more general “bills of exchange” to emphasize that the former instrument was backed by a trustworthy financial institution. However, in this paper, the two terms will be used interchangeably.

¹⁷Discounts most resemble a modern-day repurchase agreement: the seller received the face value of the bill minus the discount rate (haircut) at the initiation of the transaction, and he paid the full face value in return for the security at its maturity. At maturity, the bill was presented to the original borrower via his accepting bank for repayment, and the debt was terminated.

¹⁸The Eastern Exchange Bank described this cycle of financing between its headquarters in London and its office in Alexandria during its bi-annual meeting on March 1, 1865 the following way: “The bills sent home from Alexandria for correction had to be re-discounted in the Liverpool and London market at the current rates, so as to turn them into gold and send them out to Alexandria to be employed in fresh operations.”

¹⁹Bignon, Flandreau and Ugolini (2012) calculates the “amount at risk” on the Bank of England’s balance sheet over three crises in the 19th century, and they show that the BoE was careful to limit this amount from any given lender.

1.1.2 London banking crisis of 1866

The 1866 crisis was the first modern global banking crisis and one of the most severe to ever affect the London money market, during which 22 out of 128 multinational banks headquartered in London (12% of banks by assets) failed.

The crisis was caused by the unanticipated bankruptcy of the firm Overend & Gurney, the largest and most prestigious interbank lender in the City of London. Its business as an intermediary was buying and selling liquid, short-term bills of exchange from and to London banks. It did not lend long-term on illiquid assets, and it had no overseas operations. Crucially for the purposes of this study, it did not finance trade and therefore had no exposure to overseas exports markets.

Overend's business had been built over decades by earlier generations of partners such that by the mid-19th century, it was one of the most reputable firms in London. In the early 1860s, a younger generation of partners took over the firm and delegated the business to "wily sycophants" who mismanaged the firm's assets with speculative and illiquid investments that quickly began to fail (King, 1936, p. 246). However, the true state of affairs was not known to the public, and the firm successfully issued equity to convert its ownership structure from that of a privately held company to a publicly-listed joint-stock firm as a gamble to recover its losses in July 1865.²⁰ *Banker's Magazine*, a leading financial market publication, fully endorsed the firm as one of the best in the City of London when Overend & Gurney announced its equity issuance. Yet the new capital was not sufficient, and less than one year later in May 1866, Overend's directors privately approached the BoE for a private loan. The BoE declined to extend credit, and Overend announced its bankruptcy the following morning.²¹ I provide details on the company's history, evidence on shareholders' ignorance of the true state of affairs, and previous scholarship on Overend in Appendix C.2.

Overend's failure had two immediate effects on the London money market: the first was a negative supply shock for liquidity because the largest intermediary could no longer fulfill the banks' need. The second was widespread bank runs on all London banks as the news caused depositors to panic.²² Ultimately, 22 institutions were forced to close or suspend operations.

Headquarter closures in London caused branches abroad to close immediately.²³ These

²⁰After its failure, the shareholders sued the directors in criminal court for concealment in the prospectus. Appendix C.2 gives the full text of the original prospectus and more details from one of the court cases.

²¹The Bank of England justified its actions by claiming that Overend's was insolvent. However, the relationship between the BoE and Overend had been contentious ever since Overend staged a mini run on the BoE in April, 1860.

²²Appendix C.3.1 provides several contemporary newspaper reports of the crisis.

²³For example, the Commercial Bank failed in London May 15. The headquarter's telegraph to its Bombay offices arrived on May 24 and read, "This bank suspended. Cease all operations. Make no payments. Allow

branches were directed by the local branch manager, who had wide latitude in daily decisions due to the communication lags with London, but they relied on regular fresh injections of capital from London to operate.²⁴ The closures in London therefore directly affected the supply of trade finance available in each city around the world that depended on these banks' foreign operations.

1.2 Conceptual framework

A financial shock can generate hysteretic effects on the pattern of trade in a setting in which four assumptions hold. First, firms face two costs when exporting: a marginal cost that scales with the volume exported and a sunk cost that has to be paid to establish a trading relationship with a new destination. Second, the marginal cost is made of two elements: the cost of producing and shipping the good and a financial cost associated with financing the higher working capital requirements when exporting. Third, a free entry condition within each market holds, implying that entry occurs until the sum of discounted future profits in a market equalizes the sunk cost. Fourth, all firms have the same pre-financial crisis marginal costs, so that the hysteretic effects are not arising from productivity differences but purely from the sunk cost of establishing trade relationships.²⁵

In this framework, the dynamics of a temporary financial shock that differentially affects firms can be understood in three periods. Figure B1 provides an illustration of the dynamics within a given market over these periods. In the initial period, the prices for goods are at a level p_0 such that incumbent firms operate with positive profits, but those operating profits are not sufficient to cover the sunk entry costs for potential entrants.

In the second period, the financing shock to a subset of firms raises their marginal costs and therefore the final price at which they export within a destination to p_s . The marginal cost of firms not exposed to the financial shock remains constant, so non-shocked firms can continue to export at price p_0 . Since $p_s > p_0$, non-shocked firms will find it profitable to start exporting to these new destinations.

In the third period, the shock has passed, and marginal costs return to their initial pre-crisis value. Incumbent firms do not exit as long as their operating profits are positive despite the now lower prices because they have already paid the sunk costs of entry. Since

no transfers or sales.”

²⁴Unlike in the modern context where branches and subsidiaries have very different structures that have implications for risk-sharing (Fillat, Garetto and Smith, 2018), the historical operations were a mix between the two: capital was shared, as in a branch system but decisions were local, as in a subsidiary system.

²⁵I adapt the conceptual framework from the series of papers by Richard Baldwin, Avinash Dixit, and Paul Krugman on this topic. See for instance Krugman (1986); Baldwin (1988); Baldwin and Krugman (1989); Dixit (1989); Baldwin (1990).

the mass of firms now operating in the destination is larger, the market is more competitive and prices are $p_1 < p_0$. This change in the destination market conditions persistently deters future entry.

The shock has two implications for incumbent exporters who have already paid the sunk cost of entry. First, on the extensive margin, shocked incumbents do necessarily not exit as they have already paid the sunk cost and the financial shock only affects marginal cost. Second, on the intensive margin, the financing shock exposure raises the incumbent exporters' prices, which lowers their quantities sold.

There are also two predictions for new entrants to a given destination. First, on the extensive margin, the probability that a firm enters decreases with the magnitude of the financial shock. The less a firm is shocked, the more it can take advantage of the entry opportunities in various markets. Second, conditional on entry, an increase to the exposure to the shock increases its marginal costs, and therefore reduces its exports volumes, as in the case with incumbent firms.

This framework also generates predictions on the patterns of substitution by importers across their suppliers. In a destination market, when exposed exporters become relatively more expensive, importers will substitute away from them and to others that provide similar goods. Characteristics of exporters or of the trade relationship that make it possible to dampen the financing shock will also reduce the intensive and extensive margin losses and make it less likely that importers will substitute away from them in the long-run.

2 Data

This paper combines several newly collected and digitized historical datasets. This section gives an overview of the most important datasets and variables constructed. I provide the sources and full definitions, details, and documentation for each variable that enters as a regressor in the empirical analysis in Appendix F.

2.1 Bank characteristics

Lending pre-crisis: The Bank of England kept detailed records of every transaction that occurred at its Discount Window. I use the ledgers from 1865–1866 to build a dataset of over 11,000 individual loans from the 128 banks that had international operations in the year before the crisis.²⁶ An example of a ledger page is shown in Figure B2a. For each

²⁶For the entries from 1866, I only include bills that originated before the crisis. For robustness, I restrict the banks' portfolios to only bills discounted in May 1866. The distribution is very similar, and the full discussion is in Appendix C.4.

handwritten loan record, I document the bank that originated and guaranteed the loan, the city the loan was extended in, the amount of the loan, the bank that brought the bill in to be discounted, and the date it was brought to the Bank of England.²⁷

I interpret the bills that these banks brought in for discount as an unbiased representation of the universe of loans extended by British banks in locations around the world. I discuss the historical and empirical evidence for this assumption in Appendix C.4.

Bank health: Balance sheets and narrative evidence of the banks’ risk-taking and financial health are gathered from transcripts of the bi-annual meetings of shareholders before, during, and after the crisis. Individual bank failures were reported extensively in contemporary newspapers. Names of the managers & directors of the banks were advertised in contemporary newspapers and often mentioned in shareholder meetings.

2.2 Exports

Port-level panel: I build a port-level panel of bilateral shipping activity for ports outside the United Kingdom using the daily publications of the *Lloyd’s List* newspaper for the years 1865–1867. An example of this source from September 5, 1866 is shown in Figure B2b. I digitized the daily newspapers for all shipping events and geocoded 99.8% of the origination ports to 377 unique ports. Over 8,000 unique destinations were geo-coded and assigned to 60 countries.²⁸ Figure 1b maps the distribution of pre-crisis exporting activity for the ports using the log number of ships. These data are the only source for within-year and both across and within-country measures of trade activity historically.²⁹

Country-level panel: I construct the country-level panel of bilateral trade values from publicly available datasets of historical trade statistics plus my own contributions to create a meta-dataset that is, to my knowledge, the most comprehensive available. These datasets cover a variety of time periods and territorial border changes, so I standardize country definitions to the smallest landmass unit that is consistently reported over all the years.³⁰

²⁷Banks brought in packages of bills that had been accepted by other banks, so there is no mechanical connection between a bank’s own need for liquidity and the distribution of lending represented by the bills discounted. Deciphering the hand-writing was not trivial. When there was uncertainty about the city of origination, I looked for other loans extended to the same borrower to compare entries. I was able to identify the location and geocode 99.7% of the value of loans.

²⁸Destinations are inconsistently listed as countries or cities, so they are aggregated to a larger unit of observation to minimize sparsity in the dataset.

²⁹One drawback of the *Lloyd’s List* data is that it does not report values of the goods onboard. However, there is a strong positive correlation between the number of ships leaving a country in a year and the total value of the country’s exports, shown in Figure B6. I provide additional robustness checks for this concern in Appendix E.1.5.

³⁰These units most closely resemble pre-WWI borders.

3 Empirical strategy

The goal of my empirical analysis is to estimate the causal relationship between a location's access to trade finance and exporting activity. I follow the literature and model the underlying relationship between bank credit and economic outcomes by relating the log of exports EX_{lt} at location l in time t to the log of the amount of bank credit:

$$\ln(EX_{lt}) = \alpha + \gamma \ln(\text{Credit}_{lt}) + \Gamma' X_{lt} + \varepsilon_{lt} \quad (1)$$

Identifying γ from Equation 1 is challenging for two reasons. First, direct measures of bank credit are an equilibrium outcome that conflate supply and demand for credit, so places that demand less bank credit are also likely to have less trade. Equation 1 will therefore not satisfy the orthogonality conditions that $E[\text{Credit}_{lt}\varepsilon_{lt}] = 0$ because ε_{lt} includes the unobserved local economic conditions that are positively correlated with bank credit, which biases γ upward. Second, there might be reverse causality: firms in locations that are already less productive can weaken their banks' balance sheets through non-performing loans and cause those banks to contract their lending or even to fail.³¹

I overcome these two challenges by using the multinational structure of British banking where branch office operations depended directly on their headquarter's health. Banks whose headquarters in London failed due to the panic conditions generates plausibly exogenous variation for their branch cities' and countries' exposure to bank failures.

3.1 Measuring the exposure to bank failures

The total bank credit in Equation 1 is the sum of the credit extended by each bank b : $\text{Credit}_{lt} = \sum_b \text{Credit}_{lbt}$. The location-level growth rate in total credit can be rewritten as the sum of the shares of each bank in a location (city or country) and the local bank growth rates: $\widehat{\text{Credit}}_{lt} = \sum_b z_{lbt} \times \widehat{\text{Credit}}_{lbt}$ where $z_{lbt} = \frac{\text{Credit}_{lbt}}{\text{Credit}_{lt}}$. The shares z_{lbt} sum to equal one in each location. I calculate location l 's pre-crisis dependence z_{lbt} (at $t = pre$) using the loans that were originated before May 1866 to avoid the endogeneity of post-crisis sorting among bad banks and bad locations.

The crisis in London generates bank-level shocks that affect locations through their pre-crisis dependence $z_{lb,pre}$ on each bank. I use the shock of bank failure in 1866, which is captured by the binary variable $\mathbb{I}(\text{Failure}_b)$ and takes the value of 1 if the bank failed and 0

³¹Macroeconomic studies usually assume banking crises are completely exogenous. Cerra and Saxena (2008) are unique in the literature by estimating the relationship between output and crises both when they assume that crises are completely exogenous and when they assume that output is completely exogenous.

otherwise. Each location's exposure to bank failure Fail_l is the average of failure rates across its banks, weighted by the pre-crisis importance of each bank to a location:

$$\text{Fail}_l = \sum_b z_{lb,pre} \times \mathbb{I}(\text{Failure}_b) \quad (2)$$

Fail_l takes the form of a Bartik instrument with the following first stage relationship:

$$\Delta \ln(\text{Credit}_{lt}) = \alpha_1 + \beta_1 \text{Fail}_l + \Gamma'_1 X_{lt} + \nu_{lt} \quad (3)$$

I provide the derivation of the instrument in Appendix D and discuss instrument validity in Section 3.2.

Figure 1a maps the geographic distribution of exposure to bank failures, Fail_l at the city level. The size of the points measures the pre-crisis amount of British lending in the city, and the color denotes the bank failure share. This map shows within and across-country variation in failure rates. Figure B3 plots the distribution of exposure across ports and countries. Table 1 reports the descriptive statistics for ports and countries in 1865. The average port had 128 ships leaving in the pre-crisis period and 7 pp exposure to failed banks. The average country exported £12.5 million and was exposed to 11 pp bank failures.

Estimating the first stage relationship in Equation 3 requires location-level lending in both the pre- and post-crisis periods. Data limitations prevent this, but there is a strong pseudo first-stage relationship between exposure to bank failures and credit contractions at the bank-level, shown in Table A1.³² Given the lack of a first stage, the empirical results will be presented in terms of the reduced form relationship between exposure to bank failures and the change in log exports instead:

$$\Delta \ln(EX_{lt}) = \alpha_2 + \beta_2 \text{Fail}_{lt} + \Gamma'_2 X_{lt} + \epsilon_{lt} \quad (4)$$

The reduced form coefficient β_2 in Equation 4 is the semi-elasticity of the response of trade activity to bank failures in location l .³³

In all calculations of the total trade credit in a location, I only observe the amounts extended by British banks, which may lead to measurement error in the endogenous variable

³²Of the 95 joint-stock banks with balance sheet data, only 31 are disaggregated enough to show the total lending in the form of trade finance annually. The pseudo-first stage is calculated using this subset of banks. Table A2 shows that this subsample of banks is representative of the complete sample of all banks on all other observable dimensions.

³³Note that estimating the reduced form relationship means it is not possible to distinguish between the many different roles of banking activity, such as credit provision or risk assessment. Given these banks' role as providers of trade finance, I focus on this interpretation, but other forms of banking activity that matter for exporters would also be affected by the bank failures and captured by β .

Credit_{it} . However, the instrument constructed from the shares and failure rates of British banks will still be valid for the change in *all* credit as long as either non-British banks do not provide trade credit, non-British bank credit did not change, or non-British bank credit changes are uncorrelated with the failure rates of British banks across locations. Since British banks conservatively provided over 90% of trade credit and I find no evidence of an immediate correlation between the non-British bank response and British bank failures, it is unlikely that the measurement error in the endogenous variable drives the results. Appendix D provides the derivation.

3.2 Validity of reduced form estimation

The reduced form relationship in Equation 4 will causally identify the effect of contractions in bank credit on exports if Fail_l satisfies the standard exclusion restriction for an instrumental variable: $E[\text{Fail}_l \varepsilon_l] = E[\sum_b z_{lb} \mathbb{I}(\text{Failure}_b) \varepsilon_l] = 0$. It is apparent from the exclusion restriction that the instrument is immediately satisfied if bank failures are randomly assigned, but it does not require it.

The instrument will be valid if the bank-level shocks are uncorrelated with the average location-level characteristics that determine exporting activity in the locations most exposed to each bank (Borusyak, Hull and Jaravel, 2018). The identifying assumption is that banks did not sort to locations such that characteristics of the locations were correlated with both failures of the British multinational banks operating there and declines in exports in 1866. One example of problematic sorting would be if banks that failed had chosen to operate in locations that experienced a boom in the pre-period and a bust post-1866. Declines in exports and failures of the banks operating in those locations would coincide and be falsely attributed to the London crisis. To the extent that indicators of a boom and bust cycle are observable, it is possible to test for systematic sorting.

In the following subsections, I first show that bank failure rates were not correlated with observable quantitative or qualitative characteristics of bank activity using balance sheets and narrative evidence from shareholder meetings. I then provide novel evidence that the determining factor for the bank failures is a publicly observable connection to the failed firm Overend & Gurney. Finally, I test for violations of the identifying assumption directly and show that bank failure rates were also mostly not correlated with observable characteristics of the locations in which they were operating. To the extent that certain characteristics were correlated with bank failures, they are included as controls in all the specifications to residualize their effect on exports activity. I use the Oster (2019) bounds to show that it is unlikely that further unobserved characteristics could be driving the results.

3.3 Determinants of bank failures

3.3.1 Quantitative measures

Banks are balanced across almost all observable pre-crisis bank characteristics (Table 2). Panel A lists publicly-held banks (“joint-stock” banks) that published balance sheets, and Panel B has all banks including privately owned banks that did not publish them.

The balance sheet characteristics are proxies for bank health and risk-taking, and characteristics of the banks that failed are not statistically or economically different from those of the banks that did not fail (Panel A). Banks had on average £1.48 million equity capital, of which almost half was already paid by investors, and their reserve funds, deposit liabilities, total size of the balance sheet, leverage ratio, and reserve ratio were also similar. The similarities in the leverage and reserve ratios suggest that banks that failed did not appear to systematically take on more risk than non-failed banks.

In Panel B, I include all other observable characteristics that are available for all the banks. Panel B shows that banks that survived were slightly older.³⁴ Geographical region of specialization also did not predict bank failure.³⁵ This balance helps to address the concern that bank failures and export contractions were simultaneously caused by a shock that was systematically correlated with their geography. Examples of such shocks include weather patterns that affected agricultural output or regional boom-and-bust patterns. In addition, banks in the two groups were similarly geographically diversified, operating in an average of almost 14 cities and 8 countries.

3.3.2 Narrative evidence

In addition to the quantitative evidence, I analyze transcripts of the banks’ bi-annual shareholder meetings for that cover their operations from 1865 to 1867. These transcripts provide qualitative evidence on the nature of each banks’ business before, during, and after the crisis. Overall, there is no evidence that differences in local economic conditions or bank risk-taking behavior affected their failure rates.

Ex-ante, banks that failed did not appear to be more risk-taking, as measured by the amount of funds they added to their reserve, and their own assessment of the riskiness of their investments. The characterization of economic conditions and opportunities in the markets they served also did not vary systematically across banks that failed and those that

³⁴Age would be a potential confounder if older banks operated in locations that were less likely to experience declines in exports.

³⁵For each bank, I calculate the total credit extended to each geographic region such as North America or the UK itself to test whether exposure to these regions are correlated with failure. In Table A3, I calculate each bank’s geographic exposure as the share of its total size. All measures are balanced there as well.

did not. During the crisis, those that failed emphasized idiosyncratic circumstances such as instances of fraud or else the panic itself. Ex-post, banks that failed cited the panic conditions as the primary reason for closure. These qualitative characteristics of the banks are also not systematically correlated with the public Overend connection. The full results, discussion of the sources, and examples of how the language in the meetings were interpreted are in Appendix C.5.

3.3.3 Overend & Gurney connection

The only statistical and narrative explanation for the banks that failed is a public connection to Overend & Gurney. Although the firm’s shareholders were protected by limited liability, the nominal value of the shares were £25, of which the investors had only paid £5 and were at risk for a call of £20 per share.³⁶ The shareholder list circulated in London at 2.5x the publishing price, and contemporary evidence indicates that depositors found this a valuable source of information.³⁷

I digitize the shareholder list from January 1866 (Figure C2a) and compare it to the names of the managers and directors of the London banks (Figure C2b).³⁸ A bank is characterized as having a known connection to Overend & Gurney if one of its managers and directors is listed as a shareholder. Given that bank managers and directors were themselves invested in their banks, both as equity holders and depositors, it is reasonable that a shock to their wealth might affect the bank’s health.³⁹ Table 2 Panel B row 1 shows that this public Overend connection is the only characteristic that significantly predicts bank failure. Moreover, there is little correlation between the Overend connection and the observable measures of bank health (Table C2).

3.4 Correlation between location characteristics and bank failures

The identification strategy is only threatened if the London headquarter failures were caused by characteristics or events in the banks’ subsidiary locations that could affect exports. I follow Borusyak, Hull and Jaravel (2018) and test the exogeneity of bank-level failure rates

³⁶ £25 is equivalent to £2,995 in 2020.

³⁷ See Appendix C.3 for contemporary documentation of the crisis and the demand for the shareholder list.

³⁸ The shareholder list is kept at the Royal Bank of Scotland archives in Edinburgh, Scotland. January, 1866 was the last list that was compiled before the firm declared bankruptcy.

³⁹ This could occur through a couple of channels: first, the manager/director may need to withdraw his savings or investments from the bank, which would leave it worse-capitalized; second, a reduction in the manager/director’s personal wealth may induce him to engage in riskier behavior that also reduces the bank’s overall health. These scenarios are not mutually exclusive and both provide rational explanations for why depositors would withdraw deposits from banks that have these public connections to Overend.

to location-level characteristics by calculating each bank’s exposure to those characteristics and correlating them with the bank failure rates.⁴⁰

I examine the observable pre-crisis location-level characteristics at both the port-level and the country-level, since those are the two units of observation in the analysis. At the port-level, the observable characteristics include the volume of exports (proxied by the number of ships from the *Lloyd’s List*), the importance of the United Kingdom as a destination, the geodesic distance to London, the latitude, the number of destinations, the availability of non-British financing, and whether the port is a capital city.⁴¹ At the country-level, observable characteristics include the total value of exports, the value of exports by industry, the share of commodities in the composition of exports, the monetary system, and whether the country was engaged in conflict. These characteristics help to capture heterogeneity in size and trade patterns. Each bank’s share-weighted average exposure \bar{X}_b to these pre-crisis characteristic X_l is calculated as $\bar{X}_b = \frac{\sum_l z_{lb} \times X_l}{\sum_l z_{lb}}$ where larger weights are given to locations more dependent on bank b . The normalized individual bank failure rates are regressed on the transformed location-level characteristics \bar{X}_b .⁴²

$$\mathbb{I}(\text{Failure}_b) = \alpha + \beta \bar{X}_b + \varepsilon_b \quad (5)$$

Table 3 reports the results and shows that there is balance on almost all characteristics. In terms of port-level characteristics, Panel A shows that two factors are unbalanced: banks operating in ports with a higher fraction of exports going to the UK were more likely to fail, and those operating in ports that were also the capital cities within countries were less likely to fail. These characteristics are included as controls in the baseline specifications to residualize any direct effect that they have on exports.

Table 3 Panel B shows that banks that failed did not systematically operate in countries with lower exports values, with a heavier reliance on commodities, or with exposure to military conflicts. There is also no correlation between exposure to different currency

⁴⁰The advantage of testing the bank-level relationship rather than the location-level relationship, the latter of which is also used in the literature, is that it performs the Adao, Kolesár and Morales (2019) standard error correction. They show that when the source of identification from a Bartik instrument are the shocks, the standard errors of regressions of the instrument on location characteristics tend to over-reject the null hypothesis. Intuitively, the location-level tests target randomness in the shares, but when the location shares themselves are not suitable instruments, the covariance between the shocks and the shares may be relevant. Borusyak, Hull and Jaravel (2018) show that implementing the Adao, Kolesár and Morales (2019) standard error correction is equivalent to translating the location-level characteristics into bank-level exposure rates.

⁴¹Results are similar using sailing distance (without access to the Suez Canal) instead of geodesic distance to London. Figure B4 shows the strong positive correlation between the two types of distances.

⁴²The regressions are weighted by \hat{z}_b , which is the average location exposure to bank b : $\hat{z}_b = \frac{1}{L} \sum_{l=1}^L z_{lb}$. The weighting is necessary to translate location-level relationships to bank-level relationships. The full derivation for the equivalence is given in Borusyak, Hull and Jaravel (2018).

standards (gold, silver, or bimetallic) and bank failures. This balance helps to address the concern that exchange rate movements are the proximate cause for the observed relationship.

In order to address the possibility of commodity booms and busts, I categorize each country’s exports by two-digit SITC categories and test balance across all industries. The full distribution of exports by SITC categories is plotted in Figure B5. Table 3 Panel C shows that banks that failed were not differentially exposed to the top eight industries of raw cotton exports, cotton manufactured goods, bullion, grains, coffee, alcohol, and tobacco. In Appendix Table E18, I provide balance checks for all remaining SITC industries. The location-level characteristics that are correlated with bank failure rates are included as controls in the main empirical specifications to address their potentially confounding effects.

4 Results

The conceptual framework in Section 1.2 generates several empirical predictions. First, for pre-existing (incumbent) exporters, exposure to the financing shock reduces the intensive margin volumes of exports. Second, on the extensive margin, exposed exporters will find it more difficult to pay the sunk costs of entering into new markets and will form fewer trade partnerships and be less likely to export at all. Third, the temporary financial shock can have long-run effects on exports volumes for exposed countries even after the shock has passed. I discuss each of these in detail below.

4.1 Intensive margin effects

I examine the immediate impact of bank failures on the intensive margin of exports volumes for locations that were active both before and after the shock using the number of ships sailed in the two-year window around the crisis as a proxy for exports volumes. The distribution of treatment across ports is well-represented across the entire range of exposure (Figure B3a).

In the raw data, there is a strong negative correlation between exposure to bank failures and the difference in the log number of ships sailed in the post-period relative to the pre-period both across and within countries. Figure B7a plots the linear fit across countries, and Figure B7b the relationship within countries and across ports.

First, at the more aggregate country-level, I estimate the following difference-in-difference regression with continuous treatment intensity:

$$\ln(S_{ot}) = \beta(\text{Fail}_o \times \text{Post}_t) + \gamma_o + \Gamma'X_{ot} + \varepsilon_{ot} \quad (6)$$

S_{ot} is the total number of ships departing a country per period ($S_{ot} = \sum_p S_{pot}$). Following

the trade literature, the dependent variable is in logs to reduce the effect of outliers. β is the coefficient of interest, and Fail_o is an exporting country's exposure to bank failures calculated according to Equation 2 using country-level shares of pre-crisis dependence on individual banks. Post_t is an indicator for the post-crisis period that controls for macroeconomic shocks affecting the export trends over time. X_{ot} are pre-crisis country characteristics interacted with Post_t that can be included as additional controls. Country fixed effects γ_o absorb all time-invariant differences in levels of shipping, including those correlated with their exposure to bank failures. Regressions are weighted by the pre-crisis size of ports, measured by shipping activity in the pre-crisis year.

Table 4 Column 1 shows the baseline effect without any controls. The coefficient of $-.51$ implies that countries with the average exposure of 11% exported 5.6% less than non-exposed countries in the post-crisis year. Appendix Table A4 adds origin-country characteristics as controls to show that the results are not affected by differences in initial macroeconomic conditions, such as the industry composition of exports. While the coefficients are large and statistically significant throughout, it is possible that unobserved country-level shocks are partly accounting for the results, so next I identify the effects using within-country variation from port-level shipping activity which allows me to control for unobserved time-varying shocks to the origin-country.

Second, I estimate the port-level analogue to Equation 6:

$$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \varepsilon_{pot} \quad (7)$$

where now S is the number of ships leaving from port p in origin country o in period t . Each port in the panel is matched to the closest city of financing by geodesic distance, and its exposure to bank failures Fail_{po} is assumed to come from that city.⁴³ Ports more than 500 km from the nearest city of financing are given an exposure of 0, and I include an indicator for these ports (interacted with the post time period) so that there is a control group of completely unexposed ports.⁴⁴ This control group allows for ports that are still connected to London but experienced no bank failures to react differently from ports that were not connected to London at all. X_{po} are pre-crisis port characteristics that can be included as additional controls. Port fixed effects α_p absorb all time-invariant port-specific differences in levels of shipping, and origin-country-period fixed effects γ_{ot} flexibly control for all observed and unobserved characteristics at the country-level that affected shipping. Including these

⁴³For example, the port of Piraeus in Greece is designated as receiving its funding from Athens.

⁴⁴The results are not sensitive to the 500 kilometer boundary and the main coefficients are robust for a range of distances and to not including the time-varying intercept for distant ports. See Figure B8 for the coefficient plot for the baseline specification estimated using different distance cutoffs.

fixed effects means β is identified by comparing ports from the same country and year.⁴⁵ There are on average 5 ports per country.⁴⁶ Standard errors are clustered by the country of origin to allow for heteroskedasticity and within-country spatial correlations.

Table 4 Columns 2–6 presents the baseline results with controls added individually. The coefficients remain stable and statistically significant. The coefficient of -0.56 in Column 6 with all the controls indicates that a port in the top 90%-ile of exposure experienced 27% greater losses than a port in the bottom 10%-ile of exposure in the post-crisis year. I address the concern that the bank failures are correlated with other factors that are responsible for the decline in exports by including observable port-level characteristics as controls in the baseline regression. These controls are based on the port-level characteristics that were not balanced between banks that failed and did not fail in Table 3 and include the average age of the banks, whether the port is the capital city, and the fraction of ships going to the UK in the pre-crisis year.⁴⁷ The coefficients in Table 4 Columns 4–7 after including these controls remain stable and statistically significant.

Implementing the recommended bounds in Oster (2019) shows that selection on location-level unobservable characteristics is minimal. These bounds are calculated using changes in the magnitude of the coefficient and the R^2 after controlling for observable characteristics. β^* is the inferred true coefficient if the unobserved bias is as large as the observed bias, and δ is the inferred bias that could induce the estimated β to be zero. I report these as β^* and δ in the last two rows. These calculations show that β^* is almost identical to the estimated β , and that the degree of unobservables bias would have to be at least 31 times larger than the degree of observables bias.

4.1.1 Binding financial shock

Having established that exposure to bank failures caused large immediate intensive margin declines in shipping both across and within countries, I next ask to what extent could exporters establish a new line of credit and ship from a neighboring port?

The similarity in the magnitudes of the estimates in Columns 1 and 6 (-0.51 and -0.56 respectively) of Table 4 implies that differences in origin-country characteristics are not driving the main results. Moreover, within-country substitution of exporting across ports

⁴⁵Countries with only one port are effectively dropped from this estimation. These account for 16 of the 578 observations (2.8 percent). These come from 8 ports, which reduces the effective number of countries in the estimation from 54 to 46.

⁴⁶One standard deviation of exposure to bank failures across ports within countries is on average 0.13 and it is 0.16 across countries.

⁴⁷Bank-level characteristics are aggregated to the port-level using the pre-crisis shares $z_{lb,pre}$ of the importance of each bank to each location. All country-level differences in Table 3 are absorbed by the country-period fixed effects.

was low: contractions in one port were not compensated in another port. This lack of substitution was likely due to the difficulty of establishing new credit relationships, as in Bernanke (1983).

I directly estimate the degree of substitution among ports in a country by asking whether more exposure to bank failures in the rest of the country benefits a port, controlling for its own exposure. I construct a measure of the average exposure to bank failures in the rest of the country, leaving out the port’s own city of financing.⁴⁸ I include this measure as an additional control to Equation 7:

$$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \psi \overline{\text{Fail}}_{other,o} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \Gamma' X_{pot} + \varepsilon_{pot} \quad (8)$$

ψ is the main coefficient of interest. It controls for a port’s own exposure to bank failures and measures the semi-elasticity of its own exports to the rest-of-country exposure to bank failures. $\psi > 0$ indicates that a higher degree of exposure in the rest of the country benefits a port, and it implies that exporters from the rest of the country can effectively divert their activity to another port. $\psi > 0$ would suggest that this channel of within-country substitution could reduce the country-level losses.

In Table 5 Column 2, I report a non-significant coefficient of -0.266 for ψ . This estimate rules out within-country substitution, and it provides suggestive evidence that city-level shocks may have had negative spillovers to the rest of the country.

4.1.2 Banking sector recovery

While the financing constraint was binding for port cities in the short-run, there was fast recovery. I test this hypothesis explicitly using the city-level panel of banks, and I find that multinational banking did not retrench. I plot the total number of banks and the composition of banks by nationality at the city-level by above and below average exposure to banks that failed in Figure B9. Figure B9a shows that cities that were more exposed to bank failures had access to the same number of banks as cities that were less exposed. This figure shows that the persistent effects across countries could not be explained by the size of the banking sector, measured by the number of banks.⁴⁹

While there is no difference in the total number of banks, there is a change in the composition of nationalities among banks. Figure B9b shows that British banks did not tend to return to the locations that had experienced a higher degree of failures, but that domestic

⁴⁸This measure is calculated by removing each city of financing’s contribution from the country-level exposure measure rather than simply leaving out the port’s exposure in order not to double-count cities that financed more than one port.

⁴⁹A full time-series for the balance-sheet characteristics of all the banks is not available.

and other European banks filled the gap, likely responding to the investment opportunities left by British banks (Figures B9c and B9d).⁵⁰

4.2 Extensive margin effects

If external finance needs are high, exposure to bank failures makes it more difficult to enter new markets, lowering growth on the extensive margin. I categorize the extensive margin of exporting activity in two ways: the first is the number of unique destinations that a port trades with, conditional on exporting at all, and the second is the likelihood that a port engages in any international trade at all.

First, I estimate the changes to the extensive margin number of destinations using the specification in Equation 7 with the log of the number of unique destinations as the dependent variable. This specification compares the relative number of destinations that more exposed destinations traded with relative to less exposed destinations. Table 6 Columns 1–2 reports the effects for countries and ports, respectively. A one standard deviation increase in exposure reduces the number of unique destinations by 7.7% and 5.6% respectively in the post-period. Since ports grew on average between the two periods, these coefficients indicate that exposed locations grew less. The larger magnitudes at the country-level provide further suggestive evidence that there were negative spillovers from highly exposed ports to the rest of the country rather than redistribution.⁵¹

The second test of extensive margin effects categorizes ports as “Entering” into international trade if there is no exporting activity in the pre-crisis period and positive exports in the post-crisis period, and “Exiting” if the reverse is true. I estimate a linear probability model on a one-period cross-section where E_{po} is an indicator for either Entry or Exit and standard errors are clustered by the origin-country:

$$\Pr(E_{po}) = \alpha + \beta \text{Fail}_{po} + \gamma_o + \Gamma' X_{po} + \varepsilon_{po} \quad (9)$$

Table 6, columns 4 and 6 present the within-country likelihood of Entry_{po} and of Exit_{po} , respectively. As predicted by the conceptual framework, the shock was a statistically significant deterrent to the extensive margin decision to enter markets, but it did not significantly alter the Exit decision by those who had already paid the sunk costs. A port in the

⁵⁰These patterns are consistent with the historical consensus that after 1870, France and Germany actively sought to expand their financial presence around the world to compete with Britain (Einzig, 1931; Kisling, 2017). There is also a parallel between the diminished presence of British banks in the long-run and the diminished exports being discussed in this section.

⁵¹These results are analogous to the findings in Huber (2018) that firms within a county that did not directly experience a financing shock still performed worse post-crisis from declines in aggregate demand.

top 90%-ile of bank failure exposure was 13.5% less likely than a port in the bottom 10%-ile of exposure to begin exporting at all.⁵²

4.3 Persistent effects

I have shown that there were large effects immediately after the crisis and that while the financing shock was temporary, it was binding. I now turn to the third prediction that the shock will have persistent effects on export volumes.

4.3.1 Total exports

There is a striking divergence in cumulative growth of total exports across countries in the raw data which shows that exposure to the banking crisis has permanent level effects. In Figure 2a, I plot the annual aggregate values of exports for countries binned into above and below-average exposure to bank failure, where the average exposure is defined in the cross-section of countries, and levels for each group are indexed to 1 in 1866. The blue line shows the total value of world exports. The overall pattern is of tremendous growth: total global trade increased five-fold over this period. Before 1866, exports were expanding at the same rate between the two groups of countries so there are no differential pre-trends between the groups, but after 1866 there is an immediate divergence in levels that does not recover. Figure 2b graphs the difference between the two groups, which corresponds to the DD estimate with binary treatment.

The permanent divergence arises from a short-run jump in the relative annual exports growth rates of unaffected countries in the four years after the crisis. In Figure B11, I plot the annual growth rate of exports and show that they are very similar pre-crisis, diverge after the crisis in 1867, and then converge again to the same pattern by 1880. In the pre-crisis period from 1850–1865, the average annual growth rates are 11.6 percent for both the less exposed (solid line) and more exposed groups (dashed line).⁵³ In 1867 the less exposed group (solid line) grew 14 percent while the more exposed group (dashed line) grew 9 percent, and in 1868 the growth rates were 22 and 10 percent respectively. The cumulative difference in the annual growth rates between the two groups after the first two years is 17.2 percent. This initial difference in export growth rates is the main driver of the average annual difference in growth rates of 1.6 percent per year between groups from 1867–1914, and it is consistent

⁵²Similarly, Berman and Héricourt (2010) find that access to finance influences the firm entry decision, but that it has no effect on the exit decision.

⁵³In the immediate pre-crisis period from 1860–1865, the average annual growth rates were 6.7 and 6.5 percent, respectively, and the p-value for the difference in means is 0.97.

with the prediction in the conceptual framework that unexposed exporters were able to grow due their competitors' shock.⁵⁴

I benchmark these findings against estimates of the elasticity of trade with respect to geographic distance for scale. Using my dataset, I estimate a trade elasticity of -1.1 to geodesic distance.⁵⁵ Relative to this elasticity, increasing an exporter's exposure to bank failures from below to above average is equivalent to increasing its geographic distance to its trading partners by 15.6 percent after the first two years.

The impact on exports is much larger than the impact on GDP, although there also appears to be a permanent effect on GDP levels. In Figure B12, I plot aggregate GDP for the same two groups of countries, binned by above and below average exposure to bank failures. The difference in the average annual growth rates in output is 0.6 percent. As in the Great Trade Collapse of 2008, the difference in exports is much larger than the difference in GDP, so the trade-specific losses cannot be driven by productivity declines that also affect output.

4.3.2 Bilateral exports & market-share effects

The divergence in total values of exports between more and less exposed countries could be driven in part by the importing country's demand. In particular, if more-exposed countries tend to have stronger exporting relationships with countries who experienced slower imports growth after the crisis, their exports would be affected, but not through the financing constraint channel. I address this possibility by estimating the effect of bank failure exposure on bilateral exports volumes, which allows me to control for annual demand shocks, for the years 1850–1914:

$$\ln(\text{EX}_{odt}) = \beta_t \text{Fail}_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt} \quad (10)$$

The dependent variable is the log value of exports EX_{odt} (in nominal pounds sterling) from origin country o to destination country d in year t . Fail_o is the origin-country exposure to bank failure, and it is interacted with leads and lags that estimates the effect over time. X_{ot} includes contemporaneous characteristics or pre-crisis origin-country characteristics that are interacted with year dummies, which control for macroeconomic differences among countries.

⁵⁴The average annual growth rates from 1867–1913 are 4.5 and 2.9 percent for the less exposed and more exposed groups of countries, respectively. This is calculated using the 1913 values of exports, which were 8.11 and 3.86 times the values in 1866 for the two groups, respectively.

⁵⁵In other words, a 1 percent increase in physical distance between two countries reduces the trade flows between them by 1.1 percent. This elasticity is, coincidentally, exactly the average elasticity found in the literature based on the survey of structural gravity by Head and Mayer (2014). It is slightly larger than the average estimate of -0.93 found in all gravity papers. Table A5 reports the estimates and robustness to controlling for gravity measurements of bilateral resistance.

Origin-country fixed effects γ_o control for time-invariant country characteristics and restrict the source of variation to the change in exports within each country between periods. As in the port-level estimation, I control for the effect of the origin country not having any British banks at all in 1866, which separates the effect of any exposure from the degree of exposure to failed banks.⁵⁶ Destination-country year fixed effects γ_{dt} control for demand shocks by restricting the identifying variation to being across exporters, within-destination-year. I omit the covariate in the baseline year and normalize it to zero. Standard errors are clustered at the unit of treatment, the exporter country, following Abadie, Athey, Imbens and Wooldridge (2017).⁵⁷

Equation 10 is the fixed effects estimation of a structural gravity model standard in the international trade literature (Head and Mayer, 2014) which relates the volume of trade flows to the sizes of the importing and exporting countries and the inverse of the distance (geographic and institutional) between them. This specification flexibly controls for both origin-country and destination-country changes in GDP, so these effects should be interpreted as the differential impact on exports beyond just country size (see Appendix E.2 for further discussion). I control for the distance between countries dist_{od} as a standard measure of bilateral resistance. Allowing θ_t to vary by year flexibly controls for shocks to the effective distance between countries due to technological advances. The one departure from the standard fixed effects estimation using panel data is the absence of origin-country year fixed effects because those are collinear with the treatment.

I allow β_t to vary annually and at five-year intervals ([1850, 1855], ..., [1911, 1914]). β_t should be interpreted as the semi-elasticity of the response to exposure to bank failures in the exporting country by a given importer in a given year. It is expected to be negative if increases in the cost of financing from bank failures reduces exports to a destination in a given year. For example, how much less is France predicted to import from a country in the 90%-ile of exposure rather than a country in the 10%-ile of exposure in the year 1900?

Figures 3a and 3b plot the estimated β_t coefficients annually and at five-year intervals, where β_{1866} and β_{1861-5} are the omitted years in each specification, respectively.⁵⁸ β_t is identified with variation in every cross-section of the data, but it uses the full panel of data to control for determinants of trade flows like country size. The estimated coefficients support the patterns in the raw data for total exports that exposure to the crisis had no effect on exports pre-crisis, but that it immediately lowered trade flows between countries afterward.

The persistence is striking: destination countries imported less from exporters that

⁵⁶These countries accounted for 2% of the value of exports in 1866, and results are robust to not controlling for the non-exposed group.

⁵⁷Results are robust to different ways of clustering in Table A6.

⁵⁸Point estimates are in Table E8 (column 2).

had been exposed to bank failures for almost 40 years. The average estimated annual coefficient from 1867–1900 is -1.71 log points. This magnitude implies that the average importer bought 70% less from an exporter in the 90%-ile of exposure relative to one in the 10%-ile. $\beta_{1901-05}$ is the first period when the effect is not statistically different from zero. However, the average magnitude of the coefficients after 1900 is -1.11, which is still 65 percent of the average effect until 1900. The average estimated coefficient from 1867–1914 is -1.53 log points, and given the average exposure of 11 percent, implies that the (partial equilibrium) disruption in world exports for the post-crisis period until WWI was 17% per year.

4.3.3 Heterogeneity by incumbency status

The burden of the losses falls on new trade relationships that had not existed before 1866. In Figure 4, I categorize bilateral relationships by whether the exporter is a new entrant or incumbent as of 1866. I interact the indicator for both “new” and “old” relationships with each exporting country’s exposure to failed banks to illustrate the difference in the effects between the two types of trade relationships.⁵⁹ This specification shows that even holding an importer fixed (and controlling for importer demand-side shocks), the market-share losses are heterogeneous depending on whether the exporter has already paid the sunk costs of entry or not. Since these specifications estimate differential effects based on the nature of the bilateral relationship, they provide a further robustness check that the average persistent effects cannot simply be explained by unobserved correlated shocks to the exporter.

The average post-crisis coefficient for exposed exporters who are trading with a destination for the first time is -1.88 log points while it is -0.17 log points for exporters with a pre-existing relationship with the destination. The latter effect is also not statistically significant. In contrast, the effects for the new exporters are significantly different from zero until 1906. This result is consistent with the framework in which new entrants are differentially disadvantaged relative to incumbent relationships because they have not yet paid the sunk costs of entry, and they show that the persistent losses on average are driven by the inability of new entrants to gain market-share.

4.4 Robustness

4.4.1 Immediate effects

I provide a variety of robustness checks for the immediate within-country effects in Appendix E.1. First, I expand the control variables to include all port-level characteristics, even ones

⁵⁹The specification is: $\ln(\text{EX}_{odt}) = \beta_{t,old} \text{Fail}_o \times \mathbb{I}(\text{Old}_{od}) + \beta_{t,new} \text{Fail}_o \times \mathbb{I}(\text{New}_{od}) + \gamma_o + \gamma_{dt} + \varepsilon_{odt}$

that do not appear statistically significantly correlated with bank failures (Table E1). Second, I show that the baseline effects are not due to demand shocks both specifically from the UK and more generally (Table E2). Third, I exclude cotton-exporting countries individually and as a group because they may have experienced a correlated shock due to the end of the American Civil War (Table E3). Fourth, I use the time-series granularity of the *Lloyd's List* and estimate the effects allowing for communication lags from London to cities around the world (Figure E1 and Table E4). Fifth, I account for potential mismeasurement in the outcome variable by re-estimating all the results using count data methods, limiting the sample to well-traveled routes to further diminish the impact of outliers along routes, and showing similarity to annual regressions using country-level values of exports (Figure E2, Tables E5 and A6). The results are robust to all of these checks.

4.4.2 Long-run effects

I provide a variety of robustness checks for the long-run effects. First, I control for a wide variety of initial and contemporaneous macro-economic conditions that could potentially have a confounding effect on the effects. In Table E8 columns 3–8, I show robustness to a variety of origin-country controls, including the pre-crisis characteristics that are correlated with bank failures. In Table E9 I report the estimates after including standard gravity covariates, such as shared language, shared land border, and being in the same European empire. Additional robustness includes controlling for pre-crisis and contemporary military conflicts and exchange rate regimes pre-crisis (Table E10); industry composition of exports pre-crisis and initial trade intensity with the UK (Tables E11 and E19); excluding the cotton-exporting countries (Table E12); excluding countries that may have experienced correlated shocks (Table E13); financial crises like sovereign debt, domestic debt, stock market crashes both contemporaneous and in 1865 (Table E14 and E15); ability to issue long-term debt or equity in London (Table E16); and the number of banks of different nationalities after the crisis (Table E17). The static and the time-varying versions of all of these controls do not affect the statistical significance or the qualitative patterns of the results. These controls rule out the possibility that these other events were the actual drivers of the persistent collapse in exports market share.

Second, I generalize the concern that any individual country is affecting the results by estimating the baseline specification while dropping each exporting country in turn. In Figure E3, I plot the distribution of the estimated coefficients as well as the distribution of the associated p-values. These show that not only are the magnitudes of the coefficients robust, but also the pattern of statistical significance is as well. The coefficients before the shock are close to zero and not significant, and as in the baseline results, they become large

in magnitude and economically significant after 1866 before exhibiting recovery in 1900.

Finally, I test the robustness of the long-term results by implementing the Fisher exact test for randomization inference. This test is conducted by reassigning treatment randomly and without replacement to countries to compare the estimated treatment effect against hundreds or thousands of placebos. At longer time horizons, countries' exports could be affected by a number of reasons, and assigning the treatment randomly will show whether the long-term negative effects could arise naturally from the data for reasons unrelated to the banking shock. If that is the case, the distribution of estimated coefficients will become more negative with each subsequent group of years.

In this test, I redistribute the shocks randomly and simulate the data 1,000 times, then estimate the long-term effects in Equation 10 using the simulated data. I plot the distribution of the coefficients for each group of five years in Figure E4. These plots show that the coefficients are centered around zero in all periods. The lack of drift indicates that the long-term effects are statistically very unlikely to have been generated by unobserved processes of divergence.

5 Mechanism

Having established that the temporary financing shock affected both the intensive and extensive margins of exports for exposed countries, I now show how the sunk cost mechanism induced changes in the patterns of trade after the shock. First, I establish that aggregate world trade did not significantly decline after the shock. Second, I show how the patterns of trade changed due to the relationships that were either severed or did not form.

5.1 Effect on aggregate world exports

The baseline empirical estimations of the impact of the crisis on exporters are partial equilibrium, which do not provide insight on the general equilibrium aggregate effects on *global* trade. In particular, large and persistent losses by exposed exporters relative to unexposed ones may not lead to reductions in world trade if unexposed exporters grow. I analyze this possibility by estimating the effect of the bank failures on a country's *imports*. Given an institutional context in which the banks primarily financed exporters and not consumption, it would not be surprising if after controlling for the effects on income, the crisis did not impact imports.

I estimate the impact of the crisis on a country's imports using the baseline specification in Equation 10, replacing the key regressor of the exporting country's exposure with

the importing country’s exposure.⁶⁰ As in the baseline, I saturate the estimation with fixed effects so that supply shocks from the exporter are accounted for (γ_{ot}) as well as the importer’s overall size (γ_d). I present these results in Table A7. Column 2 shows that exposure to bank failures had no impact on a country’s imports with coefficients close to zero and not statistically significant. In Column 3, the import effects robust to controlling for the shock to exporters as well.⁶¹

Given the symmetry between world imports and exports, the lack of effect on imports indicates that the crisis could not have had an aggregate effect on world trade. This lack of effect on aggregate global trade can be only be reconciled with the market share losses by exposed countries if non-exposed countries were able to compensate by exporting more to each destination market.

5.2 Patterns of substitution

The conceptual framework directly predicts that unexposed countries will gain market share at the expense of their competitors. The degree to which exporters are shut out of destination markets should vary with the competitiveness of the market and the extent to which other factors could compensate for the direct financing shock. I construct several proxies to show how different circumstances affected the likelihood that trade relationships would survive the financing shock.

5.2.1 Comparing direct competitors

A trade cost shock between parties can lead importers to source from new relationships or to increase the amount they buy from pre-existing relationships. In the 19th century, most countries exported commodities that were produced by multiple other countries, leading to a high degree of substitutability across countries. As an example, a country importing sugar could choose among a number of producers in the Caribbean and South America. A large shock to the cost of exporting from one country can give its competitors a relative advantage in each destination where those competitors can enter and capture larger market share. Given the initial sunk costs, once importers establish a relationship, it will be difficult

⁶⁰Given the symmetry in trade flows, one country’s exports is its trade partner’s imports. Therefore estimating the impact of country A’s exposure to bank failures on the amount it *imports* from country B is equivalent to estimating the effect of country B’s exposure to bank failures on the amount that exported to country A. The equation of interest, $\ln(IM_{odt}) = \beta_t \text{Fail}_o + \varepsilon_{odt}$, is equivalent to $\ln(EX_{odt}) = \beta_t \text{Fail}_d + \varepsilon_{odt}$.

⁶¹Directly controlling for the importer’s exposure to the crisis makes it impossible to include the full set of controls, such as the destination-year fixed effects that are included in the baseline estimations. Not being able to fully and flexibly control for demand shocks from importers attenuates the estimated effect of the crisis on exporters.

for exporters who had experienced a shock to compete, even after the shock passes.

First, I use the industry composition of a country’s exports pre-crisis, categorized by two-digit SITC codes, to test for importers substituting among similar countries. I estimate the baseline specification in Equation 10 with time-varying industry controls where each country is assigned the SITC industry of its biggest export in 1865.⁶² The SITC industry controls mean that β_t should be interpreted as the loss of market share into a given destination in a given year by an exporting country *relative* to other countries whose exports also concentrated in the same industry. This estimation is restricted to the 44 countries that reported the composition of their exports in 1865, and they show that the direct comparison implies larger and more persistent losses (coefficients reported in Table E8 column 6 and plotted in Figure B13a).

Next, I broaden the measure of a country’s exports composition by using its geographic region as a proxy. I validate that geographic region is a reasonable proxy for the goods exported for the subset of 44 countries with observable industry composition in 1865. For each region, I identify the top three exports categories by SITC codes and calculate the fraction of the total value of exports from the region that fall into those categories.⁶³ This fraction is equivalent to an exports-weighted average of the cross-country exports concentration within the top three categories. Figure B14 shows that this fraction is above 0.5 for all regions and averages 0.73 across regions, indicating that exports are very similar within region.

I compare the countries within regions to each other by including origin-country region-year fixed effects in the baseline specification in Equation 10. The additional controls restrict the variation such that β_t is estimated off comparisons of countries in the same geographic area exporting to the same destination in the same year. Figure 5 (Table E8 column 8) shows that there is no recovery in this setting. The qualitative interpretation is that countries that are more exposed to bank failures experience exports losses to the average destination every year until 1914. As robustness, I also re-estimate the baseline with region-year fixed effects using the subsample of countries that have SITC information and verify that the patterns are similar (Table E8 column 7 and plotted in Figure B13b).

Third, I directly test for the competitive effects within region by estimating the effect of other countries’ average exposure on a given country’s exports, controlling for that country’s own exposure.⁶⁴ The prediction is that there should be positive spillovers ($\theta_t > 0$)

⁶²The global value of exports by SITC is shown in Figure B5.

⁶³Each region has at least two countries, and the primary exports for all countries outside of Northwest Europe are raw commodity goods.

⁶⁴The specification is: $\ln(EX_{odt}) = \theta_t \text{Region Fail}_{-o,t} + \beta_t \text{Fail}_o + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist}_{od}) + \varepsilon_{odt}$ where $\text{Region Fail}_{-o,t}$ is the average exposure of other countries in a region for a given country o .

because a trade cost shock to a given country will benefit its competitors with similar exports. Figure B15 shows that negative shocks to a country’s competitors does benefit its own exports into a given market. While the estimates are noisy, it is worth noting that the outcome variable is a country’s total exports rather than industry-specific exports, which would generate attenuation bias.⁶⁵

The sustained persistence of the effects within regions are not driven by the smaller sample comparisons. In a robustness check, I conduct a Fisher exact test for the country groups by simulating 1,000 random group assignments and re-estimating the coefficients. I plot the distribution of the five-year coefficients in Figure E5. This figure shows that the true estimates are very similar to the simulated estimates for the years until 1900. At that point, the true coefficients are larger in magnitude than the average simulated coefficient.

5.2.2 Lower financial needs

Shorter routes are less expensive to finance because goods spend less time in transit. An externally financed loan has shorter maturity, and it is easier for exporters to internally finance out of working capital. Since financing costs increase with the distance between trading partners, the key prediction is that trade between more distant partners will decline after the bank failures.

I test this prediction using the panel of country-level values of trade by allowing for the exposure to failure to differentially affect trading partners that are physically closer. I construct a binary variable “Close” to indicate country-pairs that are less than the average distance between countries trading in 1865. Formally, I estimate the following:

$$\begin{aligned} \ln(\text{EX}_{odt}) = & \theta_{t,close} \text{Fail}_o \times \mathbf{1}(\text{Close}_{od}) + \beta_t \text{Fail}_o + \lambda_t \mathbf{1}(\text{Close}_{od}) \\ & + \Psi' X_{od} + \gamma_o + \gamma_{dt} + \varepsilon_{odt} \end{aligned} \quad (11)$$

Figure 6 plots $\theta_{t,close}$ in blue and β_t in orange. β_t , the effect of exposure to bank failure, is very similar to the baseline effect in previous estimations. $\theta_{t,close} > 0$ indicates that conditional on exposure to bank failures, exports to closer destinations are positively affected. The main effect for exports to close destinations is given by $\theta_{t,close} + \beta_t$, which is close to zero. The results are robust to constructing the variable over all years or at the end of the sample in 1914. The qualitative interpretation is that a country’s exports losses are borne by more distant trading partners, and that exporters are diverting their goods to destinations with lower trade costs.

⁶⁵Bilateral industry-level exports is systematically unavailable in the historical trade data.

5.2.3 Access to alternative sources of financing

Exporters that had more than one banking relationship would have been more likely to be able to source some credit from these other relationships. The presence of non-British banks as an alternative source of financing may therefore mitigate the main effects of bank failures.

Immediate effects within countries

I use the port-level panel to test this hypothesis in the short-term using within-country variation. I do not observe non-British financing relationships directly so I proxy for them using the number of non-British banks pre-crisis. I re-estimate Equation 7 with an interaction term between exposure to failure and the number of non-British banks:

$$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \phi \text{Fail}_{po} \times \text{non-Brit}_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \Gamma' X_{pot} + \varepsilon_{pot} \quad (12)$$

ϕ is the main coefficient of interest: $\phi > 0$ means that conditional on exposure to bank failures, exports were higher in ports that had access to non-British banks. Table 5 (columns 5 & 6) confirms that having access to more non-British banks pre-crisis mitigated the main losses. At the port-level, there is no correlation between the pre-crisis number of non-British banks and bank failure, so this result is not driven by any trends correlated to non-British banks. The magnitude of ϕ (non-Brit banks \times Fail_{po} \times post) is 34 percent of the baseline effect. The estimated coefficient is statistically significant at the 1 percent level, but the economic magnitude depends on assumptions about the size and effectiveness of non-British banks relative to British banks in providing trade credit. The average port had access to 0.6 non-British banks, so assuming the same size and effectiveness, access to other bank-intermediated finance mitigated the main effect of exposure to bank failures by 20 percent.

Long-term effects across countries

I estimate the long-term effects of gaining access to alternative banking networks by using the nationalities and identities of the multinational banks within each city in the five year windows from 1850-1914. French and German banks are the most important alternatives because they accessed the second and third largest money markets in the world after London.

I construct a binary variable called “European bank” ($\mathbb{I}(\text{EB}_o)$) that takes the value of 1 when the exporting country has access to either a French or German bank, and 0 otherwise. This variable proxies for access to the most likely alternative to the London money market.

I estimate the following:

$$\begin{aligned} \ln(\text{EX}_{odt}) = & \theta_t \text{Fail}_o \times \mathbb{I}(\text{EB}_{od}) + \beta_t \text{Fail}_o + \lambda_t \mathbb{I}(\text{EB}_{od}) \\ & + \Psi' X_{od} + \gamma_o + \gamma_{dt} + \varepsilon_{odt} \end{aligned} \quad (13)$$

λ_t absorbs the time-varying effect of access to common banks across all countries. X_{od} are standard gravity variables of bilateral resistance.⁶⁶ Figure 7 plots β_t in orange and θ_t in blue. Interacting $\mathbb{I}(\text{EB}_o)$ with the exposure to failure each year estimates the additional effect of access to alternative financing for exposed places. The full effect for exposed places is $\theta_t + \beta_t$, which is close to 0 for most years, indicating that countries without access to other financing networks are the ones driving the main losses seen in Figure 3.

6 Conclusion

Standard trade and macro-finance models imply that history does not matter, and that financial shocks only affect the real economy as long as the financial sector has not recovered. Yet there has been little causal evidence to show how long finance shocks continue to impact economic performance. This paper uses a salient historical setting and novel archival data to provide new causal evidence on the real economic effects of bank failures both immediately and in the long-run. The first modern global banking crisis serves as a laboratory where London’s role as the global financial center meant that bank failures in London were transmitted abroad to cities and countries around the world. Exposure to bank failures caused large immediate declines in exporting activity on both the intensive and extensive margins within and across countries. Ultimately, countries exposed to larger degrees of bank failures experienced market share losses in their exports destinations for four decades.

The main contribution of this paper is to provide causal evidence that even a short-lived financing shock can lead to persistent changes in the patterns of international trade. These persistent effects can be understood within a framework in which establishing trade relationships entails significant sunk costs. Exporters exposed to the financial shock during the cusp of a major expansion in globalization were disadvantaged relative to their competitors and lost market share during this critical juncture. Having failed to gain entry initially, those destination markets then became too competitive to enter even after the shock passed. The patterns of substitution across trade partners documented in the paper provides further evidence for this framework.

The slow post-crisis recovery among advanced economies in recent decades suggests

⁶⁶The results are robust to not including them and to allowing them to vary over time.

that the historical record is more relevant than ever. Moreover, in sectors that are heavily dependent on access to finance, a large shock can act like an initial condition that persistently affects the geographical distribution of economic activity, above and beyond steady-state determinants of comparative advantage. While this paper has provided one set of results for the magnitudes of these effects, gaining a broader understanding of how major shocks impact economies at longer horizons in other contexts would be a fruitful avenue for future research.

References

- Abadie, Alberto, Susan Athey, Guido W. Imbens, and Jeffrey Wooldridge.** 2017. “When should you adjust standard errors for clustering?” NBER Working Paper.
- Abiad, Abdul, Prachi Mishra, and Petia Topalova.** 2014. “How does trade evolve in the aftermath of financial crises?” *IMF Economic Review*, 62(2): 213–247.
- Adao, Rodrigo, Michal Kolesár, and Eduardo Morales.** 2019. “Shift-share designs: Theory and inference.” *The Quarterly Journal of Economics*, 134(4): 1949–2010.
- Ahn, JaeBin, Mary Amiti, and David E. Weinstein.** 2011. “Trade finance and the great trade collapse.” *American Economic Review*, 101(3): 298–302.
- Alessandria, George, Joseph P. Kaboski, and Virgiliu Midrigan.** 2010. “The great trade collapse of 2008–09: An inventory adjustment?” *IMF Economic Review*, 58(2): 254–294.
- Amiti, Mary, and David E. Weinstein.** 2011. “Exports and financial shocks.” *Quarterly Journal of Economics*, 126(4): 1841–1877.
- Antràs, Pol, and C. Fritz Foley.** 2015. “Poultry in motion: A study of international trade finance practices.” *Journal of Political Economy*, 123(4): 853–901.
- Baldwin, Richard.** 1988. “Hysteresis in import prices: The beachhead effect.” *American Economic Review*, 78(4): 773–783.
- Baldwin, Richard.** 1990. “Hysteresis in trade.” In *Hysteresis effects in economic models*. 19–34. Springer.
- Baldwin, Richard, and Paul Krugman.** 1989. “Persistent trade effects of large exchange rate shocks.” *Quarterly Journal of Economics*, 104(4): 635–654.
- Benguria, Felipe, and Alan M Taylor.** 2019. “After the panic: Are financial crises demand or supply shocks? Evidence from international trade.” National Bureau of Economic Research.
- Berman, Nicolas, and Jérôme Héricourt.** 2010. “Financial factors and the margins of trade: Evidence from cross-country firm-level data.” *Journal of Development Economics*, 93(2): 206–217.
- Bernanke, Ben S.** 1983. “Irreversibility, uncertainty, and cyclical investment.” *Quarterly Journal of Economics*, 98(1): 85–106.
- Bernard, Andrew B, and J Bradford Jensen.** 2004. “Why some firms export.” *Review of economics and Statistics*, 86(2): 561–569.

- Bignon, Vincent, Marc Flandreau, and Stefano Ugolini.** 2012. “Bagehot for beginners: the making of lender-of-last-resort operations in the mid-nineteenth century 1.” *The Economic History Review*, 65(2): 580–608.
- Bleakley, Hoyt, and Jeffrey Lin.** 2012. “Portage and path dependence.” *Quarterly Journal of Economics*, 127(2): 587–644.
- Borusyak, Kirill, Peter Hull, and Xavier Jaravel.** 2018. “Quasi-experimental shift-share designs.” NBER working paper.
- Cerra, Valerie, and Sweta Chaman Saxena.** 2008. “Growth dynamics: The myth of economic recovery.” *American Economic Review*, 98(1): 439–57.
- Cetorelli, Nicola, and Linda S. Goldberg.** 2011. “Global banks and international shock transmission: Evidence from the crisis.” *IMF Economic Review*, 59(1): 41–76.
- Chapman, Stanley D.** 1984. *The rise of merchant banking*. Taylor & Francis.
- Chor, Davin, and Kalina Manova.** 2012. “Off the cliff and back? Credit conditions and international trade during the global financial crisis.” *Journal of International Economics*, 87(1): 117–133.
- Das, Sanghamitra, Mark J Roberts, and James R Tybout.** 2007. “Market entry costs, producer heterogeneity, and export dynamics.” *Econometrica*, 75(3): 837–873.
- Davis, Donald R., and David E. Weinstein.** 2002. “Bones, bombs, and break points: The geography of economic activity.” *American Economic Review*, 92(5): 1269–1289.
- Dixit, Avinash.** 1989. “Entry and exit decisions under uncertainty.” *Journal of political Economy*, 97(3): 620–638.
- Eaton, Jonathan, Samuel Kortum, Brent Neiman, and John Romalis.** 2016. “Trade and the global recession.” *American Economic Review*, 106(11): 3401–38.
- Eichengreen, Barry, and Andrew K Rose.** 2004. “Staying afloat when the wind shifts: External factors and emerging-market banking crises.” *Money, Capital Mobility, and Trade: Essays in Honor of Robert A. Mundell*, 171.
- Eichengreen, Barry, and Douglas A Irwin.** 1998. “The role of history in bilateral trade flows.” In *The regionalization of the world economy*. 33–62. University of Chicago Press.
- Einzig, Paul.** 1931. *The fight for financial supremacy*. London: Macmillan and Company.
- Fillat, José L, Stefania Garetto, and Arthur V Smith.** 2018. “What are the consequences of global banking for the international transmission of shocks? A quantitative analysis.” National Bureau of Economic Research.

- Foley, C. Fritz, and Kalina Manova.** 2015. “International trade, multinational activity, and corporate finance.” *Annual Review of Economics*, 7(1): 119–146.
- Gourinchas, Pierre-Olivier, Hélène Rey, and Kai Truempler.** 2012. “The financial crisis and the geography of wealth transfers.” *Journal of International Economics*, 88(2): 266–283.
- Hale, Galina, Tümer Kapan, and Camelia Minoiu.** 2019. “Shock Transmission Through Cross-Border Bank Lending: Credit and Real Effects.” *The Review of Financial Studies*.
- Head, Keith, and Thierry Mayer.** 2014. “Gravity equations: Workhorse, toolkit, and cookbook.” In *Handbook of international economics*. Vol. 4, 131–195. Elsevier.
- Henderson, J. Vernon, Tim Squires, Adam Storeygard, and David Weil.** 2017. “The global distribution of economic activity: nature, history, and the role of trade.” *Quarterly Journal of Economics*, 133(1): 357–406.
- Huber, Kilian.** 2018. “Disentangling the effects of a banking crisis: Evidence from German firms and counties.” *American Economic Review*, 108(3): 868–98.
- Iacovone, Leonardo, and Veronika Zavacka.** 2009. “Banking crises and exports: Lessons from the past for the recent trade collapse.” *The Great Trade Collapse: Causes, Consequences and Prospects*, 107.
- Jenks, Leland Hamilton.** 1927. *The migration of British capital to 1875*. AA Knopf.
- Jones, Geoffrey.** 2000. *Merchants to multinationals: British trading companies in the nineteenth and twentieth centuries*. Oxford University Press.
- Jordà, Òscar, Moritz Schularick, and Alan M Taylor.** 2013. “When credit bites back.” *Journal of Money, Credit and Banking*, 45(s2): 3–28.
- Kaminsky, Graciela L., and Carmen M. Reinhart.** 1999. “The twin crises: The causes of banking and balance-of-payments problems.” *American economic review*, 89(3): 473–500.
- King, Wilfred T.C.** 1936. *History of the London discount market*. Routledge.
- Kisling, Wilfried Anton.** 2017. “Trade finance in historical perspective: The role of German banks in the rise of Germany as international trade power, 1875-1913.” Working paper.
- Krugman, Paul.** 1986. “Is the Japan problem over?” National Bureau of Economic Research.
- Krugman, Paul.** 1991. “History versus expectations.” *Quarterly Journal of Economics*, 106(2): 651–667.

- Manova, Kalina.** 2008. "Credit constraints, equity market liberalizations and international trade." *Journal of International Economics*, 76(1): 33–47.
- Manova, Kalina.** 2013. "Credit constraints, heterogeneous firms, and international trade." *Review of Economic Studies*, 80(2): 711–744.
- Muûls, Mirabelle.** 2015. "Exporters, importers and credit constraints." *Journal of International Economics*, 95(2): 333–343.
- Oster, Emily.** 2019. "Unobservable selection and coefficient stability: Theory and evidence." *Journal of Business & Economic Statistics*, 37(2): 187–204.
- Paravisini, Daniel, Veronica Rappoport, Philipp Schnabl, and Daniel Wolfenzon.** 2014. "Dissecting the effect of credit supply on trade: Evidence from matched credit-export data." *Review of Economic Studies*, 82(1): 333–359.
- Peek, Joe, and Eric S. Rosengren.** 1997. "The international transmission of financial shocks: The case of Japan." *American Economic Review*, 87(4): 495–505.
- Peek, Joe, and Eric S Rosengren.** 2000. "Collateral damage: Effects of the Japanese bank crisis on real activity in the United States." *American Economic Review*, 90(1): 30–45.
- Reber, Vera Blinn.** 1979. *British mercantile houses in Buenos Aires, 1810-1880*. Harvard University Press.
- Reinhart, Carmen M., and Kenneth S. Rogoff.** 2009. "The aftermath of financial crises." *American Economic Review*, 99(2): 466–72.
- Rey, Hélène.** 2015. "Dilemma not trilemma: The global financial cycle and monetary policy independence." National Bureau of Economic Research.
- Roberts, Mark J, and James R Tybout.** 1997. "The decision to export in Colombia: An empirical model of entry with sunk costs." *The American Economic Review*, 545–564.
- Romer, Christina D., and David H. Romer.** 2018. "Why some times are different: Macroeconomic policy and the aftermath of financial crises." *Economica*, 85: 1–40.
- Schmidt-Eisenlohr, Tim.** 2013. "Towards a theory of trade finance." *Journal of International Economics*, 91(1): 96–112.
- Schnabl, Philipp.** 2012. "The international transmission of bank liquidity shocks: Evidence from an emerging market." *The Journal of Finance*, 67(3): 897–932.
- Schularick, Moritz, and Alan M. Taylor.** 2012. "Credit booms gone bust: Monetary policy, leverage cycles, and financial crises, 1870-2008." *American Economic Review*, 102(2): 1029–61.

Tables

Table 1: Summary statistics: ports and countries

	<u>Ports</u>			<u>Countries</u>		
	mean	median	sd	mean	median	sd
Exposure to failed British banks	0.07	0.00	(0.19)	0.11	0.03	(0.17)
Exports	127.99	32.00	(231.05)	12.49	2.15	(32.96)
Fraction exports to UK	0.39	0.30	(0.34)	0.62	0.69	(0.37)
Destinations (# countries)	7.60	5.00	(7.28)	3.95	2.00	(8.32)
Distance to destination (km k)	5.31	5.12	(3.48)	6.12	5.26	(3.51)
Banks	6.03	3.00	(7.54)	5.27	1.00	(9.96)
Non-British banks	0.60	0.00	(1.06)	2.97	0.00	(8.74)
Fraction in British Empire	0.34	0.00	(0.47)	0.33	0.00	(0.47)
<i>N</i>	289			55		

Notes: Table 1 shows summary statistics from the port-level panel of shipping activity and the country-level panel of values of exports. All variables are measured at the end of 1865, before the crisis. “Exports” is measured by the number of ships departing for ports, and by the value of exports in millions of pounds sterling for countries. Fraction of exports to the UK is similarly calculated using the number of ships and values of exports.

Table 2: Pre-crisis comparison of bank characteristics

Panel A: Balance sheet characteristics (joint-stock banks)

	All		Not Failed		Failed		Diff	
Capital, authorized (£m)	1.48	(1.06)	1.44	(1.06)	1.67	(1.07)	-0.23	(0.29)
Capital, paid up (£m)	0.59	(0.38)	0.61	(0.38)	0.47	(0.39)	0.15	(0.10)
Deposits (£m)	2.22	(2.73)	2.29	(2.82)	1.85	(2.37)	0.44	(1.14)
Reserve fund (£m)	0.13	(0.12)	0.13	(0.11)	0.15	(0.16)	-0.02	(0.04)
Total size (£m)	4.81	(6.11)	5.08	(6.46)	3.73	(4.48)	1.35	(1.83)
Leverage ratio	0.23	(0.11)	0.24	(0.11)	0.23	(0.11)	0.01	(0.04)
Reserve ratio	0.06	(0.07)	0.06	(0.07)	0.06	(0.06)	0.01	(0.03)
<i>N</i>	95		76		19		95	

Panel B: Other characteristics (all banks)

	All		Not Failed		Failed		Diff	
OG shareholder	0.15	(0.36)	0.11	(0.32)	0.33	(0.48)	-0.22	(0.1)***
Trade credit (£th)	105.79	(246.77)	111.78	(263.41)	75.30	(133.34)	36.48	(59.0)
Age (years)	35.91	(53.62)	40.77	(56.89)	10.40	(15.15)	30.37	(12.8)**
Cities (#)	13.76	(22.88)	14.79	(24.54)	8.48	(9.97)	6.32	(5.5)
Countries (#)	7.63	(8.89)	7.85	(9.24)	6.52	(6.94)	1.33	(2.1)
Asia (£th)	46.01	(170.09)	48.93	(184.16)	31.13	(60.75)	17.80	(40.7)
Africa (£th)	8.17	(25.08)	7.06	(21.86)	13.83	(37.69)	-6.76	(6.0)
N. America (£th)	13.38	(44.37)	15.25	(47.99)	3.85	(13.37)	11.39	(10.6)
S. America (£th)	6.99	(34.12)	7.83	(37.07)	2.70	(9.21)	5.13	(8.2)
Australia (£th)	6.41	(17.25)	7.08	(18.52)	2.98	(7.54)	4.10	(4.1)
Europe (£th)	12.25	(27.40)	10.80	(25.33)	19.62	(36.03)	-8.82	(6.5)
Brit. Emp. (£th)	48.24	(149.39)	53.11	(161.79)	23.46	(47.13)	29.65	(35.7)
UK (£th)	12.59	(40.28)	14.83	(43.72)	1.19	(2.73)	13.63	(9.6)
<i>N</i>	128		107		21		128	

Notes: Table 2 Panels A and B shows bank-level balance across characteristics for banks that failed and did not fail. All variables are measured at the end of 1865 before the crisis. Balance sheet variables were only published for publicly traded banks; these are reported separately in Panel A. “Not Failed” and “Failed” refers to whether a bank suspended or closed during the crisis. Means are reported first, and standard deviations are given in parentheses. “Diff” refers to the difference in means between groups. Standard errors are reported in parentheses for the “Diff” column. £k denotes units of thousands of pounds sterling. £m denotes units of millions of pounds sterling. Leverage ratio is defined as capital (paid and reserves) divided by total assets. Reserve ratio is defined as reserve assets divided by deposit liabilities. Significance is marked by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. *Sources:* Bank of England Archives C24/1, *Banker’s Magazine*, *The Economist*.

Table 3: Correlation between bank failures and pre-crisis location characteristics

$$\mathbb{I}(\text{Failure}_b) = \alpha + \beta \bar{X}_b + \varepsilon_b$$

Panel A: Port characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ships	0.0475 [0.0386]								
Steam ships		0.0174 [0.0362]							
Fraction to UK			0.0990*** [0.0309]						
Distance to London				-0.0244 [0.0483]					
Latitude					0.0379 [0.0399]				
Non-Brit banks						-0.0259 [0.0302]			
Destinations							-0.0150 [0.0345]		
Capital city								-0.119*** [0.0392]	
OG shareholder									0.0153 [0.0342]
N	122	122	122	122	122	122	122	122	73

Panel B: Country characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Exports values	0.109 [0.0594]						
Fraction commodities		-0.0257 [0.0303]					
Gold			-0.0669 [0.0358]				
Silver				-0.00144 [0.0413]			
Bimetallic					0.0580 [0.0362]		
Conflict: any						0.0517 [0.0441]	
Conflict: interstate							-0.0104 [0.0395]
N	128	128	128	128	128	128	128

Panel C: Country characteristics: exports composition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cotton, raw	-0.0250 [0.0726]							
Cotton, manufactured		-0.160 [0.116]						
Grains			0.157 [0.107]					
Bullion				-0.0678 [0.108]				
Sugar					0.105** [0.0456]			
Coffee						-0.0128 [0.0403]		
Alcohol							-0.0247 [0.0366]	
Tobacco								-0.123 [0.126]
N	128	128	128	128	128	128	128	128

Notes: Table 3 reports estimates from the bank-level regression of bank exposure to location characteristics pre-crisis on bank failure rates. The dependent variable is $\mathbb{I}(\text{Failure}_b)$, the measure of bank failure. The independent variable of interest \bar{X}_b is the share-weighted exposure of banks to location characteristics, normalized to have zero mean and unit variance. The coefficients are interpreted as the increase in the probability that a bank fails given a standard deviation increase in the average bank exposure to a particular characteristic. Panel A includes location characteristics from the port panel. Panels B and C includes country-level characteristics like the monetary standard and presence of conflict in the exporting country in 1865/1866, and the industry composition of exports in 1865. Regressions are weighted by each the average location's exposure to bank b . * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

As discussed in Borusyak, Hull and Jaravel (2018), another advantage of transforming the balance tests into shock-level (bank-level) regressions is that it makes it clear which shocks (banks) are the most relevant for the results. In Panel A columns 1–8, there are 122 observations instead of the full 128 because 6 banks operated in cities which were not the closest city for any port, so they do not contribute to the port-level exposure measures. In Panel A column 9, there are only 73 banks that advertised their management personnel. These are smaller banks, and excluding them entirely makes no difference for the country-level results either.

Table 4: Immediate effect of bank failures on shipping

$$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \varepsilon_{pot}$$

	Country		Port			
	(1)	(2)	(3)	(4)	(5)	(6)
Fail _{po} × post	-0.514** [0.225]	-0.707*** [0.154]	-0.722*** [0.157]	-0.673*** [0.205]	-0.618*** [0.163]	-0.558*** [0.178]
Capital city × post			Y			Y
Age of banks × post				Y		Y
Fraction to UK × post					Y	Y
Country _o × post FE		Y	Y	Y	Y	Y
Port _p FE		Y	Y	Y	Y	Y
N	108	578	578	578	578	578
Ports		289	289	289	289	289
Clusters	54	54	54	54	54	54
β*	-.515	-.714	-.729	-.68	-.557	-.559
δ	40.37	50.67	53.14	35.67	47.64	30.78

Notes: Table 4 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis. The dependent variable is the log of the total number of ships departing in each period. Fail_{po} is the share of the port's banks that failed during the crisis. The mean of Fail_{po} is 0.07, and the standard deviation is 0.2. Post is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. They include an indicator for the port being a capital city within the country, the average age of banks, and the fraction of shipping to the UK. The sample is restricted to ports active in both the pre- and post-period. Results from implementing the Oster (2019) test of selection on unobservable characteristics are reported in the last two rows. β* is a bound on Fail_{po} × post if selection on unobservable is as large as selection on observables (δ = 1). δ is the degree of selection on unobservables necessary for the estimated coefficient to be 0. Standard errors in brackets are clustered by country of origin. *p < 0.1, **p < 0.05, ***p < 0.01

Table 5: Testing for within-country substitution and effect of port access to alternative sources of financing

	(1)	(2)	(3)	(4)
Fail _{po} × post	-0.722*** [0.153]	-0.566*** [0.176]	-0.936*** [0.227]	-0.805*** [0.240]
Fail _{other, po} × post	-0.421 [0.426]	-0.266 [0.405]		
non-Brit banks × Fail _{po} × post			0.290*** [0.111]	0.270** [0.106]
Port controls × post		Y		Y
non-Brit banks × post			Y	Y
Port _p FE	Y	Y	Y	Y
Country _o × post FE	Y	Y	Y	Y
N	578	578	578	578
Ports	289	289	289	289
Clusters	54	54	54	54

Notes: Table 5 reports estimates of the effect of the country's exposure to bank failures and access to alternative forms of financing on shipping activity. The dependent variable is the ln of the number of ships sailed. Fail_{po} is the share of the port's banks that failed during the crisis, Fail_o is the share of the country's banks that failed, and Fail_{other, po} is the country-level share of bank failures outside of port *p*. "non-Brit banks" is the number of non-British banks in the port's city of financing in the pre-crisis year. All other variables are defined the same way as in Table 4. Standard errors in brackets are clustered by the origin-country. **p* < 0.1, ***p* < 0.05, ****p* < 0.01

Table 6: Extensive margin effect of exposure to bank failures

	Country destinations	Port destinations	I(Port Entry)		I(Port Exit)	
	(1)	(2)	(3)	(4)	(5)	(6)
Fail _o × post	-0.484*** [0.163]					
Fail _{po} × post		-0.295*** [0.113]				
Fail _{po}			-0.157** [0.0622]	-0.277*** [0.0911]	0.133 [0.133]	0.0406 [0.189]
Port controls × post		Y				
Port controls			Y	Y	Y	Y
Port _p FE		Y				
Country _o × post FE		Y				
Country controls × post	Y					
Country _o FE	Y			Y		Y
N	108	574	331	331	318	318
Ports		286	331	331	318	318
Clusters	54	54	55	55	54	54

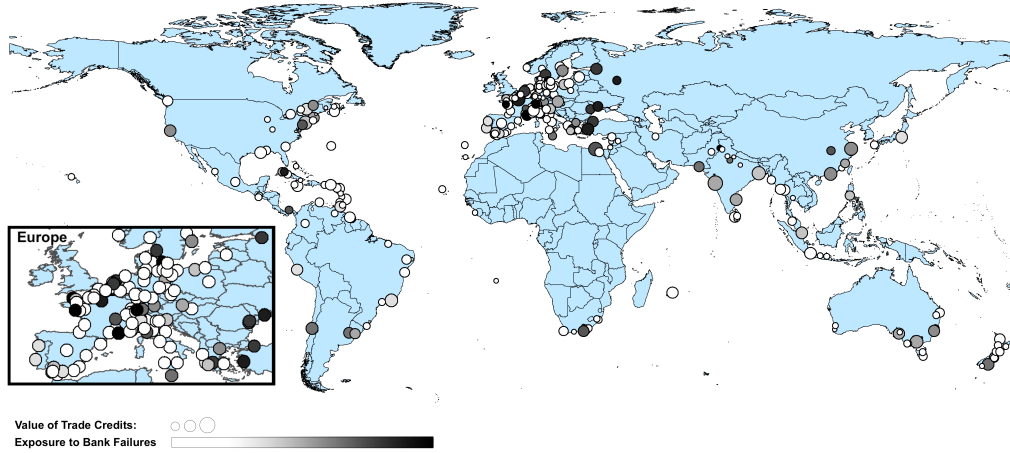
Notes: Table 6 reports estimates of the effect of the exposure to bank failures on the extensive margin of shipping activity. The dependent variable in columns 1 and 2 is the ln number of unique destinations accessed by countries and ports, respectively. The sample in columns 1 and 2 is restricted to ports that were active in both the pre-shock and the post-shock periods. The dependent variable in columns 3 and 4, “I(Port Entry)” is a binary variable that takes the value of 1 for a port that was not active in the pre-shock period and became active in the post-shock period, and 0 otherwise. The dependent variable in columns 5 and 6, “I(Port Exit)” is a binary variable for a port that was active in the pre-shock period and became inactive in the post-shock period. The sample size in columns 4–6 reflects the number of ports that were active in the post-period (for Entry) or pre-period (for Exit).

All variables are defined the same way as in Table 4. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

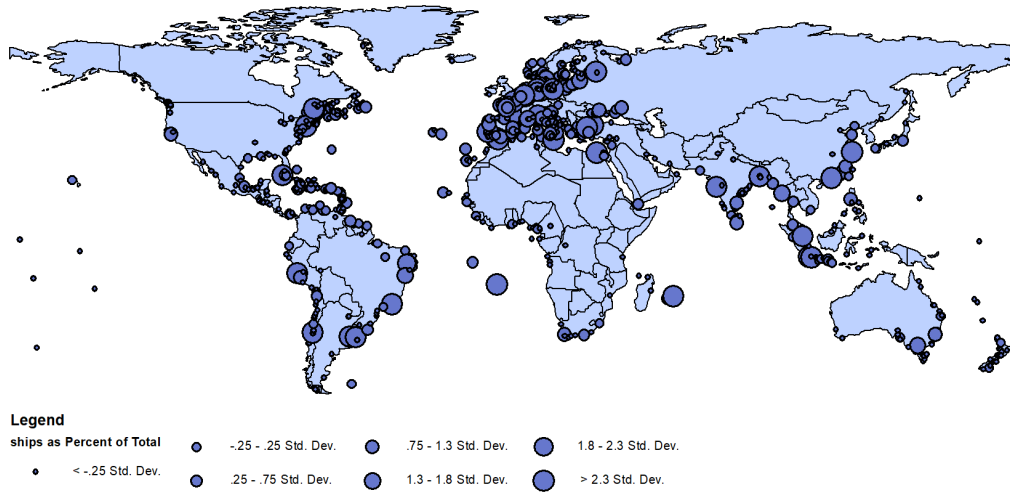
Figures

Figure 1: Geography of banking and trade

(a) British multinational bank lending and failures



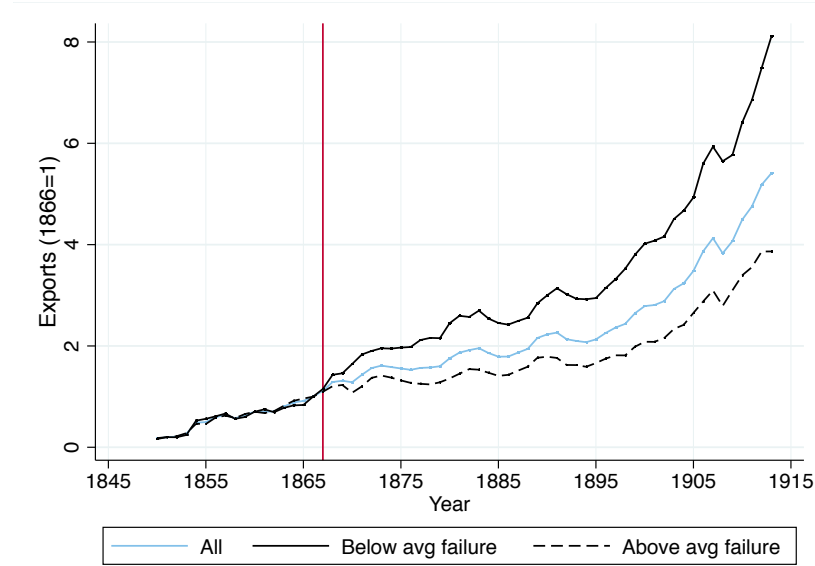
(b) Port-level trade activity



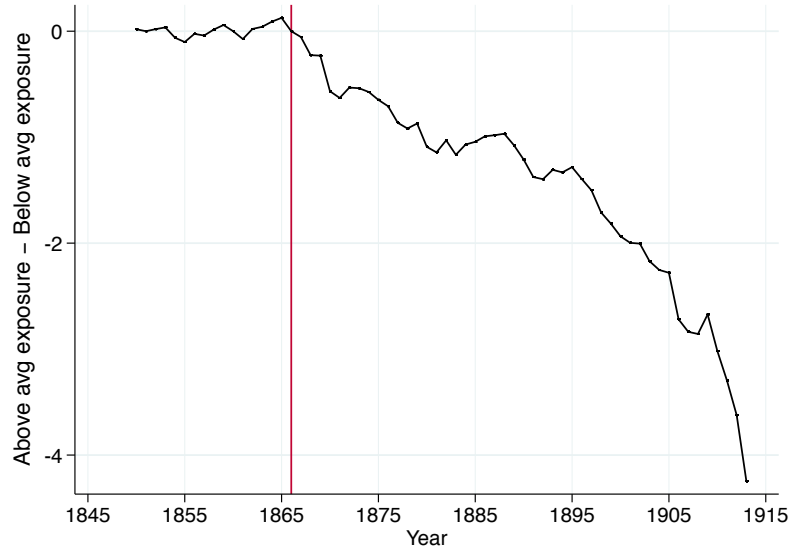
Notes: Figure 1a maps the distribution of the city-level exposure to bank failures $Fail_i$. The size of the points denote the log value of total credit at each city and the color gradient denotes the exposure to failure, ranging from 0 to 1. Figure 1b maps the distribution of shipping activity at ports in the pre-crisis year. The size of the points denote the log number of ships leaving. Ports in the United Kingdom are not included. Source: *Lloyd's List*.

Figure 2: Aggregate exports, grouping countries by above and below average exposure to bank failures

(a) Exports by group



(b) Difference between groups

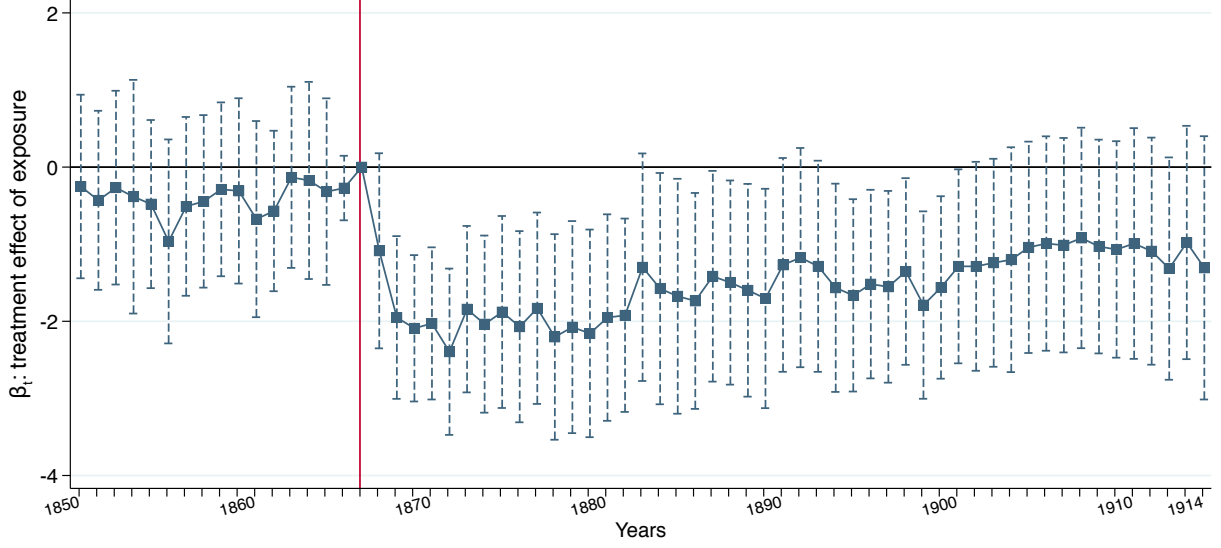


Notes: Figure 2a plots the raw data for the total value of exports by groups of countries from 1850–1914. Countries are binned into two categories: “Below avg failure” refers to countries that experienced below average exposure to bank failures in London, where the average rate was calculated in the cross-section of exporting countries in 1866. “Above avg failure” refers to countries that experienced above average exposure to bank failures. Exports values are normalized to equal 1 in 1866. Figure 2b plots the difference between the values for the two groups. The vertical line marks 1866. Figure B10 plots the coefficients and standard errors from the equivalent regression.

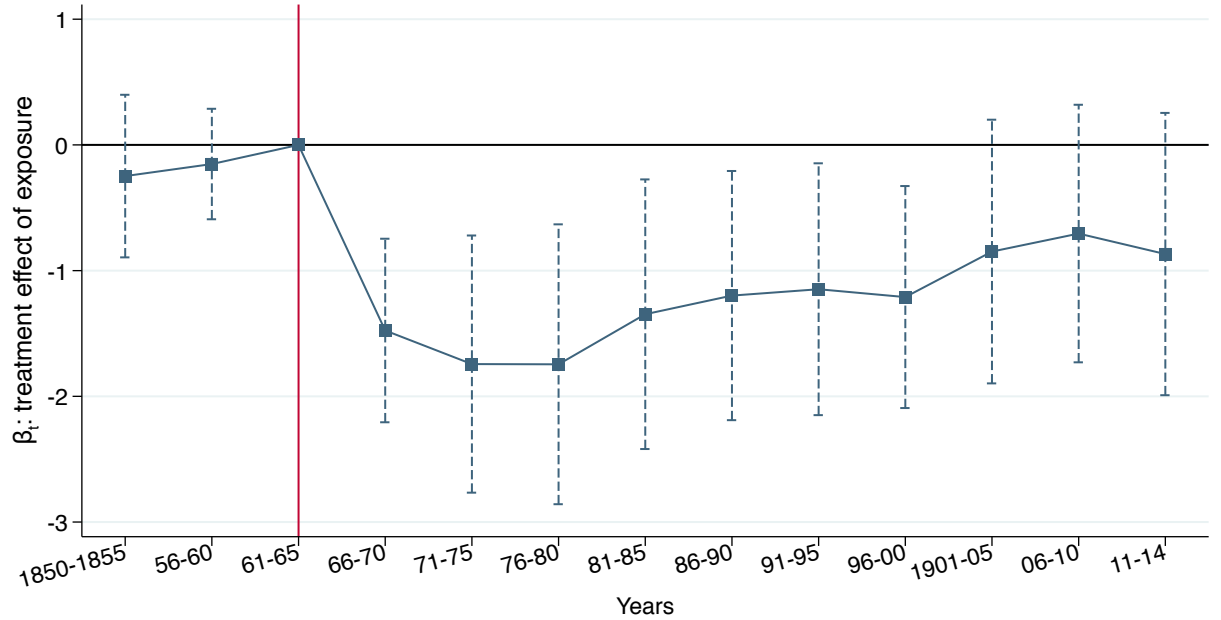
Figure 3: Financing shock has long-term effects on exports

$$\ln(EX_{odt}) = \beta_t \text{Fail}_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

(a) β_t estimated annually



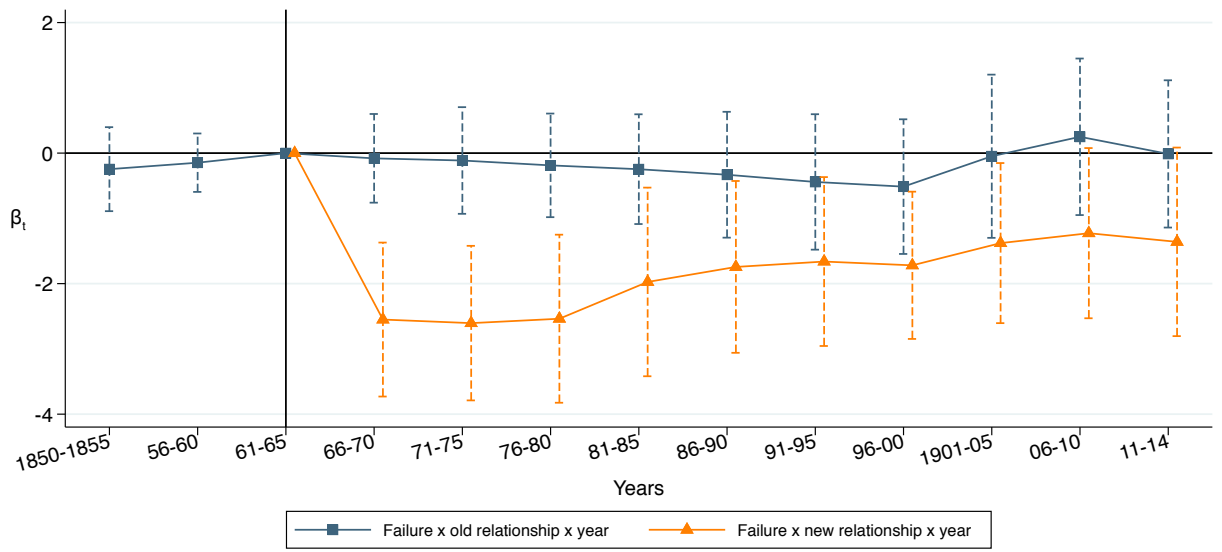
(b) β_t estimated every 5 years



Notes: Figure 3 plots the β_t point estimates and 95 percent confidence intervals for the specification given in equation 10 estimated on the country-level panel of trade. The dependent variable is the ln value of exports. The specification includes origin country o FE, destination country-year dt FE, and time-varying controls for the bilateral distance between countries. β_t is the treatment coefficient on the effect of exposure to failed banks on exports in each group of years. Standard errors are clustered by the origin country. See Table E8 column 1 for the point estimates. $N = 67,378$.

Figure 4: Effect of exposure to bank failure on new vs pre-existing trade relationships

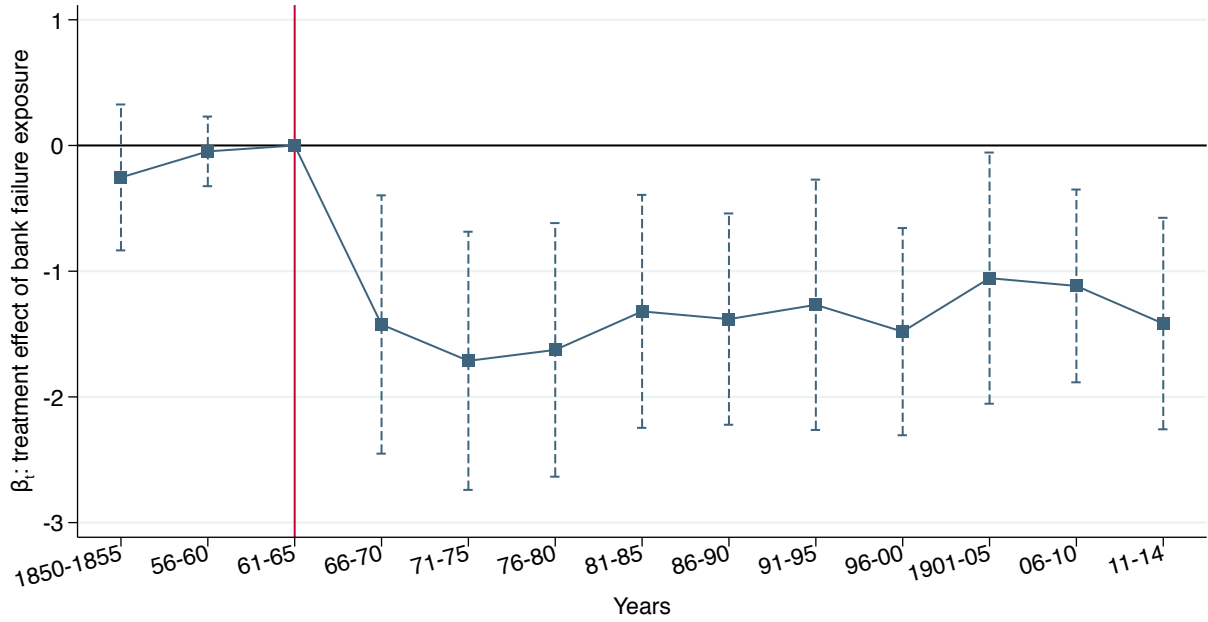
$$\ln(\text{EX}_{odt}) = \beta_{t,old} \text{Fail}_o \times \mathbb{I}(\text{Old}_{od}) + \beta_{t,new} \text{Fail}_o \times \mathbb{I}(\text{New}_{od}) + \gamma_o + \gamma_{dt} + \varepsilon_{odt}$$



Notes: Figure 4 plots the point estimates and 95 percent confidence intervals from the country-level panel of trade in the specification given below. “Failure \times old relationships \times year” is the treatment coefficient on the effect of exposure to failed banks on exports for bilateral trade relationships that existed prior to 1866. “Failure \times new relationships \times year” is the treatment coefficient on the effect of exposure to failed banks on exports for bilateral trade relationships that were newly formed after 1866. The dependent variable is the \ln value of exports. The specification includes origin country o FE, destination country-year dt FE, time-varying controls for the bilateral distance between countries. Standard errors are clustered by the origin country.

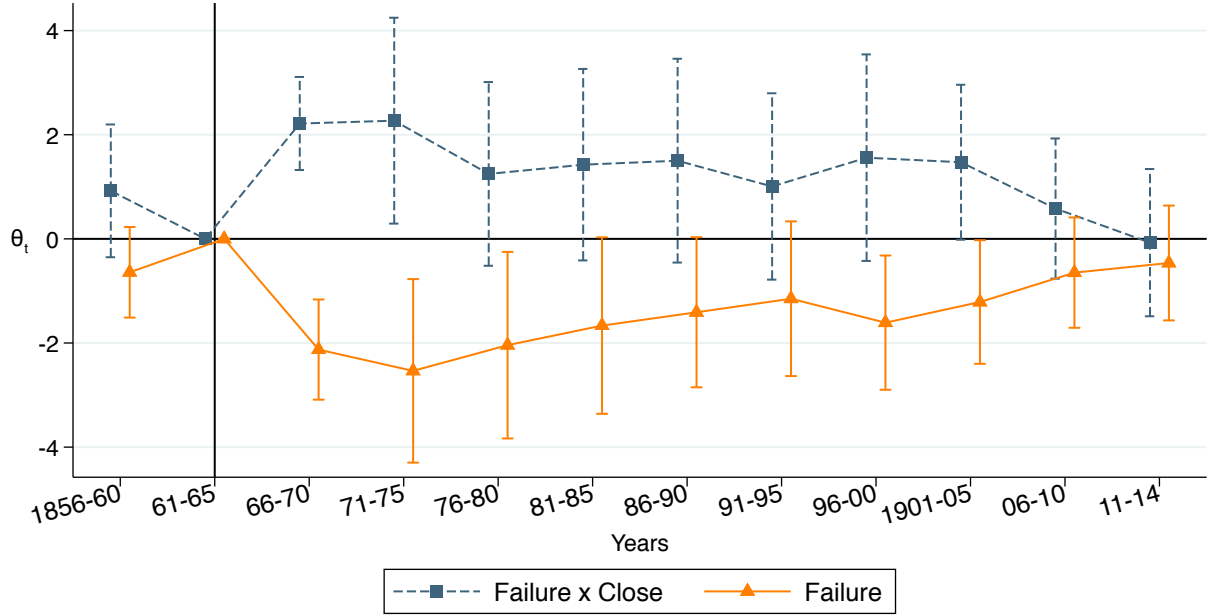
Figure 5: Recovery is worse within groups of countries with similar exports

$$\ln(EX_{odt}) = \beta_t \text{Fail}_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \psi \text{Region}_{ot} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$



Notes: Figure 5 plots the point estimates and 95 percent confidence intervals for the specification given above estimated on the country-level panel of trade. The dependent variable is the ln value of exports. The specification includes origin-country region-year FE, origin country o FE, destination country-year dt FE, and time-varying controls for the bilateral distance between countries. β_t is the treatment coefficient on the effect of exposure to failed banks on exports in each group of years. Standard errors are clustered by the origin country. See Table E8 column 8 for the point estimates. $N = 67,378$.

Figure 6: Exports are not affected for closer destinations

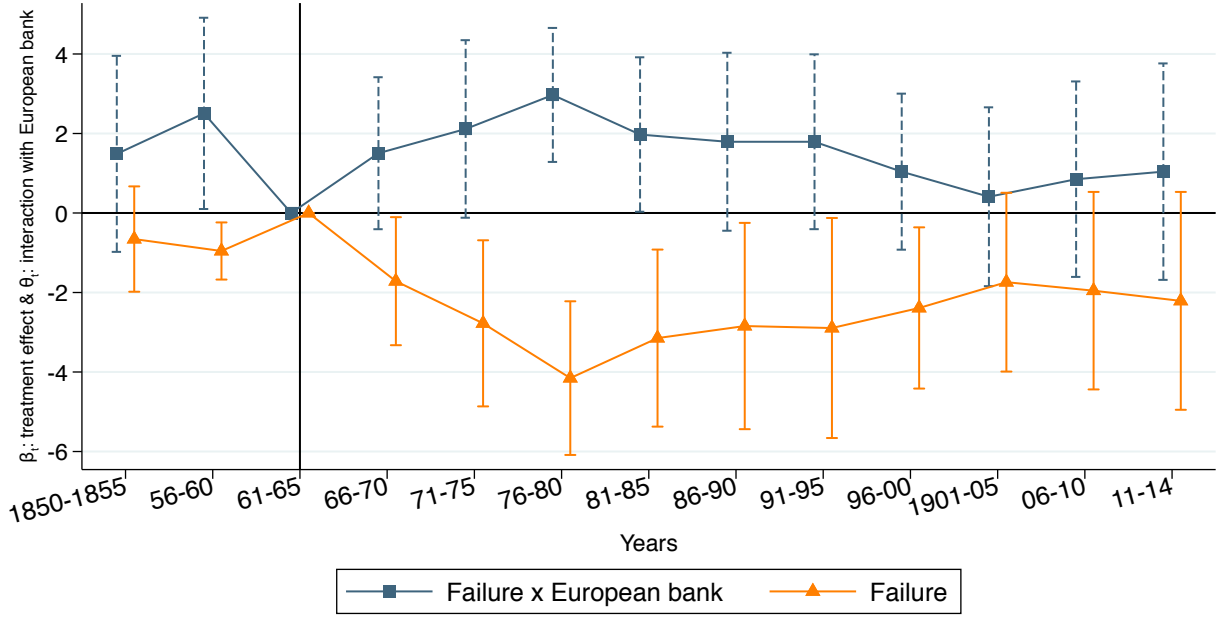


Notes: Figure 6 plots the θ_t and β_t point estimates and 95% confidence intervals from the country-level panel of trade in the specification given in equation 11. The dependent variable is the ln value of exports. The specification includes origin country o FE, destination country-year dt FE, and time-varying indicators for common land border, common European colony, and common language.

“Failure \times Close” is the treatment coefficient on the effect of exposure to failed banks on exports to countries that are less than the average distance away from the destination country, where the average is measured by 1865 bilateral trade flows. Standard errors are clustered by the origin country. $N = 66,791$.

Figure 7: Recovery is better with access to other banks

$$\ln(EX_{odt}) = \theta_t \text{Fail}_o \times \mathbb{I}(\text{EB}_{od}) + \beta_t \text{Fail}_o + \lambda_t \mathbb{I}(\text{EB}_{od}) + \Psi' X_{od} + \gamma_o + \gamma_{dt} + \varepsilon_{odt}$$



Notes: Figure 7 plots the β_t and θ_t point estimates and 95 percent confidence intervals for the specification given in equation 13 estimated on the country-level panel of trade. The dependent variable is the ln value of exports. The specification includes origin country o FE, destination country-year dt FE, time-varying controls for the bilateral distance between countries, and time-varying indicators for common land border, common European colony, and common language. “Failure \times European banks” is the interaction effect of exposure to failed banks on exports in countries with access to other European banks. “Failure” is the treatment effect of exposure to bank failures for all countries. Standard errors are clustered by the origin country. $N = 67,378$.

APPENDIX FOR ONLINE PUBLICATION

Reshaping Global Trade: The Immediate and Long-Run Effects of Bank Failures

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A Additional Tables

Table A1: Bank-level relationship between failure and credit supply

	ΔCredit_b			
	(1)	(2)	(3)	(4)
Failure _b	-0.782*** [0.109]	-0.869*** [0.126]	-0.961*** [0.141]	-0.946*** [0.157]
Weighting	none	Capital, 1865	Trade credit, 1865	Size, 1865
N	31	31	31	31
Adj. R ²	0.398	0.413	0.638	0.488

Notes: Table A1 shows the regression results for the pseudo first stage relationship between bank failure and the credit supplied. The dependent variable is the percent change in the trade credit supply of individual banks reported in bi-annual balance sheets. Banks that failed are given a trade credit supply of 0 in the post-crisis period. There are 31 banks that report the composition of their balance sheet with this information. Column 1 reports the baseline, unweighted regression. In columns 2–4, the regressions are weighted by different proxies for bank size. Robust standard errors in brackets. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Comparison of banks in first stage sample to all banks

	All		In first stage		Not in first stage		Diff	
Capital, authorized (£m)	1.48	(1.06)	1.62	(1.01)	1.42	(1.09)	0.20	(0.24)
Capital, paid up (£m)	0.59	(0.38)	0.61	(0.40)	0.57	(0.38)	0.04	(0.09)
Deposits (£m)	2.22	(2.73)	2.17	(2.81)	2.29	(2.66)	-0.12	(0.88)
Reserve fund (£m)	0.13	(0.12)	0.13	(0.13)	0.13	(0.11)	-0.01	(0.03)
Total size (£m)	4.81	(6.11)	4.06	(4.59)	5.41	(7.09)	-1.36	(1.47)
Leverage ratio	0.24	(0.14)	0.27	(0.15)	0.22	(0.11)	0.05	(0.03)
Reserve ratio	0.06	(0.07)	0.07	(0.08)	0.05	(0.04)	0.02	(0.02)
<i>N</i>	95		31		64		95	

Notes: Table A2 presents balance sheet characteristics of the joint stock banks for those in the first stage sample and those outside of it. “In first stage” refers to the banks that are part of the sample in Table A1 while “Not in first stage” refers to the remaining banks. Means are reported first, and standard deviations are given in parentheses. “Diff” refers to the difference between groups. Standard errors are reported in parentheses for the “Diff” column. Significance is marked by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Bank balance on geographic exposure calculated as percent of assets

	All		Not Failed		Failed		Diff	
UK %	0.09	(0.21)	0.10	(0.22)	0.06	(0.17)	0.04	(0.0)
Brit. Emp. %	0.39	(0.41)	0.42	(0.41)	0.28	(0.38)	0.14	(0.1)
Europe %	0.32	(0.39)	0.30	(0.38)	0.44	(0.39)	-0.15	(0.1)
Asia %	0.26	(0.34)	0.25	(0.34)	0.26	(0.35)	-0.01	(0.1)
Africa %	0.09	(0.21)	0.09	(0.21)	0.10	(0.21)	-0.01	(0.0)
N. America %	0.16	(0.31)	0.18	(0.33)	0.08	(0.22)	0.10	(0.1)
S. America %	0.05	(0.16)	0.06	(0.17)	0.04	(0.10)	0.02	(0.0)
Australia %	0.12	(0.29)	0.13	(0.30)	0.08	(0.24)	0.05	(0.1)
<i>N</i>	128		106		22		128	

Notes: Table A3 presents an alternative calculation to the geographic exposure shown in Table 2 Panel B. Each variable is the bank's percentage exposure to a geographic exposure, calculated as the credit extended to each geography over the bank's total lending. "Not Failed" and "Failed" refers to whether a bank suspended or closed during the crisis. Means are reported first, and standard deviations are given in parentheses. "Diff" refers to the difference in means between groups. Standard errors are reported in parentheses for the "Diff" column. Significance is marked by $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

Table A4: Robustness to controls: immediate effect of exposure to bank failures on country-level shipping

Panel A: Industry composition of exports

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fail _o × post	-0.506** [0.228]	-0.590** [0.242]	-0.535** [0.224]	-0.514** [0.237]	-0.525** [0.227]	-0.561** [0.224]	-0.590** [0.244]
non-Brit banks × post	Y						
ln(sugar) × post		Y					
ln(cotton raw) × post			Y				
ln(cotton manu) × post				Y			
ln(grains) × post					Y		
ln(tobacco) × post						Y	
ln(coffee) × post							Y
Country FE	Y	Y	Y	Y	Y	Y	Y
N	108	108	108	108	108	108	108
Clusters	54	54	54	54	54	54	54

Panel B: Monetary standard and conflict

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fail _o × post	-0.514** [0.229]	-0.511** [0.234]	-0.584** [0.253]	-0.597** [0.253]	-0.520** [0.212]	-0.510** [0.239]	-0.475** [0.230]
Size × post	Y						
Gold × post		Y					
Silver × post			Y				
Bimetallic × post				Y			
Conflict, any × post					Y		
Conflict, interstate × post						Y	
Conflict, other × post							Y
Country FE	Y	Y	Y	Y	Y	Y	Y
N	108	106	106	106	108	108	108
Clusters	54	53	53	53	54	54	54

Notes: Table A4 reports estimates from the difference-in-difference regressions from the two-period panel of country-level shipping activity in the year before and after the crisis. The dependent variable is the ln of the number of ships departing from each country. Fail_o is the share of the country's banks that failed during the crisis. The mean of Fail_o is 0.11, and the standard deviation is 0.16. "post" is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. In Panel A, they include the ln values of sugar, raw cotton, cotton manufactured goods, grains, tobacco, and coffee exports. The ln values of industry exports are replaced with 0 if the country does not export those products. In Panel B, they include the size of the country proxied by the total value of exports, the monetary standard of the country, and engagement in conflict. Controls are added sequentially and the coefficients are stable. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Elasticity of trade to physical distance

	$\ln(\text{EX}_{odt}) = \theta \ln(\text{distance})_{od} + \gamma_{ot} + \gamma_{dt} + \Gamma' X_{odt} + \varepsilon_{odt}$				
	(1)	(2)	(3)	(4)	(5)
log distance _{od}	-1.116*** [0.0851]	-1.021*** [0.0910]	-0.982*** [0.101]	-1.194*** [0.0856]	-1.037*** [0.101]
Country _{ot} FE	Y	Y	Y	Y	Y
Country _{dt} FE	Y	Y	Y	Y	Y
Common language \times t		Y			Y
Common border \times t			Y		Y
Common empire \times t				Y	Y
N	67378	67378	67378	67378	67378
Clusters	119	119	119	119	119
Adj. R ²	0.530	0.548	0.534	0.559	0.564

Notes: Table A5 reports estimates for θ , the elasticity of trade to physical distance, from the above estimation. All specifications are estimated using the full panel of bilateral trade data from 1850–1914. The baseline specification is given in Column 1. Columns 2–5 control for standard gravity measurements of bilateral resistance. The dependent variable is the \ln value of exports from origin country o to destination country d . The origin country-year fixed effects effectively drop the countries that only appear in the trade data for one year. There are 10 such countries and therefore only 119 clusters. Standard errors in brackets are clustered by origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Robustness to different clustering: immediate effect of exposure to bank failures on country-level exports

	$\ln(\text{EX}_{odt}) = \beta_t \text{Fail}_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$				
	(1)	(2)	(3)	(4)	(5)
β_{1865}	-0.240 [0.214]	-0.240 [0.151]	-0.240 [0.192]	-0.240 [0.176]	-0.240 [0.318]
β_{1867}	-0.921 [0.603]	-0.921 [0.643]	-0.921 [0.575]	-0.921 [0.661]	-0.921*** [0.0689]
β_{1868}	-1.611*** [0.551]	-1.611*** [0.585]	-1.611*** [0.506]	-1.611** [0.616]	-1.611*** [0.393]
β_{1869}	-1.872*** [0.410]	-1.872*** [0.584]	-1.872*** [0.493]	-1.872*** [0.519]	-1.872*** [0.263]
β_{1870}	-1.633*** [0.434]	-1.633** [0.621]	-1.633*** [0.536]	-1.633*** [0.540]	-1.633*** [0.293]
Controls	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y
I(Brit bank _{ot})	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y
N	2952	2952	2952	2952	2952
Clustering	Orig country	Dest country	Orig-Dest pair	Multi: Orig, Dest	Multi: Orig, Dest, year
Adj. R ²	0.551	0.550	0.551	0.550	0.550

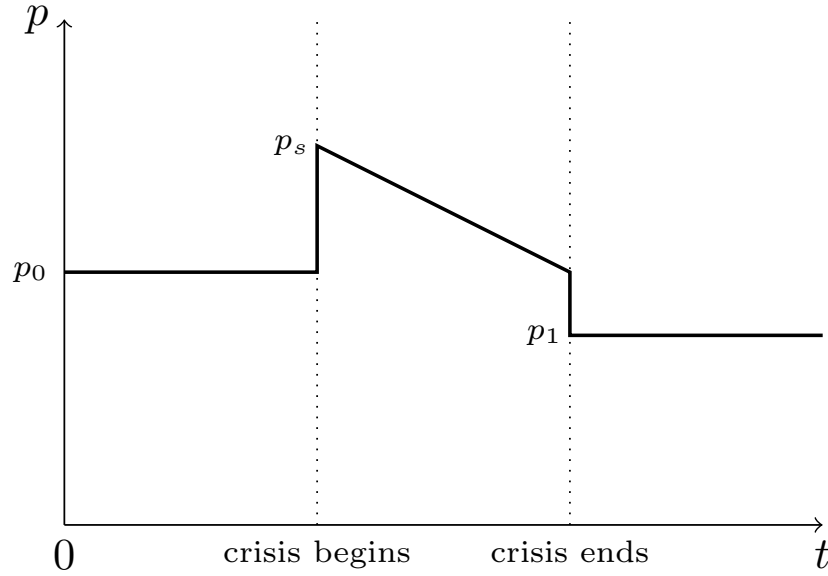
Notes: Table A6 reports estimates from the annual dynamic difference-in-difference regressions from the panel of country-level values of trade. The dependent variable is the \ln value of exports from origin country o to destination country d . There are 83 exporting countries from 1865–1870. Fail_o is the share of the country's banks that failed. post is a dummy for the post-crisis years 1867–1870. Baseline controls are the log distance between country o and country d . Standard errors in brackets are clustered according to the row labeled “Clustering.” * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Long-term effects of exposure to bank failures and imports

		$\ln(\text{Ex}_{odt}) = \beta_t \text{Fail}_d + \gamma_{od} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$			
		(1)	(2)		(3)
$\beta_{1856-1860}$	Fail _o	-0.0786	[0.0875]		-0.00221 [0.0746]
$\beta_{1866-1870}$	Fail _o	-1.085***	[0.255]		-0.855*** [0.214]
$\beta_{1871-1875}$	Fail _o	-1.479***	[0.318]		-1.016*** [0.253]
$\beta_{1876-1880}$	Fail _o	-1.466***	[0.360]		-1.114*** [0.287]
$\beta_{1881-1885}$	Fail _o	-1.034***	[0.375]		-0.801** [0.366]
$\beta_{1886-1890}$	Fail _o	-0.901**	[0.413]		-0.541 [0.377]
$\beta_{1891-1895}$	Fail _o	-0.872**	[0.422]		-0.476 [0.391]
$\beta_{1896-1900}$	Fail _o	-0.905**	[0.371]		-0.477 [0.490]
$\beta_{1901-1905}$	Fail _o	-0.637	[0.400]		-0.279 [0.548]
$\beta_{1906-1910}$	Fail _o	-0.405	[0.373]		-0.117 [0.610]
$\beta_{1911-1914}$	Fail _o	-0.394	[0.414]		-0.0459 [0.652]
$\beta_{1856-1860}$	Fail _d		-0.0429 [0.182]		-0.0878 [0.133]
$\beta_{1866-1870}$	Fail _d		0.0250 [0.265]		0.0715 [0.133]
$\beta_{1871-1875}$	Fail _d		-0.358 [0.411]		-0.0332 [0.225]
$\beta_{1876-1880}$	Fail _d		-0.00629 [0.360]		0.0703 [0.152]
$\beta_{1881-1885}$	Fail _d		-0.179 [0.302]		-0.0158 [0.147]
$\beta_{1886-1890}$	Fail _d		-0.107 [0.266]		0.0600 [0.170]
$\beta_{1891-1895}$	Fail _d		0.0451 [0.219]		0.320 [0.230]
$\beta_{1896-1900}$	Fail _d		-0.399 [0.312]		0.0136 [0.308]
$\beta_{1901-1905}$	Fail _d		-0.409 [0.294]		0.110 [0.388]
$\beta_{1906-1910}$	Fail _d		0.107 [0.328]		0.421 [0.441]
$\beta_{1911-1914}$	Fail _d		0.413 [0.350]		0.407 [0.480]
Controls		Y	Y		Y
Country _o FE		Y			
Country _{dt} FE		Y			
Country _d FE			Y		
Country _{ot} FE			Y		
Country _{od}					Y
N		66791	66791		66791
Clusters		65	65		65
Adj. R ²		0.531	0.536		0.831

B Additional Figures

Figure B1: Price dynamics in a destination market



Notes: Figure B1 plots the price dynamics over three periods within a given destination market. In the initial period, prices are p_0 and there is no firm entry. When the crisis begins, prices rise to p_s , reflecting the increase in marginal costs from the financing shock. The increase in prices induces entry until p_0 is attained again. After the crisis ends, prices fall to p_1 due to the drop in marginal costs.

Figure B2: Data sources

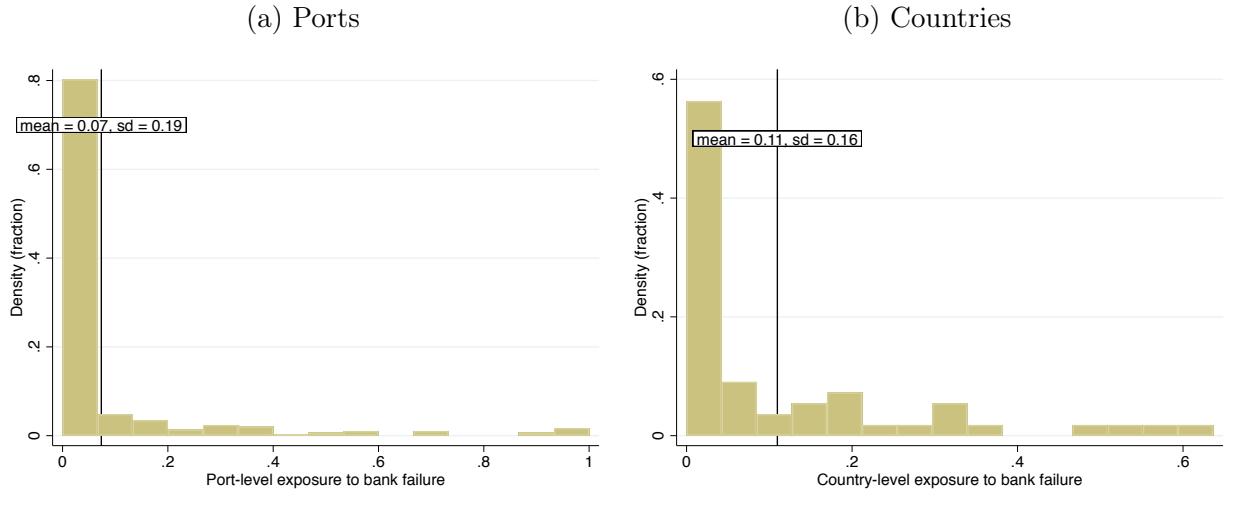
(a) Excerpt of the Bank of England Discount Office ledgers

(b) Excerpt of the Lloyd's List

Notes: Data for Figure B2a come from Bank of England Archives C24/1. This is an example of the original records used to construct the financing data. The name of the bank, Agra and Masterman's, is written at the top. The column on the far left, "Whence Drawn," give the city where the credit was originally issued. The column on the far right, "Upon," gives the values of the loans.

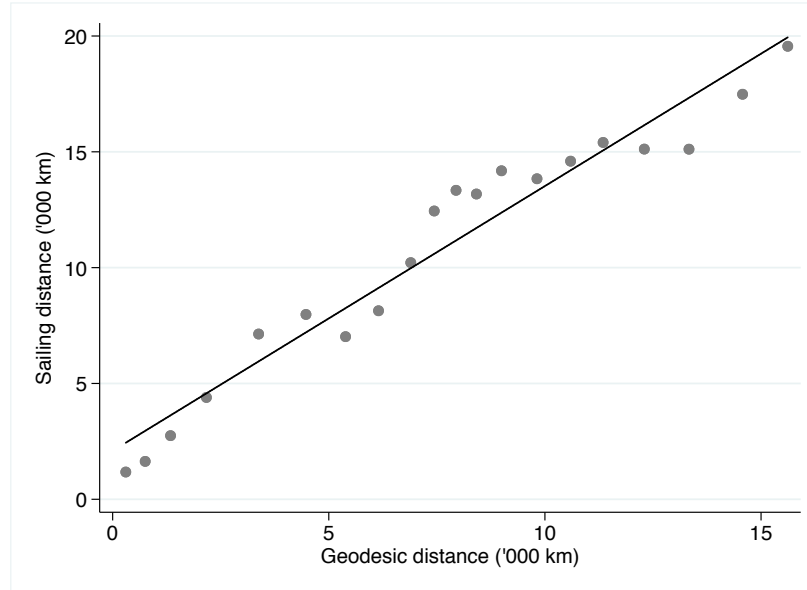
Data for Figure B2b come from the British Library. This excerpt from the *Lloyd's List* of September 5, 1866 show the organization of the records and the typical information available. Under each port, ships are listed individually with their name, their captain's name, type of ship, whether they arrived to the port or sailed from it, the destination of their movements, and the date of the event. Coastal (i.e. domestic) trade was omitted from the records for non-British ports.

Figure B3: Distribution of exposure to bank failure



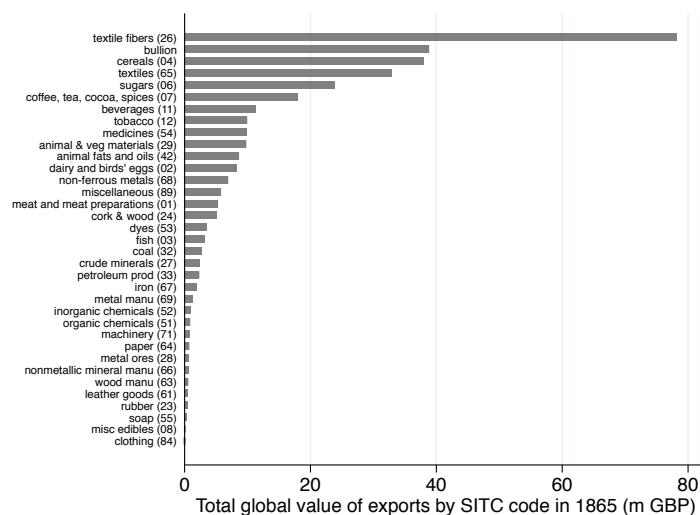
Notes: Figure B3 plots the histogram of port ($n = 289$) and country ($n = 55$) exposure to bank failures for the sample of ports and countries that were active in the pre-crisis year.

Figure B4: Positive correlation between sailing distance and geodesic distance



Notes: Figure B4 plots the binscatter relationship between ports' distance to each other measured geodesically in kilometers and sailing distance measured in kilometers. The data for sailing distance come from *Philips' Centenary Mercantile Marine Atlas II* published in 1935. Sailing distances are calculated without the Suez Canal route, which only opened in 1869. See Appendix F for a full discussion of the data source. Geodesic distances are calculated based on the port's longitude and latitude coordinates.

Figure B5: Industry composition of global exports in 1865



Notes: Figure B5 shows the total value of world exports across all countries by two-digit SITC categorization. The handcoded SITC category is given in parentheses next to the category name. Units are millions of pounds sterling in 1865. Sources: *Statistical Tables relating to Foreign Countries* and *Statistical Tables relating to the Colonial and Other Possessions of the United Kingdom* published in 1866.

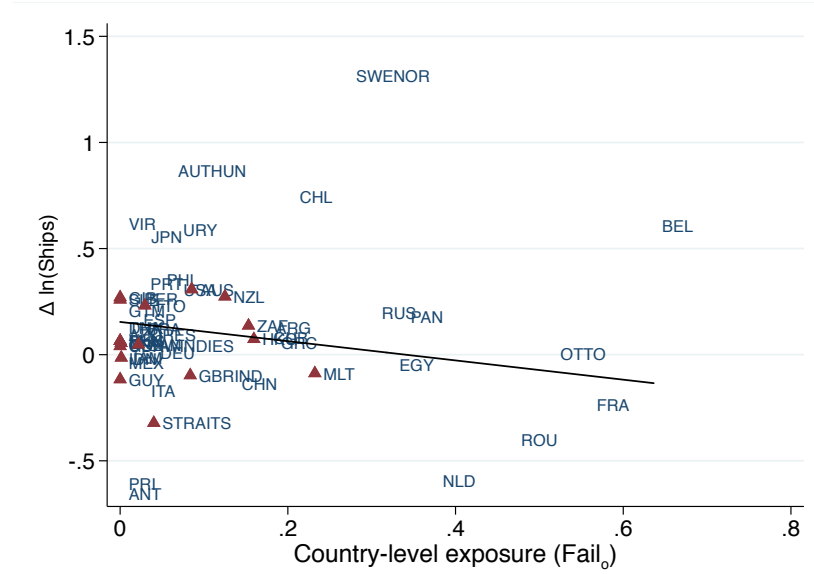
Figure B6: Positive correlation between country-level number of ships and exports values



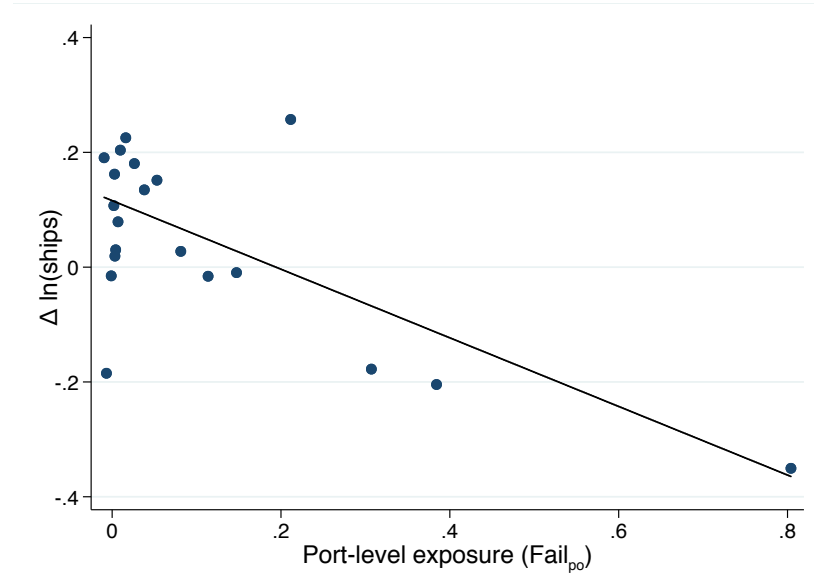
Notes: Figure B6 shows the positive linear relationship between the number of ships leaving a country in a given calendar year (from the *Lloyd's List*) and the values of exports from that country. Three years around the crisis year are plotted. The line is fitted to the pooled sample of all years.

Figure B7: Correlation between exposure to bank failures and shipping immediately after crisis

(a) Country-level relationship

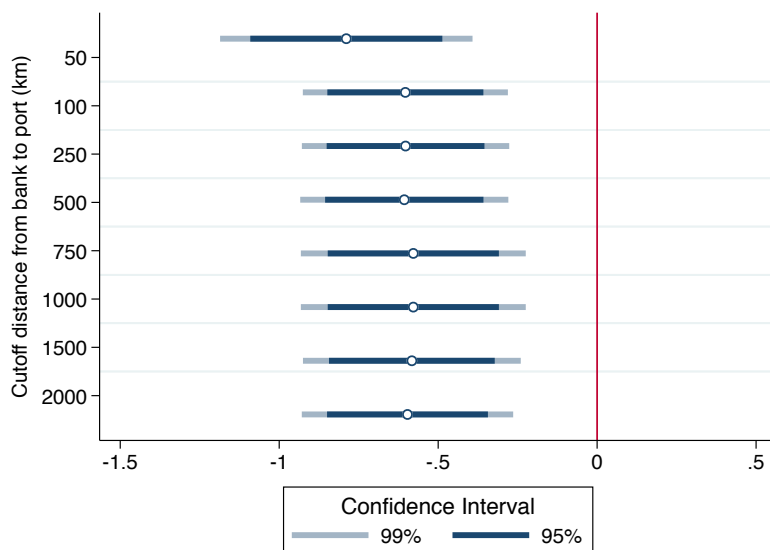


(b) Port-level relationship



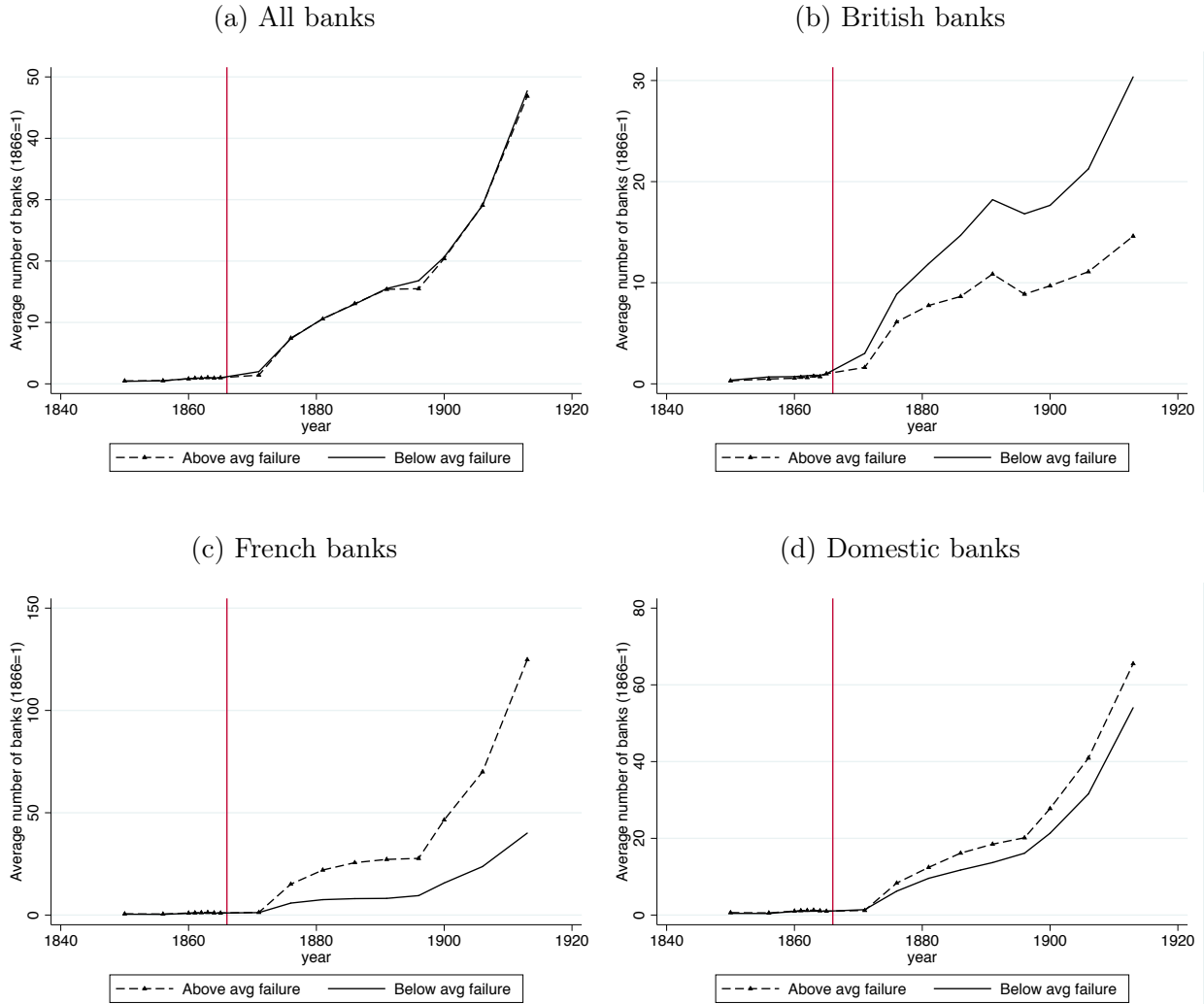
Notes: Figure B7a is a scatterplot of the correlation between the change in the log number of ships and country-level bank failures. Countries within the British empire are marked with a red triangle. The full list of country abbreviations (some of which are non-standard to account for colonies) is given in Appendix F.4. Figure B7b is a binscatter plot of the correlation between the change in the log number of ships from the post-crisis period to the pre-crisis period (for the crisis occurring on May 11, 1866) and the port-level exposure to bank failures. This plot is residualized on country-level shipping so it plots the within-country relationship.

Figure B8: Port-level effect of bank failures on exports: robustness to distance cutoffs



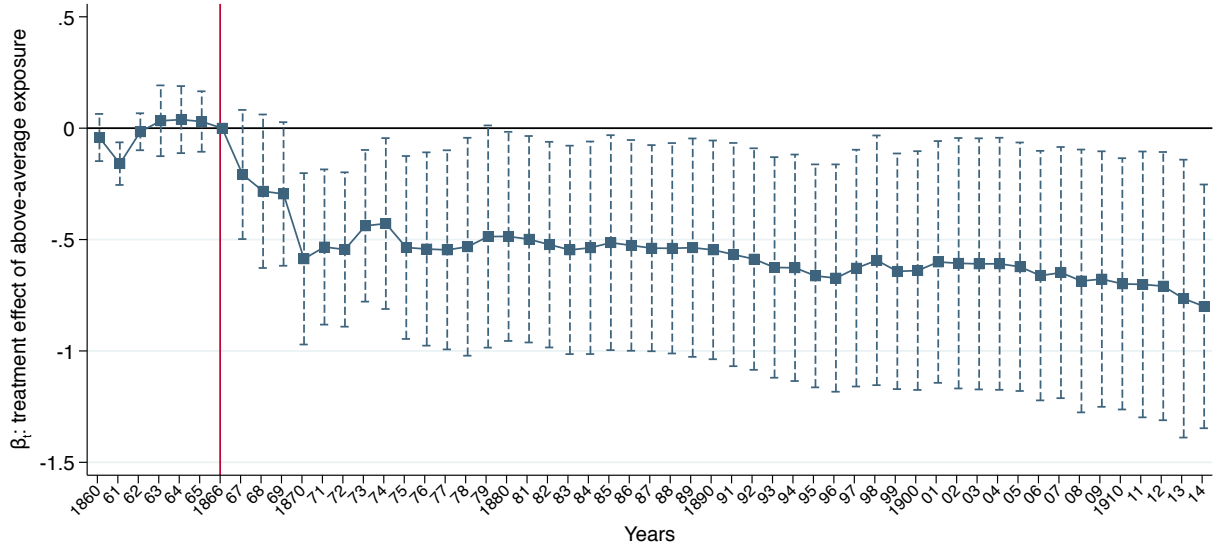
Notes: Figure B8 plots the estimated coefficients for β for the specification below, where the control group of completely unexposed ports is based on the distance between the port and the nearest city of financing. The baseline specification in the paper uses a cut-off of 500 km. $\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \varepsilon_{pot}$

Figure B9: Banking sector recovery



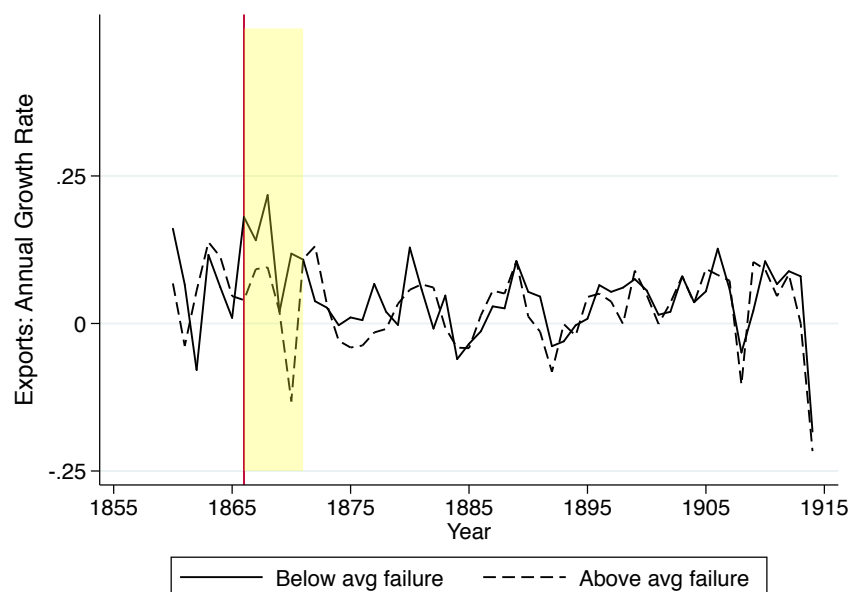
Notes: Figure B9 plots the raw data of the average number of banks in cities exposed to above and below average British bank failure. The data come from 5 year intervals of the *Banking Almanac*. Subfigure (a) plots all the average for all banks. Subfigures (b), (c), and (d) split the total by nationalities. “Local banks” refers to banks of the same nationality as the country it is located in. Each series is normalized to equal 1 in 1866. The vertical line marks 1866.

Figure B10: Effect of above average exposure to bank failure on total exports
 $\ln(EX_{ot}) = \beta_t \mathbb{I}(\text{Above avg exposure}_o) + \gamma_o + \gamma_t + \varepsilon_{ot}$



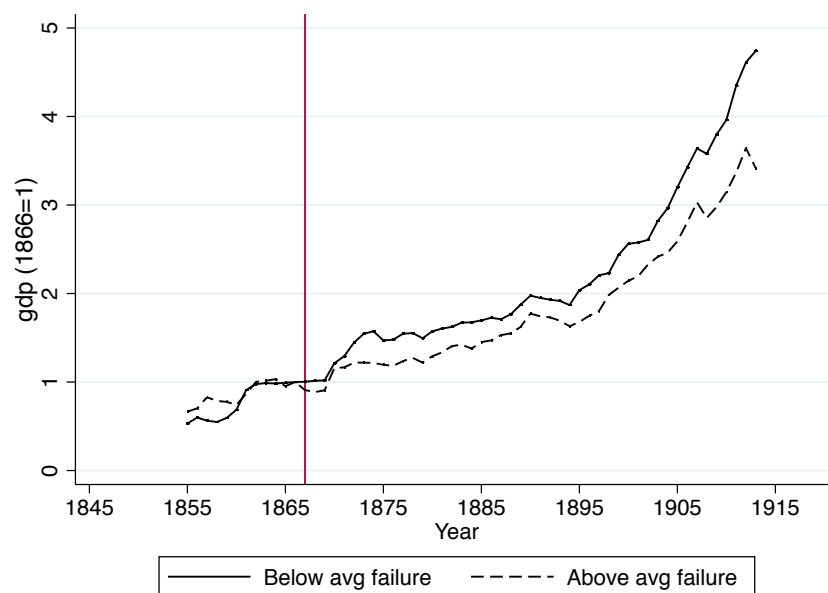
Notes: Figure B10 plots β_t from 1860–1914 for the specification above. The dependent variable is the \ln of the total value of exports for origin country o in year t . γ_o and γ_t are country and year fixed effects, respectively. The regressions are weighted by the total value of exports in order to most closely mirror Figure 2.

Figure B11: Annual country-level growth rates of total exports



Notes: Figure B11 plots the annual growth rates for the two groups of countries for the years before and after the crisis. Calculated from the aggregate data presented in Figure 2. The vertical line marks 1866.

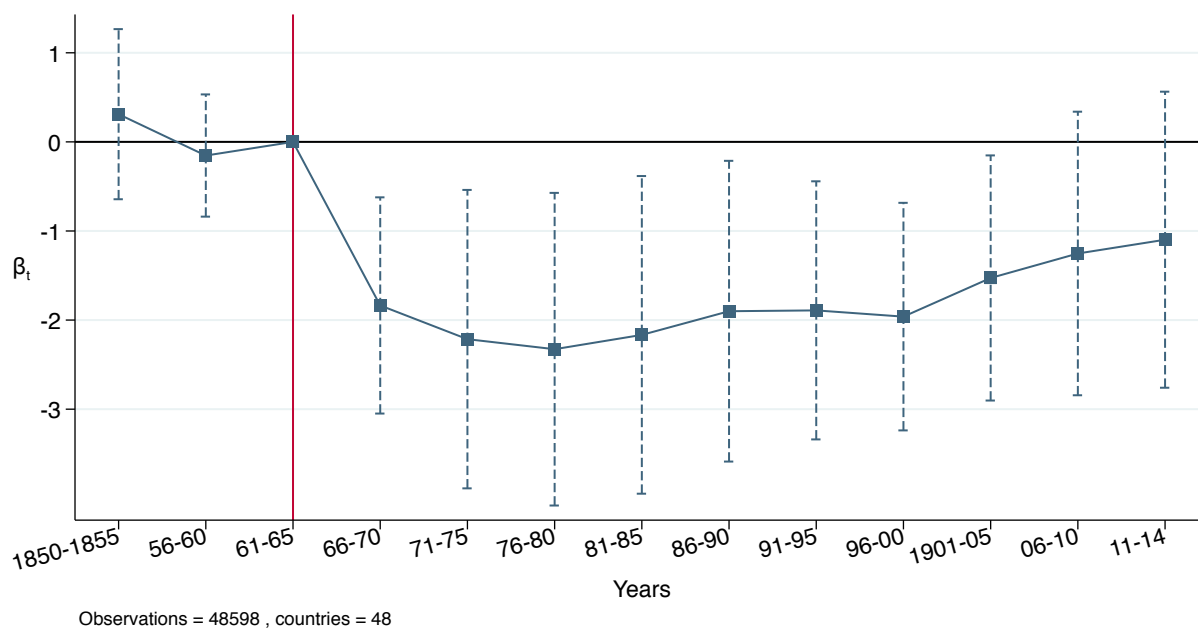
Figure B12: Aggregate GDP, grouped by above and below average exposure to bank failures



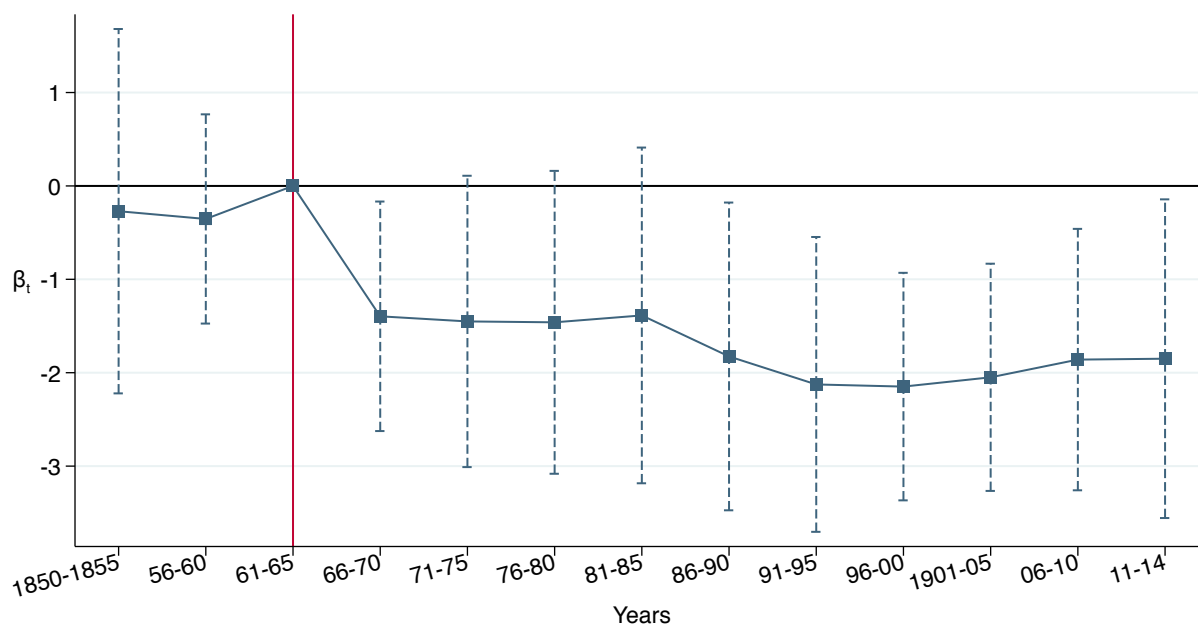
Notes: Figure B12 plots the raw data for the total value of GDP by groups of countries, binned by above and below average exposure to failure. GDP is normalized to equal 1 in 1866. The vertical line marks 1866.

Figure B13: Recovery within country groups

(a) Within SITC groups

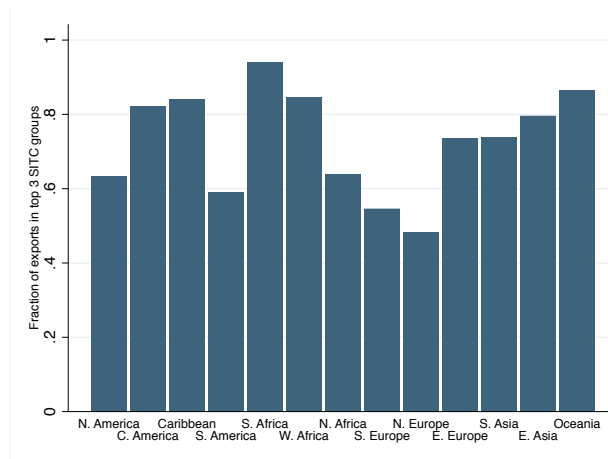


(b) Within regions using the same countries



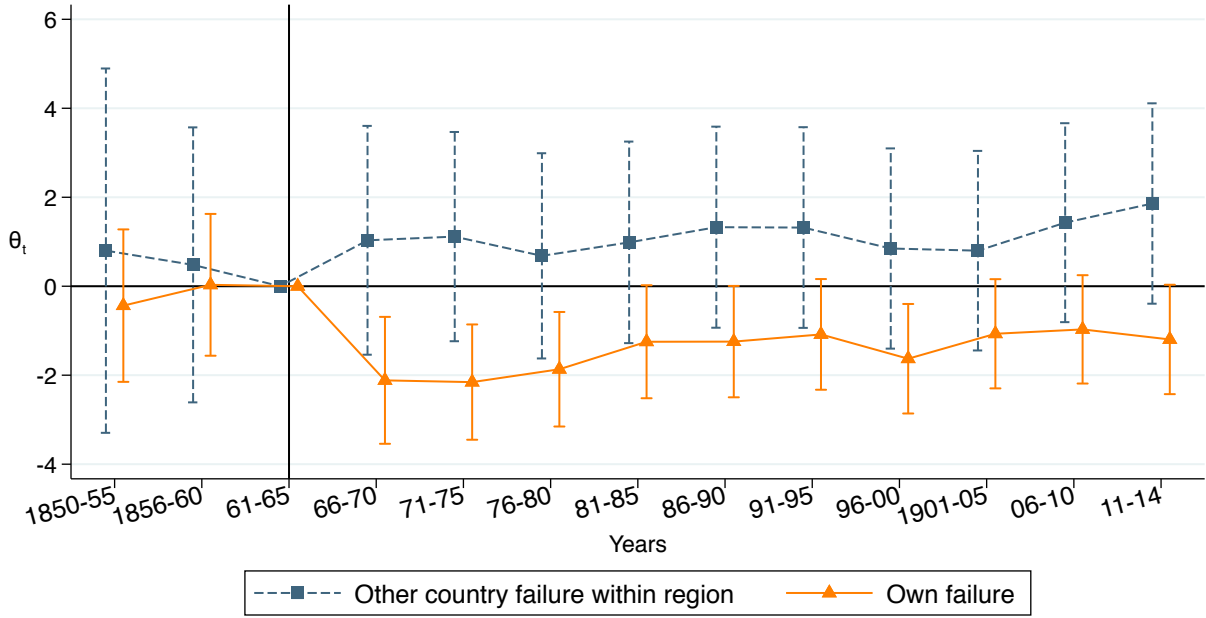
Notes: Figure B13 plots the estimated coefficients from the regression specification below, which is the main specification in equation 10 including SITC-year fixed effects (Figure B13a) and region-year fixed effects (Figure B13b). Figure B13b is estimated on the same sample of countries as in Figure B13a, the countries for which data on exports composition in 1865 is available.

Figure B14: Exports correlation within country regions



Notes: Figure B14 plots the fraction of exports in the top 3 SITC groups for each region. Exports values are calculated from 1865. The full list of countries and their geographic regions are given in Appendix F.4. Regions are listed by geographic proximity, beginning in North America and traveling south and east.

Figure B15: Effect of other-country exposure within region on own country
 $\ln(EX_{odt}) = \theta_t \text{Region Fail}_{-o,t} + \beta_t \text{Fail}_o + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist}_{od}) + \varepsilon_{odt}$



Notes: Figure B15 plots the estimated coefficients from the regression specification below. “Own failure” refers to the country-level exposure to failure Fail_o . “Other country failure within region” is the average exposure to bank failure experienced by all other countries in the same geographic region. The dependent variable is the \ln value of exports. The specification includes origin country o FE, destination country-year dt FE, time-varying controls for the bilateral distance between countries. Standard errors are clustered by origin country.

C Additional historical context

C.1 Trade finance

British multinational banks began being established in the 1830s both within and beyond the British Empire to facilitate international capital flows, with the specific purpose of increasing trade abroad. These banks were headquartered and raised capital in London by issuing deposits and shares, but they operated outside of Britain in offices around the world. The fact that they raised shares, issued deposits, and invested abroad signaled a new movement in banking. These were the first “universal banks” which then spread to Continental Europe in the subsequent decades (Cassis, 2016, p.96). They most often funded the British merchants already established in foreign ports. The lack of infrastructure in most countries was such that those merchants had to arrange for their own financing and insurance if they wanted it. Their local knowledge was invaluable to business, and the multinational bank subsidiary offices maintained close contact with these exporters (Jones, 2000, p.27). See Table C1 for examples of these banks and their operating regions.

The mechanics of trade finance in the 19th century were conducted through bills of exchange traded among the networks of banks and interbank lenders centered on London. Bills were short-term loans that became contractual obligations when the creditor “accepted” it by signing across it. In their simplest form, bills of exchange allowed for debts between two parties. They were orders written by the “drawer” (lender) that the “drawee” (borrower) would pay the face value of the bill (to the drawer, someone else, or the bearer) at some point in the future. A check is a bill of exchange in the case when the drawee is the drawer’s bank. A promissory note is a promise to pay between the drawer and payee, where there is no drawee responsible for making the payment. Bills usually had a maturity of 3-6 months (Cassis, 2016, p.93).

British banks lent to their customers by “accepting” the customer’s bills of exchange. British commercial law stipulated that the acceptor in turn became liable for the bill, such that if the original borrower defaulted, the acceptor was responsible for payment. This liability meant that acceptors essentially acted as guarantors and transformed the idiosyncratic risk of individual borrowers into their own credit risk. This guarantee made it easier to re-sell the bills to another individual or financial institution on the London money market because the credit risk was easily observable (Jones, 2000, p.23).

The features of repo agreements and joint liability protected the London money market from issues stemming from asymmetric information where acceptors knowingly passed on bad bills. Those features made their quality easily ascertainable, and bills were flexible and customizable, so they became useful debt and investment instruments around the world, analogous to commercial paper today. The Treasury Bill was proposed by Walter Bagehot in 1877 and modeled after the commercial bill of exchange to allow the government to borrow at short maturities just as commercial interests were able to.

A concrete example of how the funds flowed when banks acted as acceptors is presented below in Figure C1. In the Exporting Location, the “drawer” (exporting firm) draws a bill, which is “accepted” by his bank, and the exporter is given credit to fund his operations during the period of shipment. The exporter ships goods to the importer (the one who will ultimately settle the bill) while his bank remits the bill to its London headquarters. In

London, the bill is discounted on the money market, which provides the headquarters with fresh funding. In the final step, the importer's bank settles the bill as payment for goods when it matures.

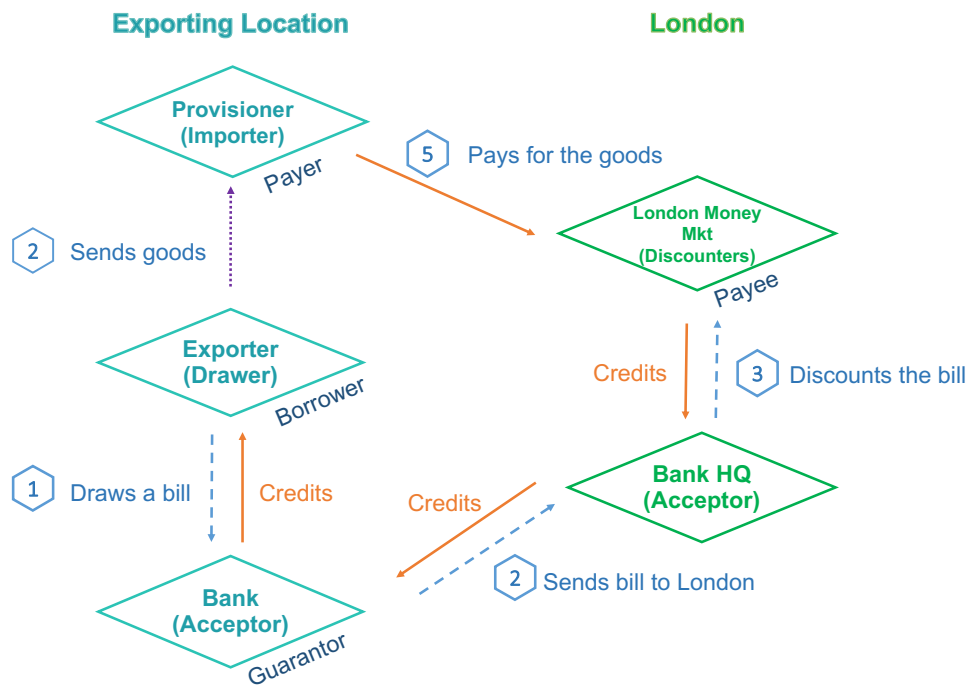
Cassis described the financing of international trade the following way:

Finance required by the growth of international trade was supplied by private bankers, increasingly by a small group of largely London-based merchant bankers who specialized in trade credit by accepting bills of exchange and thus guaranteeing by their undoubted standing the payment of the bills involved. The merchant banks' backing was made clear by their acceptance on presentation of the international trade bills with which they were individually connected. These providers of commercial finance became known in the City as 'acceptance houses', and the paper involved as 'acceptances'. The bills were readily traded on the London market and so were liquid over the period, normally 60-90 days, between their acceptance and maturity. (p. 93)

British multinational banks had accounts at the Bank of England, which in practice meant that any security originated by one of these multinational banks was considered high enough quality to be discounted at the Bank of England. Banks could obtain liquidity from the Bank of England by discounting the short-term liquid assets that they held.¹ These assets were predominantly the bills of exchange that had been extended by other banks abroad, reflecting the lending activity of those banks. Although bills could be used for any purpose, those that originated outside of the United Kingdom primarily financed trade and were collateralized by shipments. The London money market's liquidity came from the size of the foreign bills market, and banks almost never held their own bills until maturity (King, 1936).

¹The term Discount Window in reference to the central bank comes from the fact that bills of exchange were "discounted" there.

Figure C1: Flowchart of life cycle of a bill of exchange



Notes: Figure C1 shows the flow of funds. Blue dashed lines indicate the passage of the bills of exchange; solid orange lines indicate the flow of credit, and dotted purple lines indicate the flow of goods. The steps in the process are numbered in the hexagons.

Table C1: Examples of Banks and Operating Regions

Bank	Founding Year	Operational Region
Anglo-Egyptian Bank	1864	Egypt, Mediterranean
Anglo-Italian Bank	1864	Italy, France
Bank of Australasia	1835	Australia, New Zealand
Bank of British North America	1836	Canada, USA
Chartered Mercantile Bank of India, London & China	1853	India, China, Canada, Australia, Indonesia, USA
Colonial Bank	1837	Caribbean
Imperial Bank	1862	Europe, Egypt, North America
Ionian Bank	1839	Greece
London Bank of Mexico & South America	1864	Mexico, Peru
Union Bank of London	1839	Australia, New Zealand, South America, Asia, North America

Notes: Table C1 lists a sample of the banks providing trade credit. The operational region is given as countries although city-level variation is used in many of the empirical estimations. Sources: Bank of England Archives C24/1, *Banker's Magazine*, select bank histories listed in Appendix F.

C.2 Overend & Gurney

The firm Overend & Gurney specialized in brokering bills of exchange in the City of London. It was larger than the next three largest bills brokerages in combined. The firm dated back to 1775, when it began as merchants in the wool trade, before moving onto banking. The Quaker family established a reputation for trustworthiness and wealth, and by 1807 it was the largest bank in East Anglia.

Prior to its 1866 bankruptcy, Overend & Gurney had an uneasy relationship with the Bank of England, stemming from its attempt in 1860 to stage a mini run on the Bank. This run did not succeed, and it is a primary factor attributed to the Bank's unwillingness to extend Overend credit in 1866 (Bagehot, 1873, p. 282).

Overend's crisis was due to a court decision handed down on May 9th that a railway company that Overend and three other banks and discount houses had extended credit to, was not obliged to repay its debt to its creditors. Overend's stock prices dropped due to this news, and depositors ran on Overend itself. The run forced Overend to close its doors on May 10th.

C.2.1 Public connection to Overend & Gurney

The original shareholder list dated January 1866 is kept in the Royal Bank of Scotland Archives in Edinburgh. This is the most recent shareholder list to have been compiled before the crisis, and the one that circulated in London during the crisis. The list of the managers and directors of the banks were published in newspapers, almanacs, shareholder meetings, and other contemporary publications. Examples of these sources are below in

Figure C2. I use the shareholder list to construct a binary measure for whether a bank has a manager or director that is an Overend & Gurney shareholder.

Figure C2: Example of original shareholder and directors' lists

(a) Overend & Gurney shareholders

OVEREND, GURNEY & CO.
LIMITED.

LIST OF SHAREHOLDERS.

Corrected to January, 1866.

Abbott, Edward, Great-pardon house, Harlow, Essex
Abell, Martin, (banker) Worcester
Ackland, Lawford, Longdown-lawn, Southampton
Adam, John, 11, Pudding-lane
Adams, John, the Park, Nottingham
Adams, Samuel, Lenton Pira, Nottingham
Adams, Thomas, Nottingham
Adderley, August J., Nassau, Bahamas
Adderley, Henry
Adeney, Augustus W., 54, Lombard-street
Addington, Wm. D., Skegby Mill, Mansfield
Aglion, George, Shepton Mallet, Somerset
Akroyd & Smithers, 2, Royal Exchange Buildings
Aloock, Henry, Alreville Skipton
Aloock, John, Bradwell Lodge, Langport, Staffordshire
Aloock, Joseph, Port Hill
Aloock, Ralph Henry, Hugglecote Grange, near Ashby de la Zouch
Alderson, Miss L. H., 7, Upper Portland-place
Alderson, Dr. Jas., 17, Berkley-square
Aldis, Miss Ellen L., 15, Caistrir-road, Great Yarmouth
Aldred, Wm. Hy., Halesworth, Suffolk
Aldridge, Thomas, 57, Brompton-road, S.W.
Alexander, Alex., 16, Hatton Garden
Alexander, Albert J., Westerfield, near Ipswich
Alexander, Frederick, (banker), Ipswich
Alexander, Samuel, (banker), Woodbridge
Alexander, Joseph, Sudbury, Suffolk
Alexander, Richard D., Ipswich
Alexander, Wm., (banker), Ipswich
Alexander, Rev. Harvey, Stoke Rivers, near Barnstaple
Alexander, Sir Wm. J. Bart., 22, St. James'-place
Alexander, Emily Miss, Newbury
Ailcard, Thos., Hermosa, Teignmouth

(b) Managers and directors of banks

218 LIST OF DIRECTORS OF JOINT-STOCK BANKS, ETC. [1866.]

Pastre J. B. Anglo-Egyptian Bank	Robertson D. Trail Chartered Mercantile Bank of India London and China
Pastre Jules Anglo-Egyptian Bank	Robertson J. R. ... English Scottish and Australian Chartered Bank
Paterson J. Alliance Bank	Robertson P. F., (Oriental Bank M.P.)
Paul Henry, M.P. National Provincial Bk. of Eng.	Robinson G. P. English & Foreign Credit Co.
Pearce William Dep.-Chairman Merchant Banking Co. of London	Robinson Joseph... Contract Corporation
Pearson Sir Edwin, F.R.S. Peninsular, West Indian and Southern Bank	Robinson J. G. London and River Plate Bank
Pelly Albert East London Bank	Robinson T. M. East India Land Credit and Finance Company
Pender John Consolidated Bank	Rodewald F. Brazilian & Portuguese Bank
Pereira E. Imperial Ottoman Bank	Rodgers R. British & Californian Bkg. Co.
Pereira J. Imperial Ottoman Bank	Rodocanachi M. E. London Financial Association
Peters Wm. The Agra & Masterman's Bank	Rodocanachi M. E. Mercantile & Exchange Bank
Petro Hon. Henry Land Securities Company	Roduck J. A., M.P. Deputy-Chairman General Exchange Bank
Petrocchino A. P. Ionian Bank	Rogerson, John ... The Ottoman Financial Assn.
Phillipotts A. H. ... Bank of British N. America	Romanes John Metropolitan & Provincial Bk.
Phil John National Bank of Scotland	Ronald Rowand ... National Bank
Pickering Edward International Interest Co.	Ronald R. W. Deputy-Chairman Mercantile and Exchange Bank
Pickersgill John C. Consolidated Bank	Rose, Ald. W. A. Australian Mortgage Land and Finance Company
Pillet-Will LeComte Imperial Ottoman Bank	Routh R. A. London and Bombay Bank
Pinnar Monsr. Al- Land Mortgage Bk. of India	Rowe Sir J., C.B. Chairman Bank of Queensland
Poliard George London Joint Stock Bank	Rowley Hon. R. F. The Ottoman Financial Assn.
Poniatowski His Peninsular, West Indian and Highness the Prince Southern Bank	Rumsey Robert ... Alliance Bank
Porter Robert Bank of London	Russell Sir William, Bart., C.B., M.P. English Joint Stock Bank
Potter R. F. Bank of New Zealand	Russell A. James... National Bank of Scotland
Powles Alfred W. London and Venezuela Bank	Russell F. W., M.P. Deputy-Chairman The Scotch Funfair & Delhi Bk. Corp.
Poyntell Henry ... Credit Foncier and Mobilier of England	Russell J. A. Asiatic Banking Corporation
Price R. T. The Bombay City Bank.	Russell J. James ... New Zealand Bkg. Corporation
Price R. S. Imperial Bank	Russell T. W., M.P. London Bk. of Mexico & South America
Pritchett J. T. Albion Bank	Rustonjee M. National Bank of India
Pryor Felix Merchant Banking Company of London	Ryder G. R. Land Securities Company
Punshonmess Bhugwandass The Bombay City Bank	Ryrie Robert Commercial Bank Corporation of India and the East
Quentell, W. E. International Financial Socy.	Salomons Ald., D., London Joint Stock Bank
Ralli Antonio A. ... Imperial Bank	Salomons Ald., D., M.P. General Credit and Finance Company of London
Ralli P. C. Imperial Bank	Salvador C. Imperial Ottoman Bank
Ramsay Mj.-Gen. J. Agra & Masterman's Bank	Sandeman H. P. ... Consolidated Discount Co.
Ramsay Col. R. A. The Delhi and London Bank	Sandhu F. Chate ... East India Land Credit and Finance Company
Ranken Peter Mauritius Land Credit and Agency Company	Sargood F. J. National Bank of Australasia
Ranking John Bank of British N. America	Sassoon S. D. Consolidated Discount Co.
Rate L. M. Imperial Ottoman Bank	Sassoon S. D. Metropolitan & Provincial Bk.
	Sassoon S. D. Bank of Hindustan, China and Japan
	Saunders, Charles Mercantile and Exchange Bk.
	Scaramanga G. E. British & Californian Bkg. Co.

Notes: Figure C2a is the first page of the shareholder list of Overend & Gurney published in January, 1866 and kept in the Royal Bank of Scotland archives. Figure C2b is an excerpt from a public almanac that documents the list of directors of joint stock banks in London.

C.2.2 Transcript of the prospectus published on July 13, 1865

THE COMPANY is formed for the purpose of carrying into effect an arrangement which has been made for the purchase from Messrs. Overend Gurney and Co., of their long established business as bill brokers and money dealers, and of the premises in which the business is conducted, the consideration for the goodwill being £500,000, one half being paid in cash and the remainder in shares of the company with £15 per share credited thereon – terms which, in the opinion of the directors, cannot fail to ensure a highly remunerative return to the shareholders.

The business will be handed over to the new company on the 1st of August next, the vendors guaranteeing the company against any loss on the assets and liabilities transferred.

Three of the members of the present firm have consented to join the board of the new company, in which they will also retain a large pecuniary interest. Two of

Table C2: Pre-crisis comparison of bank characteristics by OG connection

Panel A: Balance sheet characteristics (joint-stock banks)

	All		No OG connection		OG connection		Diff	
Capital, authorized (£m)	1.48	(1.06)	1.40	(1.02)	1.79	(1.18)	-0.39	(0.27)
Capital, paid up (£m)	0.59	(0.38)	0.56	(0.38)	0.70	(0.40)	-0.14	(0.10)
Deposits (£m)	2.22	(2.73)	1.94	(2.17)	2.93	(3.85)	-0.99	(0.93)
Reserve fund (£m)	0.13	(0.12)	0.12	(0.11)	0.17	(0.15)	-0.05	(0.03)
Total size (£m)	4.81	(6.11)	4.63	(5.98)	5.35	(6.61)	-0.72	(1.68)
Leverage ratio	0.23	(0.11)	0.23	(0.11)	0.24	(0.13)	-0.00	(0.03)
Reserve ratio	0.06	(0.07)	0.06	(0.06)	0.06	(0.07)	-0.00	(0.02)
<i>N</i>	95		76		19		95	

Panel B: Other characteristics (all banks)

	All		No OG connection		OG connection		Diff	
Trade credit (£th)	105.79	(246.77)	90.35	(226.92)	194.38	(333.11)	-104.03	(60.9)*
Age (years)	35.91	(53.62)	40.04	(57.04)	12.89	(12.74)	27.14	(13.2)**
Cities (#)	13.76	(22.88)	13.19	(21.71)	17.00	(29.20)	-3.81	(5.7)
Countries (#)	7.63	(8.89)	7.27	(8.09)	9.74	(12.63)	-2.47	(2.2)
Asia (£th)	46.01	(170.09)	36.69	(154.01)	99.48	(241.38)	-62.80	(42.1)
Africa (£th)	8.17	(25.08)	5.51	(19.49)	23.45	(43.23)	-17.94	(6.1)***
N. America (£th)	13.38	(44.37)	10.09	(36.78)	32.20	(73.01)	-22.11	(10.9)**
S. America (£th)	6.99	(34.12)	7.10	(36.68)	6.36	(11.92)	0.74	(8.5)
Australia (£th)	6.41	(17.25)	6.32	(17.27)	6.93	(17.60)	-0.61	(4.3)
Europe (£th)	12.25	(27.40)	11.55	(27.04)	16.25	(29.82)	-4.71	(6.8)
Brit. Emp. (£th)	48.24	(149.39)	39.03	(133.46)	101.10	(217.10)	-62.07	(36.9)*
UK (£th)	12.59	(40.28)	13.09	(41.13)	9.69	(35.86)	3.40	(10.0)
<i>N</i>	128		109		19		128	

Notes: Table C2 Panels A and B shows bank-level balance across characteristics for banks that had a connection to Overend & Gurney (OG) and did not. All variables are measured at the end of 1865 before the crisis. Balance sheet variables were only published for publicly traded banks; these are reported separately in Panel A. Means are reported first, and standard deviations are given in parentheses. “Diff” refers to the difference in means between groups. Standard errors are reported in parentheses for the “Diff” column. £k denotes units of thousands of pounds sterling. £m denotes units of millions of pounds sterling. Leverage ratio is defined as capital (paid and reserves) divided by total assets. Reserve ratio is defined as reserve assets divided by deposit liabilities. Significance is marked by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. *Sources:* Bank of England Archives C24/1, *Banker’s Magazine*, *The Economist*.

them (Mr. Henry Edmund Gurney and Mr. Robert Birkbeck) will also occupy the position of managing directors and undertake the general conduct of the business.

The ordinary business of the company will, under this arrangement, be carried on as heretofore, with the advantage of the co-operation of the board of directors, who also propose to retain the valuable services of the existing staff of the present establishment.

The directors will give their zealous attention to the cultivation of business of a first-class character only, it being their conviction that they will thus most effectually promote the prosperity of the company and the permanent interests of the shareholders. Copies of the company's Memorandum and Articles of Association, as well as the Deed of Covenant in relation to the transfer of the business, can be inspected at the offices of the solicitors of the company.

LONDON, July 12, 1865.

C.2.3 Shareholders' ignorance of the true state of affairs

After Overend and Gurney's failure, *The Money Market Review* periodically published accounts of the process of liquidation. The article entitled, "Overend, Gurney, and Co—the report of the liquidators and the further call of £5 per share" was published on Jan 30, 1869 and include the following excerpt (emphasis added):

The liquidation of Overend, Gurney, and Company appears to be of pretty much the same character as the conduct of the old firm and the proceedings of the Limited Company...Its policy seems to have been concealment and suppression; the policy of "keeping things dark and making things pleasant." We have frequently felt constrained to animadvert upon its proceedings, but the disclosures during the pending prosecution at the Mansion-house and in this report seem to show that they have been worse than we had anticipated. *The shareholders have never been fully and truly informed as to the real state of their affairs.* Beyond the vaguest and most illusory statements, all the information which they required they have been compelled to extort from the liquidators—who are their servants and representatives—or to obtain from other sources as best they could.

C.2.4 Court case for fraud: Peek v. Gurney

William Peek sued the surviving late directors of Overend & Gurney and the representatives of Mr. Gibbs, a deceased director, for the losses he sustained after purchasing 2000 shares in the company. The plaintiff alleged that he purchased the shares based on the prospectus, but that the defendants had "intentionally suppressed facts of vital importance, which, if disclosed, would have prevented him from making any such purchase," (p. 26).

The full write-up of the court case for the legal profession, published in *The Law Times: The Journal and Record of the Law and the Lawyers* Volume 52 in 1872, is printed below.

THIS was a suit instituted by William Peek the younger against the arriving late directors of Overend, Gurney, and Company (Limited), and the representatives of Mr. Gibbs, deceased director, praying for a declaration that the defendants were liable to make good to the plaintiff the loss he had sustained by reason of his having purchased 2000 shares in the company on the faith of the prospectus put forth by the directors, which, as he alleged, intentionally suppressed facts of vital importance, which, if disclosed, would have prevented him from making any such purpose. The evidence in the cause established in his Lordship's opinion that in May 1865. when Messrs. Gurney resolved on the formation of a company, if the firm had attempted to go on without assistance they must have speedily stopped payment, and that if they had stopped they would have paid only a very small dividend; that at that date the liabilities of the firm totally independent of its legitimate business were in round numbers, 4,000,000*l*, and its assets only 1,000,000*l*, that the firm was then hopelessly insolvent, and all the members of the firm were aware of that fact. In that state of affairs the members of the firm applied to the defendants Barclay, Gordon, Rennie, and Gibbs, explained to them the position of the firm, and induced them to join in the formation of the company. Accordingly on the 12th July, 1865, they issued the prospectus for the formation of the company to purchase the business of the firm for 500,000*l*, one half of which was to be paid in cash, and the other half in shares on which 15*l* per share was to be credited as fully paid up. The company was to consist of 100,000 shares of 50*l* each, of which 15*l* per share was intended to be called up. The plaintiff was not one of the original shareholders, but purchased shares in the market.

Lord ROMILLY was of opinion that the defendants had acted bond fide with the view of preserving the goodwill of the old business, and in the firm belief that the million and a half that would be obtained by the formation of the company would be sufficient to effect that purpose. The real object of the formation of the company was to preserve this goodwill which the partners and their families could not command money enough to preserve. It was essential to the formation of the company that this fact should be concealed as the public would not otherwise have taken shares. The honest belief of the directors in the probable success of the company exonerated them from liability in a criminal court, but not in a court of equity. The concealment of a most material fact, which concealment the concealer believes will be beneficial to himself and the man whom he induces thereby to join with him in a speculation does not, his Lordship thought, exonerate him from the consequences in a court of equity. Upon the concealed fact being known or not depended the whole scheme. The prosecution of the directors for a criminal offence was extremely ill-advised; they did not intentionally try to induce persons to put money into concern which they knew would fail; on the contrary they sincerely believed that it would succeed. But that was no excuse in equity, which requires not only that there should be an absence of any intention, or even of any motive to deceive but also that the truth should be told and that not only that there should be an absence of any intention, or even of any motive

to deceive, but also that the truth should be told and that not partially, but that the whole truth should be told. If anyone of the shareholders had, shortly after the shares had been allotted to him, discovered the facts and filed a bill to have the allotment cancelled and his money returned, the court would not have hesitated to give him the relief sought for, or, if that was impossible, make the directors personally liable to make good the loss he had sustained. There were, however, other considerations in the present case. Did the case of deception by the prospectus apply to the plaintiff, who was a transferee of shares, and not an allottee, and had the plaintiff come in sufficient time and with sufficient diligence to induce the court to interfere in his favour? With regard to the first question, his Lordship thought that if an allottee of shares was bound by time or condonation, a transferee was bound also by the same bar. As regards the other question when a man takes shares in a company he ought to ascertain at once whether the representations, on the faith of which he took his shares, are correct or not. In the present instance the shares were bought in Oct. 1865, and Jan. 1886, but the plaintiff never made any inquiry into the condition of the concern until after the failure in May 1866, and, but for the failure, would doubtless have made no inquiry at all. There was no conduct more rigidly reprobated in equity than the system of playing fast and loose—of adopting a company if successful, and repudiating it if it fails, and calling on the directors for indemnity. He was therefore of opinion that the plaintiff came too late for equity to assist him in this case. If before the failure an allottee had applied to the court either to cancel his shares, or to make the directors personally liable, he would have obtained a decree in his favour, but the time which had elapsed, and the order for the winding-up of the company, entirely precluded the plaintiff from obtaining the cancellation of the contract, according to the decision in *Oakes v. Turquand* (16L.T. Rep. N. 8. 642), and, in his Lordship's opinion, the plaintiff was precluded on similar grounds from requiring the personal indemnity of the directors. The lapse of time before filing the bill was fatal to the plaintiff's claim, and the bill must be dismissed, but without costs, on the ground that the directors, although they did not gain or seek to gain, any advantage by their concealment, were nevertheless highly culpable in a moral point of view, and had by their misconduct, occasioned the calamities caused by the failure of Overend, Gurney, and Company.

Bill accordingly dismissed without costs.

Solicitors for the plaintiff, W. A. Downing.

Solicitors for the defendants, Young, Jones and Co.; Bevan and Whitting; Wilson, Bristowe, and Carpmael, Young, Maples, Teasdal, and Co.; Uptons, Johnson, and Upton; Maynard and Son.

Kay, Q.C., Swanston, Q.C., and Joliffe, for the plaintiff.

Roxburgh, Q.C. and Lindley, for the defendants H. E. Gurney, J H. Gurney, and R Birkbeck.

Sir Roundell Palmer, Q.C., Fry, Q.C., and Sayer, for the defendant H. F. Barclay.
Fooks, Q.C. and W. C. Fooks for the defendant H.G. Gordon.

Jessel, Q.C, Macnaghten, and Medd, for the defendant W. Rennie.
Sir Richard Baggallay, Q.C., Macnaghten, and F.W. Maclean, for the representatives of J.C. Gibbs.
Ferrers, for the liquidators of the company.

C.2.5 Previous scholarship on Overend's failure

During the court case following Overend & Gurney's failure, the following was said in Chancery by Vice-Chancellor Mallins about what was believed about the firm:

The great firm of Overend, Gurney, and Co. is stated on all sides to have been founded towards the end of the last century, and it had consequently been in existence, in 1865, for at least sixty-five years. During that period it had attained the greatest commercial repute, and was universally considered by those best informed on such subjects to be one of the most flourishing and money-making concerns in the greatest commercial city in the world.

Banker's Magazine wrote the following about Overend & Gurney's share issuance:

The transformation of Overend, Gurney and Co.'s far famed discount establishment into a joint stock company, marks another era in the history of limited liability...we may confidently anticipate that the position of the new company will be relatively as high as the standing of the house to whose business it succeeds.

Walter Bagehot's account of Overend & Gurney's demise in *Lombard Street* blames the entirety of the failure on the directors:

In six years [from 1860-1866], the immensely rich partners lost all their own wealth, sold the business to the company, and then lost a large part of the company's capital. And these losses were made in a manner so reckless and so foolish that one would think a child who had lent money in the City of London would have lent it better. (p. 19)

Anna Schwartz writes the following:

Overend, Gurney in earlier years had been a solid conservative partnership, one of the pillars of the City. About 1860, a younger generation then in charge of the business became less circumspect in its lending operations, accepting equity interests for unrepayable loans extended to ironworks and shipping companies. Losses led to a decision to incorporate with the possibility of turning over a new leaf. The new company was launched in 1865 just after the conclusion of the US Civil War, when there was every reason to anticipate a strong revival of demand for British exports, but the new company did not live long enough to benefit from it.[...] when on 10 May Overend, Gurney shut down, the market was shaken. The next day panic broke loose. (p.273)

C.3 London banking crisis

C.3.1 Newspaper accounts

The Times reported on May 12, 1866:

The doors of the most respectable banking houses were besieged...and throngs, heaving and tumbling about Lombard Street, made that narrow thoroughfare impassable. The excitement on all sides was such as has not been witnessed since the great crisis of 1825, if indeed the memory of the few survivors who shared that panic can be trusted when they compare it with the madness of yesterday. Nothing has happened since the day before to justify such a fear as was everywhere shown. Rumour, however, like the false woman in the Laureate's legend, 'ran riot amongst the noblest names,' and left no reputation unassailed. Each man exaggerated the suspicions of his neighbor.

Revue des Deux Mondes reported:

The 11th of May will be long remembered in London; it was a day of distress and terror, and seemed to be the signal of general ruin. No one was sure of any one else, or of himself, the moment it became known that the great house had closed its doors. It was by hundreds of millions that the engagements of that gigantic financial firm, whose fall made the very ground tremble, were counted. The settlement of a great portion of the commerce of the world is concentrated in England; the settlement of the commerce of England was concentrated in the City; and the house of Overend, Gurney, and Co, held one of the foremost places among the small number of establishments in whose houses is the settlement of the commerce of the City. For a long time it enjoyed immense credit; it disposed of enormous securities... Thus, the fatal Friday which witnessed the disaster continues to be popularly known as the 'Overend Friday.'

Bankers Magazine wrote the following in an article titled "The Panic of 1866" published in the June edition:

About half-past three o'clock in the afternoon the great house at the "corner," of wider than European fame, shut its doors, and made confession of insolvency. The effect on the City was as the shock of an earthquake. It is impossible to describe the terror and anxiety which took possession of men's minds for the remainder of that and the whole of the succeeding day. No man felt safe. A run immediately commenced upon all the banks, the magnitude of which, especially on Friday, can hardly be conceived. As the fatal news penetrated into the country, local bankers rushed to their agents, some to withdraw their balances, others to make arrangements to meet any undue pressure; and from the Bank of England, notes and coin were despatched into the country with frantic haste, in order to keep the financial machine going there. By night time it was quite clear that, unless some palliative was instantly adopted under the authority of the Government, the crisis would become uncontrollable, and the stability of the Bank of England itself be seriously endangered.

Blackwood's Edinburgh Magazine wrote the following in an article titled “The Panic in the City” published in the July edition:

At midday (12th May) the panic was at its height. Lombard Street was actually blocked up by the crowds of respectable persons who thronged the doors of the banks and other establishments. Lothbury, Bartholomew Lane, and adjoining streets were also thronged with excited knots of people. While depositors rushed to withdraw their money, a body of onlookers gathered before each bank or financial establishment, expecting to see it close its doors. Everyone was on the alert for bad news, and discussed only too freely the dangers which threatened the various establishments. A list of the shareholders of the fallen firm of Overend, Gurney, & Co, published at the high price of one shilling, was eagerly bought up at 2s 6d. The penny papers, in like manner, were bought at 3d—so great was the eagerness to hear the latest news or rumours.

C.3.2 Narrative evidence of effects abroad

The Bank of New Zealand shared the following in its ordinary general meeting in April 30, 1867:

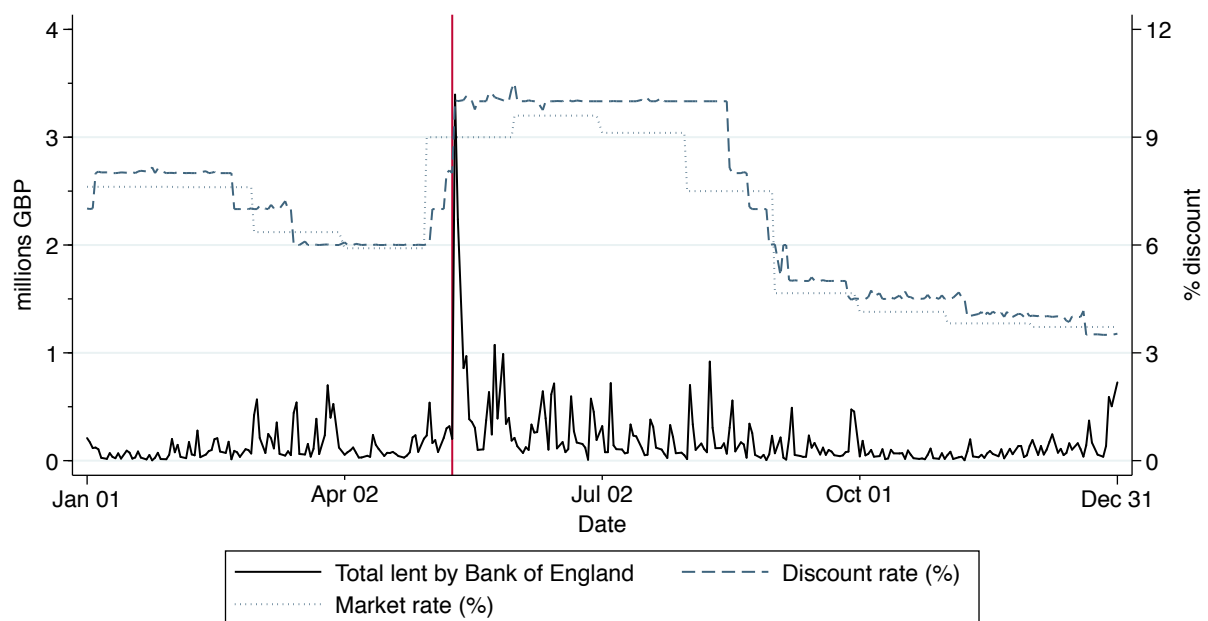
The effects of that panic were not immediately felt in the colonies, but they are now being felt. The shock which credit there received has reached even to New Zealand. It is felt in some parts more than others. We have felt those effects, and with these and other unfavourable circumstances in banking operations we have had to contend during the past half-year.

C.3.3 Bank of England response

In order to calm the London market, the Governor of the Bank of England appealed to the Chancellor of the Exchequer to suspend the Banking Act of 1844. The Banking Act of 1844 was the foundation of the gold standard in Britain and required that the Bank of England's currency supply was tied to the gold supply. Suspending it would allow the Bank of England to accommodate the demands for liquidity by issuing currency beyond the gold reserve at the Bank of England to meet the demands at its discount window. The government gave its permission, but the announcement alone was sufficient to calm the markets so that the gold standard remained in place. £5.6 million was lent to banks in just the first two days of the crisis, collateralized on the short-term securities that reflected London's lending relationships. The time series of the Bank's discounting activity for 1866 is shown in Figure C3. Although £5.6 million almost drained the Bank of England of its gold reserves, it was small compared to the size of the banking sector, whose balance sheets were almost £5 million each. The Bank of England was praised for averting a deeper crisis, but the size of the intervention was small relative to the size of the market, and 12% of banks failed.

The Overend & Gurney failure has been written about extensively by historians and has been credited as the one that cemented the Bank of England's role as Lender of Last Resort. It was the event which led Walter Bagehot, the editor of *The Economist* at the time, to argue that the monetary authority should, in times of crisis, discount bills of good

Figure C3: Bank of England Discount Window lending in 1866



Notes: Figure C3 shows the total amount of lending by the Bank of England at its Discount Window (left axis). The Bank of England's Discount rate and the open market rate of discount are plotted on the right axis. The red vertical line marks May 11, 1866. Sources: Bank of England Archives C24/1

quality in the amount demanded to creditable borrowers (Bagehot, 1873). Domestically, the 1866 banking crisis is attributed with causing the failure of over 200 firms. The shock on manufacturing led to protests and riots that ultimately contributed to the passing of the Reform Act of 1867, which greatly expanded the franchise. This was also known as the Second Reform Act (the first was in 1832) and roughly doubled the franchise among adult males in England and Wales.

Transcript of the Minutes of the Bank of England Court of Directors, Saturday May 12, 1866:

A Court of Directors at the Bank on Saturday, the 12 May 1866

Present: Henry Lancelot Holland, Esquire Governor; Thomas Newman Hunt, Esquire Deputy Governor [...]

The Governor laid before the Court the following correspondence:

Bank of England, 11 May 1866.

To: The Right Honourable, The Chancellor of the Exchequer, M. P.

Sir,

We consider it to be our duty to lay before the Government the facts relating to the extraordinary demands for assistance which have been made upon the Bank of England today in consequence to the failure of Messrs Overend Gurney & Co. We have advanced to the Bankers, Bill Brokers and Merchants in London during the day upwards of four million Sterling upon the Security of the Government Stock and Bills of Exchange – an unprecedented sum to lend in one day, and which, therefore, we suppose, would be sufficient to meet all their requirements; although the proportion of this sum which may have been sent to the Country must materially affect the question.

We commenced this morning with a Reserve of £5,727,000—which has been drawn upon so largely that we cannot calculate upon having so much as £3,000,000—this evening, making a fair allowance for what may be remaining at the Branches.

We have not refused any legitimate application for assistance, and, unless the money taken from the Bank is entirely withdrawn from circulation, there is no reason to suppose that this Reserve is insufficient.

We have honor to be, Sir, your obedient servants.

H.L. Holland, Governor and T.M. Newman Hunt, Deputy Governor.

The Chancellor of the Exchequer's response:

Downing Street, 11 May 1866.

To: The Governor and the Deputy Governor of the Bank of England

Gentlemen,

We have the honour to acknowledge the receipt of your letter of this day to the Chancellor of the Exchequer, in which you state the course of action at the Bank of England under the circumstances of sudden anxiety which have arisen since the stoppages of Messrs Overend Gurney & Company (Limited) yesterday.

We learn with regret that the Bank reserve, which stood, so recently as last night, at a sum of about five millions and three quarters, has been reduced in a single day, by the liberal answer of the Bank to the demands of commerce during the hours of business, and by its just anxiety to avert disaster, to little more than one half of that amount, or sum (actual for London and estimated for Branches) not greatly exceeding three millions.

The accounts and representations, which have reached Her Majesty's Government during the day, exhibit the state of things in the City as one of extraordinary distress and apprehension. Indeed deputations composed of persons of the greatest weight and influence, and representing alike the private and the Joint Stock Banks of London, have presented themselves in Downing Street, and have urged with unanimity and with earnestness the necessity of some intervention on the part of the State, to allay the anxiety which prevails, and which appears to have amounted through great part of the day to absolute panic.

There are some important points in which the present crisis differs from those of 1847 and 1857. Those periods were periods of mercantile distress, but the vital consideration of banking credit does not appear to have been involved in them, as it is in the present crisis. Again, the course of affairs was then comparatively slow and measured, whereas the shock has in this instance arrived with intense rapidity and the opportunity for deliberation is narrowed in proportion. Lastly, the Reserve of the Bank of England has suffered a diminution without precedent relatively to the time in which it has been brought about, and, in view especially of this circumstance, Her Majesty's Government cannot doubt that it is their duty to adopt without delay the measures which seem to them best calculated to compose the public mind, and to avert the calamities which may threaten trade and industry.

Of them, the Directors of the Bank of England, proceeding upon the prudent rules of action by which their administration is usually governed, shall find that, in order to meet the wants of legitimate commerce, it is requisite to extend their discounts and advances upon approved securities so as to require issues of Notes beyond the limit fixed by law, Her Majesty's Government recommend that this necessity should be met immediately upon its occurrence, and in that event they will not fail to make application to Parliament for its sanction.

No such discount or advance, however, should be granted at a rate of interest less than ten per cent, and Her Majesty's Government reserve it to themselves to recommend, if they should see fit, the imposition of a higher rate. After deduction by the Bank of whatever it may consider to be fair charge for its risk, influences and trouble, the profits of these advances will accrue to the public.

We have the honor to be, Gentlemen, your obedient servants.

Russell Gladstone, Chancellor of the Exchequer

Resolved that the Governors be requested to inform the First Lord of the Treasury, and the Chancellor of the Exchequer that the Court is prepared to act in conformity with the letter addressed to them yesterday.

Resolved that the minimum rate of discount on Bills not having more than 95 days to run, be raised from 9 to 10%.

The archived minutes are available at: <https://www.bankofengland.co.uk/-/media/boe/files/minutes/1800-1900/1866/court-april-1866-november-1866.pdf> (Bank of England Archive G4/89)

C.4 Sample selection of bills

One concern is that the bills discounted by the Bank of England suffer from selection bias because worse banks may have held worse collateral, and those bills are under- or over-represented in the data. In this section, I provide several sets of evidence that sample selection at the Discount Window is not driving the empirical results.

C.4.1 Banks do not discount their own bills

Banks discounted bills that had originally been accepted by *other* banks, which reflected the *other* banks' loans, so there is no mechanical relationship between the quality of the banks approaching the Discount Window and the quality of the bills that were then discounted. This is verifiable in the archival data because the Bank of England recorded both the bank that guaranteed the bill as well as the discounter who brought in the bill. In no case are these two entities the same. Therefore while it is possible that worse banks may have had more severe liquidity needs and therefore discounted more at the BoE, the collateral they brought in would not mechanically reflect the assets of worse quality banks.

C.4.2 Rejection rate at Discount Window ≈ 0

Using the daily discounts ledgers at the BoE archives, which shows the characteristics of the bills *rejected*, I find that only 3 bills were rejected, and the only reasons bills were rejected were because of irregularities such as illegible handwriting. In all of the BoE's internal communications and ledgers, and historical accounts of the crisis, there is never mention of a policy of not discounting bills underwritten by certain banks or originating from certain locations. Therefore any selection on the bills' attributes would have to be generated by self-discrimination by banks themselves rather than by the BoE itself, in perfect anticipation of the BoE's response to the bills.

C.4.3 Bias necessary to bias results

Over- or under-representation of bills on one dimension of either good/bad banks or good/back locations is not sufficient to generate bias in the results. Therefore any scenario in which

banks are purely choosing the bills that they take to the discount window based on either the ex-ante health of the banks or of the locations that the bills were drawn will not upward bias the results. Two combinations of bank & location quality will attenuate the results: an over-representation of good banks in bad locations or of bad banks in good locations. Two combinations will bias the results upwards: an over-representation of good banks in good locations or of bad banks in bad locations.

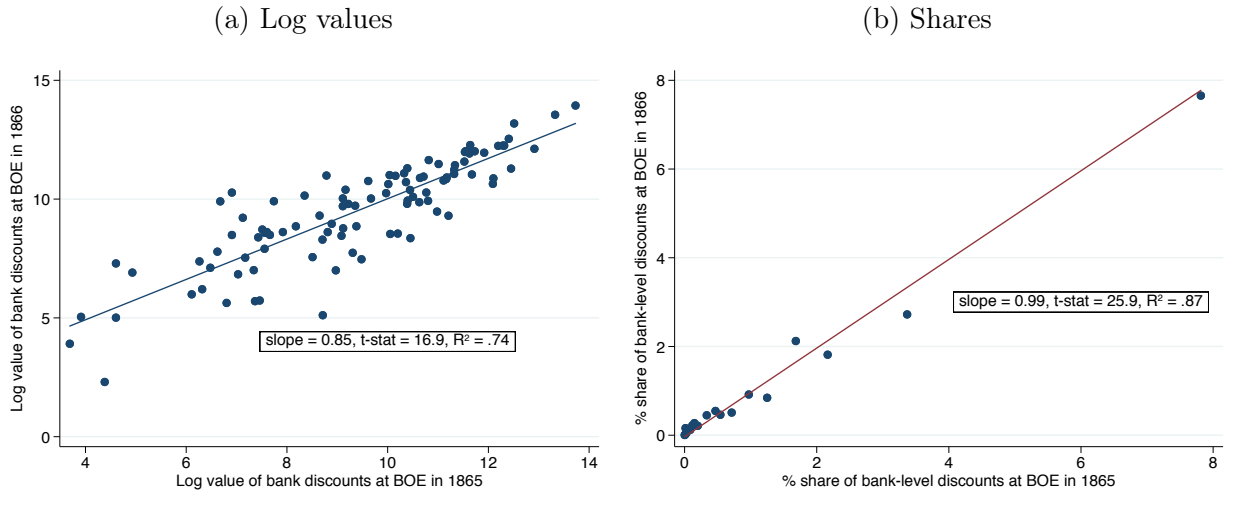
A few specific scenarios are thus addressed. The first is the one in which discounters are concerned that the bank guarantee on a bill that had been accepted by a bad bank is not worth as much, and so they only present those bills that are also from a good location. The fact that the bill is from a location that ex-ante is considered good would raise the odds that the ultimate borrower in that location is less likely to default on the bill, making the bank guarantee on the bill less important. However, this type of selection of bad banks and good locations will actually attenuate the estimated effects. A second scenario is the opposite in which the concern is that the BoE will be disinclined to discount bills from bad locations unless the bank guarantee is particularly strong, coming from the banks that are ex-ante considered healthy.

C.4.4 Empirical evidence

There is also strong empirical evidence that the relative representation of banks, locations, and bank-location combinations did not change during the crisis relative to the pre-crisis year. Figures C4, C5, C6 show this correlation. Subfigure (a) for each set shows the scatterplot for the log values of discounts for each observation (bank, location, or bank-location pair). Subfigure (b) plots the % share of each observation in the total discounts in a given year. The shares scale the size of each observation by the size of the market as measured by the BoE discount window. The linear regression coefficients for each fitted line are given in the plots. Since it is highly unlikely that these banks dramatically changed their business or the underlying distribution of their lending behavior in the 6 months before the crisis, these figures indicate that the BoE did not appear to change their discounting policy during the crisis. Banks, locations, and bank-location pairs that are measured to be large in 1865 are also large in 1866 during the crisis. The bank-level distribution is particularly strong: a bank's acceptances discounted by the BoE as a share of total BoE discounts in 1865 is correlated with 99% of that share being discounted in 1866.

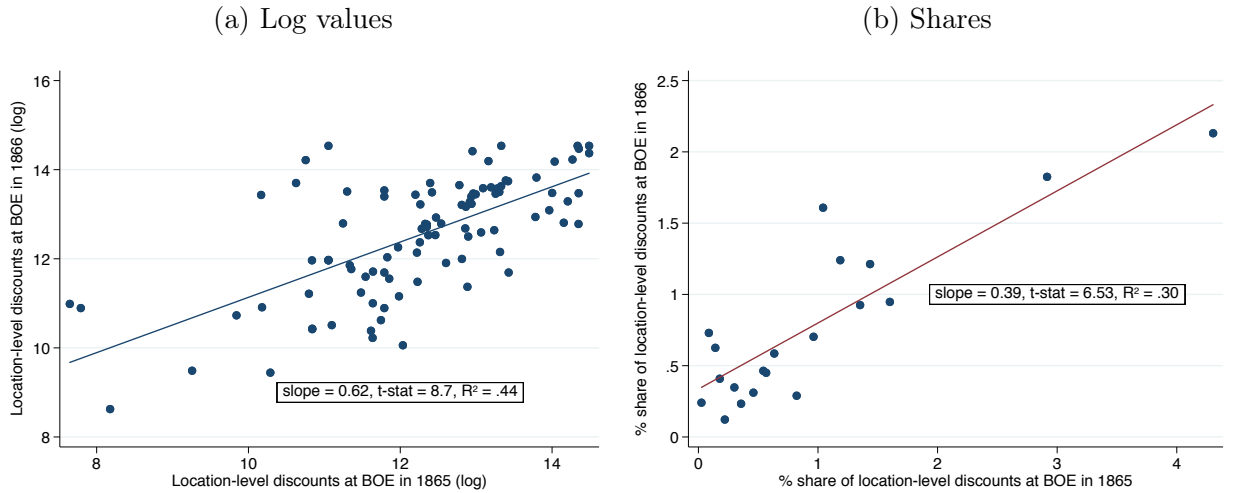
I also re-calculate the bank shares z_{lb} (the importance of each bank b to a location l) using just the bills that came in during the crisis itself since those bills reflect the most recent bank acceptance behavior. I plot the correlation between the two measures in Figure C7 of the bank shares—all of the bills on the y-axis and only the pre-crisis (1865) bills on the x-axis. There is a very strong positive correlation. The slope is 0.97 and the t-stat is 86.8 with an R^2 of 86%. The relative importance of banks to locations is also very stable, which again indicates that the BoE discounting policy was unlikely to have changed during the crisis, and that the bills data capture the true distribution of lending.

Figure C4: Bank-level correlation between 1865 & 1866 discounts



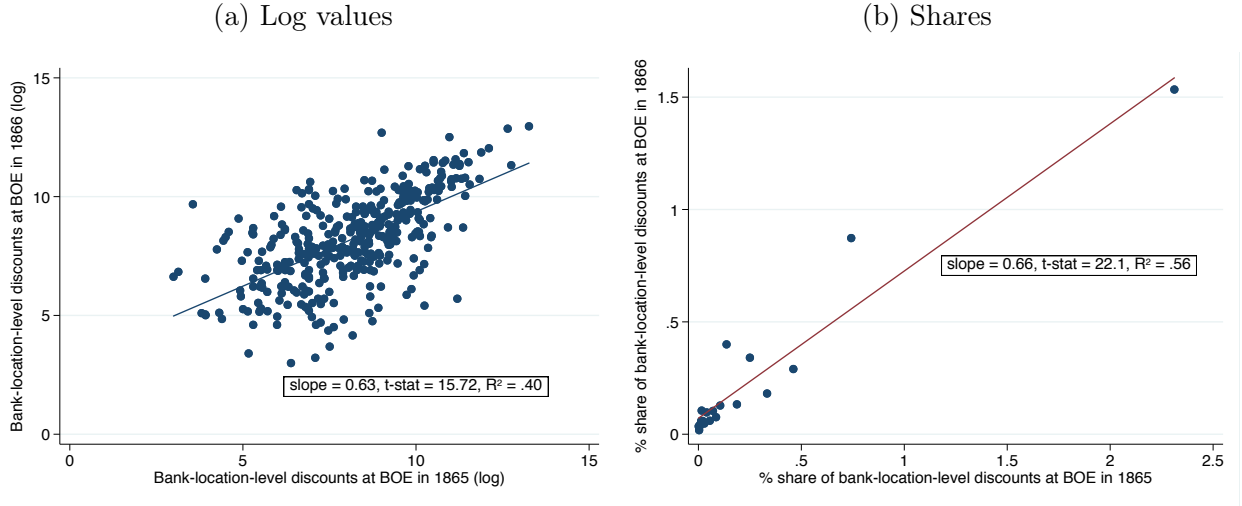
Notes: Figure C4 plots the correlation between the log value of bills accepted by each bank in 1865 and the log value of bills accepted in 1866. Subfigure (a) plots the raw correlation where each bank is an observation. Subfigure (b) plots the binscatter with each bank's acceptances scaled by the total volume of activity at the discount window each year.

Figure C5: Location-level correlation between 1865 & 1866 discounts



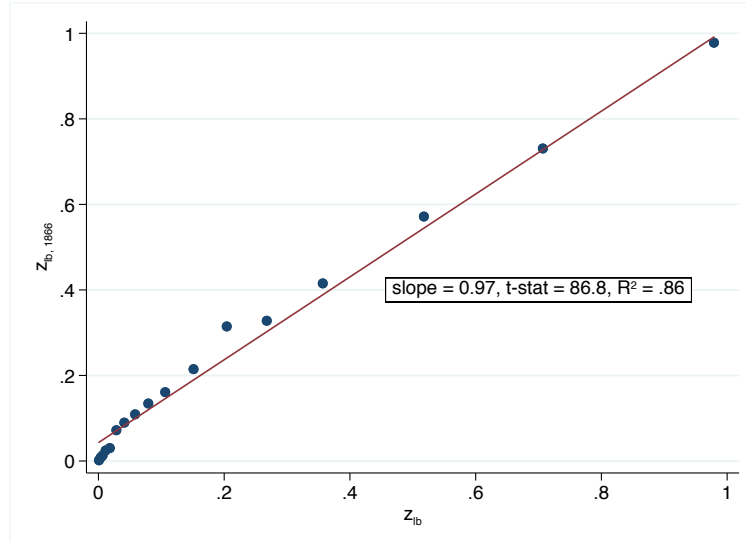
Notes: Figure C5 plots the correlation between the log value of bills accepted at each city location (by all banks) in 1865 and the log value of bills accepted in 1866. Subfigure (a) plots the raw correlation where each city is an observation. Subfigure (b) plots the binscatter with each location's acceptances scaled by the total volume of activity at the discount window each year.

Figure C6: Bank & location-level correlation between 1865 & 1866 discounts



Notes: Figure C6 plots the correlation between the log value of bills accepted by each bank-location pair in 1865 and the log value of bills accepted in 1866. Subfigure (a) plots the raw correlation where each bank-location pair is an observation. Subfigure (b) plots the binscatter with each pair's acceptances scaled by the total volume of activity at the discount window each year.

Figure C7: Correlation between bank shares z_{lb} calculated using all bills and 1866 bills



Notes: Figure C7 is a binscatter plot of the shares z_{lb} of the importance of each bank b to each city location l where $z_{lb} = \frac{\sum bill_{s_{lb}}}{\sum bill_{s_l}}$. z_{lb} is calculated using the full set of from 1865–the crisis while $z_{lb,1866}$ is calculated using only the bills from the crisis.

C.5 Narrative evidence on bank failures

I gather thousands of pages of transcripts of shareholder meetings from archives and contemporary publications from the periods before (December 1865), during (June 1866), and after the crisis (December 1866). These come from *The Economist*, the *Banker's Magazine*, and individual bank histories. These transcripts provide additional *qualitative* evidence on the nature of each bank's business. I read through these transcripts and recorded instances when the managers, directors, or shareholders offered insights on either future prospects or reflected on past performance.

In Table C3 below, I present the raw tabulations for instances of different types of evidence given in shareholder reports. Panel A presents ex-ante measures of performance and payout as measured by their dividend (annualized rate) before the crisis and funds added to the reserve fund from retained profits. There is no significant difference between either group of bank. In Panel B, "Fraud" refers to instances of fraudulent activity at the bank, for which there is balance between the two groups. "Panic" refers to citing the conditions of the Panic as a source of stress for the bank, and it is the only characteristic that is significantly different between the two groups. Panels C and D tabulate ex-post and ex-ante indicators of economic conditions and assessments of the riskiness of investment opportunities. There is no significant difference between any of these assessments between the two groups of banks.

C.5.1 Examples of language

- Fraud: "[The Chairman] had no doubt that large sums had been expended in *rigging the market*, from which many of the proprietors had suffered as he had done."
- Panic: "The panic of 1866 has fallen with peculiar severity upon banking institutions. Some have been utterly ruined, others have lost a considerable portion of their capital, others again have had to sacrifice the whole or a large portion of their reserve fund, while those banks which have only been forced to forego the payment to their shareholders of one or more dividends, may be considered fortunate by comparison."
- Negative assessments about local economy: "The pastoral and agricultural interests of the Australian colonies have been subjected to a severe trial by a season of a long-continued and unusual drought."
- Positive assessments about local economy: "In New Zealand the Maori war was now brought practically to a conclusion, and trade was improving. New gold discoveries had been made at Okeliti on the west coast, which held out a fair prospect of becoming an additional source of wealth to the colony."

Table C3: Narrative evidence on bank performance ex-ante and ex-post

Panel A: Ex-ante: Performance & payout

	All		Not failed		Failed		Diff	
Dividend (%)	9.38	(5.50)	9.11	(5.41)	11.07	(6.23)	-1.96	(2.24)
Reserve (£k)	11.50	(12.12)	12.54	(12.68)	5.56	(6.99)	6.98	(7.63)

Panel B: Ex-post: Panic & fraud

	All		Not failed		Failed		Diff	
Fraud	5		3		2		-0.07	(0.06)
Panic	4		0		4		-0.21	(0.05)***

Panel C: Negative assessments

	All		Not failed		Failed		Diff	
Ex-ante: uncertainty	1		1		0		0.01	(0.03)
Ex-post: debts	11		9		2		0.01	(0.08)
Ex-post: local economy	20		17		3		0.05	(0.10)

Panel D: Positive assessments

	All		Not failed		Failed		Diff	
Ex-ante: safe investment	18		14		4		-0.04	(0.10)
Ex-ante: profit	45		36		9		-0.02	(0.13)
Ex-post: local economy	22		18		4		0.01	(0.11)
<i>N</i>	99		80		19		99	

Notes: Table C3 documents the instances that each type of narrative evidence is reported for banks before and after the crisis, gathered from the shareholder meeting transcripts. In Panel A, “Dividend” measures the annualized rate of the dividend payout before the crisis, and “Reserve” measures the amount added to the reserve fund from retained profits. Means and standard errors in parentheses are reported. In Panel B, “Fraud” refers to instances of fraudulent activity at the bank, and “Panic” refers to citing the conditions of the Panic as a source of stress for the bank. Panels C and D present tabulations of ex-post and ex-ante indicators of economic conditions and assessments of the riskiness of assets. In all tables, “All” refers to all the banks that have transcripts, “Not failed” refers to the banks that survived the crisis, “Failed” refers to the banks that failed. “Diff” refers to the difference in means between groups. Standard errors are reported in parentheses for the “Diff” column. £k denotes units of thousands of pounds sterling. Significance is marked by $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

D Instrument derivation & validity

Instrument derivation

The relationship that we are interested in estimating is

$$\Delta Y_l = \alpha + \beta \frac{\Delta \text{Credit}_l}{\text{Credit}_l} + \varepsilon_l$$

where Y_l is the outcome of interest at location l and β is the semi-elasticity with respect to the growth rate of a location's credit ($\frac{\Delta \text{Credit}_l}{\text{Credit}_l}$). A location's credit growth obeys the following accounting identity, which is the inner product of bank shares and local bank growth rates:

$$\frac{\Delta \text{Credit}_l}{\text{Credit}_l} = \sum_b z_{lb} \frac{\Delta \text{Credit}_{lb}}{\text{Credit}_{lb}}$$

where $z_{lb} = \frac{\text{Credit}_{lb}}{\text{Credit}_l}$. We can decompose the local bank credit growth into a bank-level-growth and an idiosyncratic component:

$$\frac{\Delta \text{Credit}_{lb}}{\text{Credit}_{lb}} = \frac{\Delta \text{Credit}_b}{\text{Credit}_b} + \frac{\Delta \tilde{\text{Credit}}_{lb}}{\text{Credit}_{lb}}$$

The instrument is the inner product of the bank shares in each location and the bank growth in credit where the bank growth rate $\frac{\Delta \text{Credit}_b}{\text{Credit}_b}$ is assumed to be 0% or -100% depending on whether the bank failed or not:

$$\text{Fail}_l = \sum_b z_{lb} \frac{-\Delta \text{Credit}_b}{\text{Credit}_b} = \sum_b z_{lb} \mathbb{I}(\text{Failure}_b)$$

This proxy for bank credit growth rules out the possibility of positive credit growth, but if there were positive credit growth by non-failed banks that is erroneously attributed to being zero growth, this proxy should downward bias the estimated β .

Instrument validity

The empirical setting focuses on the effect of British credit contractions without observing the share of British credit in total credit. This section shows that under certain assumptions, the instrument for British bank failures will recover the effects on credit contractions from all banks.

Assume that the true model of the world is the following where $\text{Credit}_l^{\text{total}}$ denotes the total change in credit available in location l :

$$\Delta \ln(Y_l) = \beta_0 + \delta_1 (\Delta \text{Credit}_l^{\text{total}}) + \varepsilon_l \quad (\text{D1})$$

$\Delta \text{Credit}_l^{\text{total}}$ can be rewritten in terms of the share of total credit from British banks

α_b and the share from non-British banks $1 - \alpha_b$:

$$\Delta \text{Credit}_l^{\text{total}} = \alpha_b \Delta \text{Credit}_l^{\text{Brit}} + (1 - \alpha_b) \Delta \text{Credit}_l^{\text{non-Brit}}$$

This allows us to rewrite Equation D1 in the following way where $\beta_1 = \alpha_b * \delta_1$ and $\beta_2 = (1 - \alpha_b) * \delta_1$:

$$\Delta \ln(Y_l) = \beta_0 + \beta_1 \Delta \text{Credit}_l^{\text{Brit}} + \beta_2 \Delta \text{Credit}_l^{\text{non-Brit}} + \varepsilon_l \quad (\text{D2})$$

Instrumenting for total credit loss using British bank failures:

$$\begin{aligned} \Delta \text{Credit}_l^{\text{total}} &= \gamma_0 + \gamma_B \text{Fail}_{l,B} + \nu_l \\ \varepsilon_p &\perp 1, \text{Fail}_{l,B} \text{ and } \nu_l \perp 1, \text{Fail}_{l,B} \end{aligned}$$

The 2SLS estimator is:

$$\hat{\delta}_1^{IV} \longrightarrow \frac{\text{Cov}[\Delta \ln(Y_l), \text{Fail}_{l,B}]}{\text{Cov}[\Delta \text{Credit}_l^{\text{total}}, \text{Fail}_{l,B}]} = \frac{\beta_1 \text{Cov}[\Delta \text{Credit}_l^{\text{Brit}}, \text{Fail}_{l,B}] + \beta_2 \text{Cov}[\Delta \text{Credit}_l^{\text{non-Brit}}, \text{Fail}_{l,B}]}{\alpha_b \text{Cov}[\Delta \text{Credit}_l^{\text{Brit}}, \text{Fail}_{l,B}] + (1 - \alpha_b) \text{Cov}[\Delta \text{Credit}_l^{\text{non-Brit}}, \text{Fail}_{l,B}]}$$

I use $\Delta \text{Credit}_l^{\text{Brit}}$ to proxy for $\Delta \text{Credit}_l^{\text{total}}$.

1. $\delta_1 = \beta_1$ when $\alpha_b = 1$, so $\beta_2 = 0$: non-British credit does not matter for trade
2. $\hat{\delta}_1^{IV} \longrightarrow \beta_1$ when: $\text{Cov}[\Delta \text{Credit}_l^{\text{non-Brit}}, \text{Fail}_{l,B}] = 0$: the failure rates of British banks in ports is not related to the change in non-British credit because either non-British credit does not change or because it changes in uncorrelated ways

E Robustness

E.1 Immediate effects

E.1.1 Additional control variables

First I expand the set of control variables to include all of the characteristics listed in Table 2 Panel B, even those that are not statistically significant. Table E1 below presents those results and shows that the effects are virtually unchanged.

Table E1: Additional Controls: Immediate effect of bank failures on port-level shipping

$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \varepsilon_{pot}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fail _{po} × post	-0.708*** [0.202]	-0.667*** [0.166]	-0.652*** [0.132]	-0.675*** [0.155]	-0.708*** [0.154]	-0.712*** [0.153]	-0.716*** [0.164]
OG exposure × post	Y						
Asia exposure × post		Y					
Africa exposure × post			Y				
N. Amer exposure × post				Y			
S. Amer exposure × post					Y		
Australia exposure × post						Y	
Europe exposure × post							Y
Country _o × post FE	Y	Y	Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y	Y	Y
N	578	578	578	578	578	578	578
Ports	289	289	289	289	289	289	289
Clusters	54	54	54	54	54	54	54

Notes: Table E1 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis. The dependent variable is the log of the total number of ships departing in each period. Fail_{po} is the share of the port's banks that failed during the crisis. The mean of Fail_{po} is 0.07, and the standard deviation is 0.2. Post is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. Each type of exposure is calculated as the share-weighted average bank exposure to a given variable in a location. For example, "OG exposure × post" is a location's exposure to Overend & Gurney calculated as the share of banks with a board member or director who is a shareholder. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.1.2 Demand shocks from the UK and more generally

The baseline effects are also not due to demand shocks. Since the United Kingdom accounted for 30% of global trade during this period, a particular concern is that unobserved declines in UK demand are driving the results. First, I modify Equation 7 so that the dependent variable is $\ln(S_{podt})$ where S_{podt} is the number of ships sailing from port p in country o to

destination country d in period t , and I include destination time-trends γ_{dt} . As in the long-run gravity specification, γ_{dt} will accommodate all aggregate demand shocks that might be confounding the effects, including those from the United Kingdom. In this specification, β is estimated off the variation across ports shipping to the same destination-country.² As before, I limit the sample to origin-destination pairs that ship in both periods to isolate the intensive margin effect. Table E2 column 5 reports a coefficient of -0.39, which is smaller than the baseline coefficient, but statistically significant at the 1 percent level as before. Second, I separately calculate the number of ships departing from ports with the UK as the destination and the number of ships going anywhere but the UK. Table E2 columns 3 and 4 show that shipping to non-UK destinations also significantly decreased, which is less likely to be due to a direct demand effect coming from the crisis in the UK.

Table E2: Immediate effect of bank failures on destination-specific shipping

$\ln(S_{podt}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \gamma_{dt} + \varepsilon_{pot}$						
	Ships to UK		Ships not to UK		All ships	
	(1)	(2)	(3)	(4)	(5)	(6)
Fail _{po} × post	-0.656*	-0.759**	-0.769***	-0.646**	-0.394***	-0.327**
	[0.352]	[0.378]	[0.237]	[0.255]	[0.131]	[0.133]
Destination _d × post FE					Y	Y
ln(distance _{od})						Y
Country _o × post FE	Y	Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y	Y
Port controls × post		Y		Y		
N	452	452	506	506	2532	2532
Ports	226	226	253	253	262	262
Clusters	53	53	54	54	51	51

Notes: Table E2 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity and country-level shipping activity in the year before and after the crisis. The dependent variable in columns 1 and 2 is the log number of ships departing for the UK in each period; in columns 3 and 4 it is the log number of ships departing for all destinations except the UK in each period; in columns 5 and 6 it is the log number of ships departing for each destination in each period. Fail_{po} is the share of the port's banks that failed during the crisis, and post is a dummy for the post-crisis year. The port controls consist of an indicator for the port being a capital city within the country, the average age of banks, and the fraction of shipping to the UK interacted with the post dummy. The sample is restricted to ports active in both the pre- and post-period. The log distance between origin and destination is calculated using the geodesic distance. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.1.3 Excluding cotton-exporting countries

I also check that the results are robust to accounting for the world cotton trade. Although I have established that there is no systematic correlation between a bank's failure rate and its

²Destinations that only ship from single ports within origin countries are effectively dropped from the estimations. These singleton observations account for 5 of the 2,532 observations.

exposure to cotton exporters, I show in Table E3 that the estimated relationship is robust to completely excluding all cotton exporters, both individually and all together.

Table E3: Robustness to removing cotton exporting countries: immediate effect of exposure to bank failures on port-level shipping

	All (1)	excl USA (2)	excl Brazil (3)	excl Egypt (4)	excl all cotton (5)
Fail _{po} × post	-0.527*** [0.158]	-0.520*** [0.163]	-0.539*** [0.168]	-0.485*** [0.154]	-0.490*** [0.172]
Capital city × post	Y	Y	Y	Y	Y
Age of banks × post	Y	Y	Y	Y	Y
Fraction to UK × post	Y	Y	Y	Y	Y
Country _o × post FE	Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y
N	578	560	556	564	524
Ports	289	280	278	282	262
Clusters	54	53	53	53	51

Notes: Table E3 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis. The dependent variable is the log of the number of ships departing from each port. Fail_{po} is the share of the port's British banks that failed during the crisis. post is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. In columns 2–4, ports from the United States, Brazil, and Egypt are excluded respectively. In column 5, ports from all three cotton exporting countries are excluded. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.1.4 Accounting for news lags

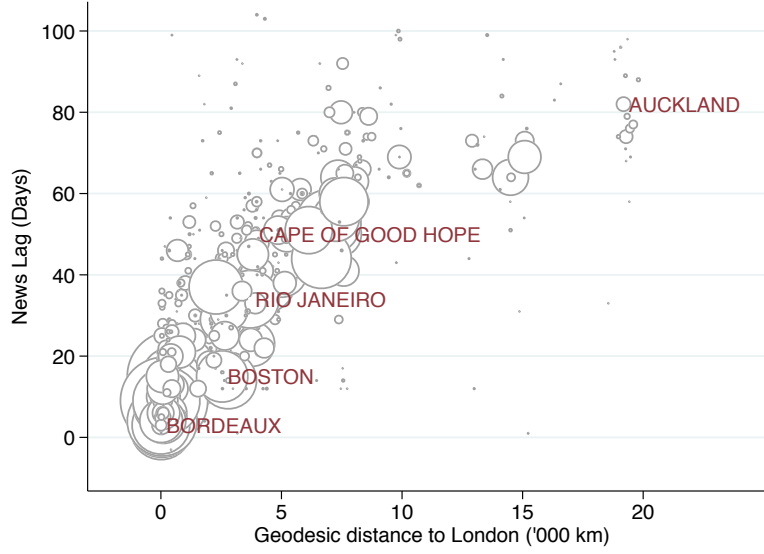
In the baseline specifications, I assigned a single treatment date for all ports in the DD estimation. However, in reality there were long communication lags because the global telegraph network was not fully connected. Basing the post-crisis event date on May 11 for all ports around the world falsely attributes pre-crisis shipping events to the post-crisis period for ports far away from London, which could bias the difference-in-difference estimates.³ An alternative method bases the event date of the crisis for each port on the date that news from London would have reached the port. For all ports, I calculate the average news lag between when shipping events occurred and when it was reported in the *Lloyd's List*.⁴ For major cities, I validate these calculations with the first local newspaper reporting of the banking crisis.

Communication times are highly correlated with the geodesic distance, although there are outliers due to the burgeoning telegraph network. Figure E1 shows the relationship

³However, note that there is no significant correlation between a bank's failure rate and the distance of its operations from London so this bias is unlikely to be large.

⁴Juhász and Steinwender (2017) use lags in the *Lloyd's List* reports to measure communication times to London before and after the global telegraph network was established.

Figure E1: Positive correlation between news lag and geodesic distance to London



Notes: Figure E1 plots the relationship between the ports’ physical distance to London (measured geodesically in kilometers) and the news lag in days that the ports received news of the banking crisis. The circles convey the pre-crisis size of the port. Select ports from each continent are named.

between (geodesic) distance to London and the average news lag in days. The last cities to receive the news were those in the interior of China and New Zealand. To allow for some flexibility in the effective arrival date, I mark the month of the news date as spanning two weeks on either side of the calculated news arrival date. I build a balanced panel of shipping activity around the news arrival date to that port. I validate the port-level results using the port-specific news arrival dates for the “Post” period and report the estimates in Table E4.

E.1.5 Limitations of the shipping data

The ship counts data are only a proxy and does not perfectly measure exports volumes. I show that the limitations do not affect the main results by re-estimating all the results with ships as the dependent variable using count data methods, and limiting the sample to well-traveled routes to further diminish the impact of outliers.

a. Count data methods

I re-do all of the regressions that use the number of ships as a dependent variable using the Poisson regression advised by Cameron and Miller (2014). The results are qualitatively the same and the magnitude of the effects are again larger. Those tables are reproduced below.

Table E5 has the estimates from the Poisson specification for Table 4 in the paper where Columns 2–6 have the preferred controls with country fixed effects. The magnitude of the effect in Column 2 (-0.899) should be interpreted as meaning a 100% exposure to bank failures reduces shipping to 40% of the shipping for non-exposed ports ($e^{-0.899} =$

Table E4: Robustness to allowing for news lags: immediate effect of exposure to bank failures on port-level exports

$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_{pot} + \Gamma' X_{po} \times \text{Post}_{pot} + \alpha_p + \gamma_{ot} + \varepsilon_{pot}$						
	(1)	(2)	(3)	(4)	(5)	(6)
Fail _{po} × post	-0.613** [0.244]	-0.688*** [0.159]	-0.700*** [0.160]	-0.635*** [0.215]	-0.598*** [0.159]	-0.519*** [0.176]
Capital city × post			Y			Y
Age of banks × post				Y		Y
Fraction to UK × post					Y	Y
Country _o × post FE		Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y	Y
N	570	570	570	570	570	570
Ports	285	285	285	285	285	285
Clusters	54	54	54	54	54	54

Notes: Table E4 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis. The dependent variable is the log of the total number of ships departing in each period. Fail_{po} is the share of the port's banks that failed during the crisis. Post_{pot} is a port-specific dummy variable for the post-crisis year that takes the value of 1 after news of the crisis reached the port and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. They include an indicator for the port being a capital city within the country, the average age of banks, and the fraction of shipping to the UK. The sample is restricted to ports active in both the pre- and post-period. Standard errors in brackets are clustered by country of origin.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

0.4), which is a 60% reduction. That is very similar to the coefficient of -0.71, which would be interpreted as a 71% reduction, in the OLS specification. The coefficients are very stable across the specifications, all estimating a semi-elasticity of roughly -0.6. Table E6 has the estimates for the Poisson specification for Table E2. The coefficients are again of very similar magnitudes. For example, the estimate in Column 4 of -.814 implies a reduction in exports of 56%, relative to the OLS estimate of 65%. In the last two columns which includes destination fixed effects, the Poisson estimates are even larger (65% reduction versus 39% reduction).

Table E5: Poisson regression: Immediate effect of bank failures on port-level shipping

	$\ln(S_{pot}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \varepsilon_{pot}$					
	(1)	(2)	(3)	(4)	(5)	(6)
ships						
Fail _{po} × post	-0.635*** [0.198]	-0.899*** [0.124]	-0.906*** [0.128]	-0.910*** [0.148]	-0.904*** [0.120]	-0.915*** [0.145]
Capital city × post			Y			Y
Age of banks × post				Y		Y
Fraction to UK × post					Y	Y
Country _o × post FE		Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y	Y
N	578	578	578	578	578	578
Ports			289	289	289	289
Clusters	54	54	54	54	54	54

Notes: Table E5 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis using a Poisson regression. The dependent variable is the the total number of ships departing in each period. Fail_{po} is the share of the port's banks that failed during the crisis. The mean of Fail_{po} is 0.07, and the standard deviation is 0.2. Post is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. The time-invariant control variables are measured in 1865 and interacted with the post dummy. They include an indicator for the port being a capital city within the country, the average age of banks, and the fraction of shipping to the UK. The sample is restricted to ports active in both the pre- and post-period. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

b. Distribution of shipping routes and limiting to well-traveled routes

I restrict the estimation to the routes that are in the top 75th & 90th percentiles of the distribution of routes, and I recalculate the dependent variable as the number of ships that sailed conditional on those restrictions. I plot the distribution of the number of ships along routes in the pre-crisis period in Figure E2.

The results of the one-period difference-in-difference estimation both with and without destination fixed effects is shown in Table E7. Column 1 presents the baseline bilateral regression (with destination fixed effects) with all of the routes included. Columns 2 and 4 only includes ships that travel along routes that are in the top 90%-ile and 75%-ile of routes by traffic in the pre-crisis period, respectively. The number of observations

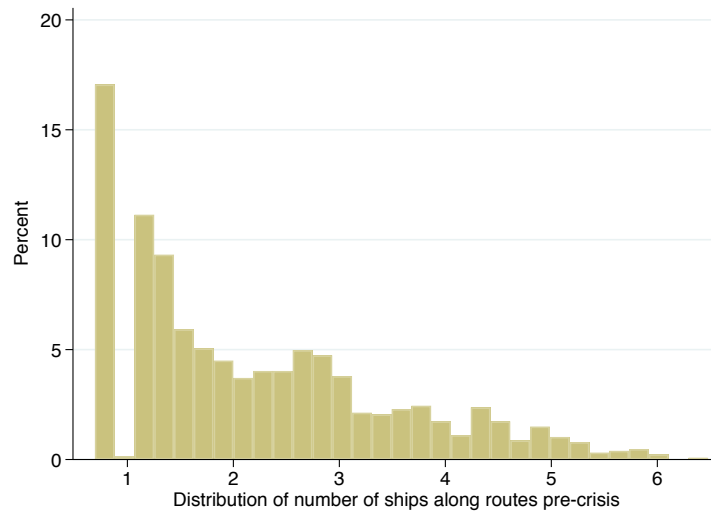
Table E6: Poisson regression: Immediate effect of bank failures on destination-specific shipping

$\ln(S_{podt}) = \beta \text{Fail}_{po} \times \text{Post}_t + \Gamma' X_{po} \times \text{Post}_t + \alpha_p + \gamma_{ot} + \gamma_{dt} + \varepsilon_{pot}$						
	Ships to UK		Ships not to UK		All ships	
	(1)	(2)	(3)	(4)	(5)	(6)
main						
Fail _{po} × post	-0.962*** [0.140]	-0.951*** [0.248]	-0.741*** [0.277]	-0.814*** [0.196]	-1.063*** [0.161]	-1.065*** [0.130]
Destination _d × post FE					Y	Y
ln(distance _{od})						Y
Country _o × post FE	Y	Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y	Y
Port controls × post		Y		Y		
N	452	452	506	506	2532	2532
Ports	226	226	253	253	262	262
Clusters	53	53	54	54	51	51

Notes: Table E6 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity and country-level shipping activity in the year before and after the crisis using a Poisson estimator. The dependent variable in columns 1 and 2 is the number of ships departing for the UK in each period; in columns 3 and 4 it is the number of ships departing for all destinations except the UK in each period; in columns 5 and 6 it is the number of ships departing for each destination in each period. Fail_{po} is the share of the port's banks that failed during the crisis, and post is a dummy for the post-crisis year. The port controls consist of an indicator for the port being a capital city within the country, the average age of banks, and the fraction of shipping to the UK interacted with the post dummy. The sample is restricted to ports active in both the pre- and post-period. The log distance between origin and destination is calculated using the geodesic distance. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

goes down with each sample restriction because some port–destination linkages are not busy enough to be included. Columns 3 and 4 aggregate the shipping activity in each port across all destinations and estimates the baseline two-period regression (without destination fixed effects). Sample sizes are smaller here for the same reason that some ports only went to destinations with low traffic routes. The results across all of these columns shows that restricting the sample to busier routes *increases* the magnitudes of the estimated effects, which remain statistically significant across all specifications.

Figure E2: Distribution of routes by traffic



Notes: Figure E2 plots the distribution of the number of ships that sailed a given route during the pre-crisis year. The source data are from the *Lloyd's List*. Routes are between different origin ports sailing to different countries.

Table E7: Port-level effects after restricting to busier shipping routes

	All routes	Top 90% routes		Top 75% routes	
	(1)	(2)	(3)	(4)	(5)
Fail _{po} × post	-0.394*** [0.131]	-0.565*** [0.143]	-0.580*** [0.201]	-0.760*** [0.262]	-0.676*** [0.202]
Destination _d × post FE	Y	Y		Y	
Country _o × post FE	Y	Y	Y	Y	Y
Port _p FE	Y	Y	Y	Y	Y
N	2532	2100	406	1814	394
Ports	262	203	203	197	197
Clusters	51	51	51	51	51

Notes: Table E7 reports estimates from the difference-in-difference regressions from the two-period panel of port-level shipping activity in the year before and after the crisis, with some specifications controlling for destination-specific shocks. The dependent variable is the total number of ships departing in each period. The count of the number of ships is determined by whether the ship sailed on a sufficiently busy route. Column 1 does not restrict the sample at all. Columns 2 and 3 restrict the sample to the top 90%-ile of the busiest routes (i.e. eliminating the bottom 10%-ile), and Columns 4 and 5 restrict the top 75%-ile of routes. Fail_{po} is the share of the port's banks that failed during the crisis. The mean of Fail_{po} is 0.07, and the standard deviation is 0.2. Post is a dummy for the post-crisis year that takes the value of 1 after May 1866 and 0 otherwise. Standard errors in brackets are clustered by country of origin. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.2 Long-run effects

E.2.1 Additional control variables

Tables E8– E19 show the robustness of the long-run results to controlling for different initial conditions and contemporaneous macroeconomic shocks.

Table E20 controls more directly for GDP rather than using time-varying country fixed effects. Column 1 presents the baseline result of the paper with fixed effects as controls. Column 2 removes the time-varying destination-country fixed effect (γ_{dt}) and controls for $\ln(\text{GDP}_{dt})$ explicitly. The estimated effects in columns 1 and 2 are similar in magnitude until 1900, although column 2's cease to be statistically significant after 1880. Given that the fixed effects controls in column 1 are more demanding of the data while also allowing more of it to be used, the less persistent results from specification 2 are likely due to inadequately controlling for demand shocks. Column 3 adds $\ln(\text{GDP}_{ot})$ as a control in addition to γ_o . This is the only specification that is more demanding of the data than the baseline, and the results are even larger in magnitude than in the baseline. Column 4 estimates the specification with direct controls, and the results are similar to those in column 2 for similar reasons. Therefore, the baseline specification controls for the movements in GDP as desired, and it does so in a way that is not simply limited to the availability of historical GDP data.

Table E8: Long-term effects of financing shock on country-level exports

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\beta_{1850-1855}$	0.0309 [0.217]	-0.248 [0.330]	-0.217 [0.413]	-0.171 [0.343]	-0.180 [0.344]	0.311 [0.486]	-0.284 [0.306]	-0.254 [0.296]
$\beta_{1856-1860}$	-0.0624 [0.145]	-0.152 [0.224]	-0.324 [0.316]	0.0465 [0.192]	-0.0696 [0.229]	-0.155 [0.350]	-0.0873 [0.160]	-0.0469 [0.141]
$\beta_{1866-1870}$	-1.528*** [0.322]	-1.476*** [0.372]	-1.513*** [0.407]	-1.543*** [0.415]	-1.433*** [0.410]	-2.160*** [0.579]	-1.569*** [0.577]	-1.424*** [0.524]
$\beta_{1871-1875}$	-1.772*** [0.462]	-1.743*** [0.522]	-1.841*** [0.575]	-1.618*** [0.556]	-1.651*** [0.526]	-2.206** [0.851]	-1.587** [0.598]	-1.713*** [0.524]
$\beta_{1876-1880}$	-1.902*** [0.521]	-1.745*** [0.568]	-1.963*** [0.651]	-1.538*** [0.564]	-1.623*** [0.557]	-2.320** [0.891]	-1.445** [0.568]	-1.626*** [0.515]
$\beta_{1881-1885}$	-1.483*** [0.449]	-1.347** [0.547]	-1.475** [0.653]	-1.221** [0.553]	-1.221** [0.542]	-2.160** [0.906]	-1.200** [0.520]	-1.320*** [0.473]
$\beta_{1886-1890}$	-1.394*** [0.390]	-1.199** [0.506]	-1.437** [0.621]	-1.095** [0.523]	-1.117** [0.526]	-1.895** [0.858]	-1.249*** [0.453]	-1.381*** [0.429]
$\beta_{1891-1895}$	-1.319*** [0.383]	-1.148** [0.511]	-1.457** [0.645]	-0.979* [0.527]	-1.008* [0.505]	-1.887** [0.736]	-1.346** [0.519]	-1.267** [0.508]
$\beta_{1896-1900}$	-1.391*** [0.325]	-1.210*** [0.451]	-1.489** [0.611]	-1.041** [0.481]	-1.188** [0.459]	-1.956*** [0.648]	-1.468*** [0.415]	-1.481*** [0.420]
$\beta_{1901-1905}$	-1.046** [0.403]	-0.848 [0.535]	-1.256* [0.723]	-0.530 [0.514]	-0.993* [0.523]	-1.523** [0.699]	-1.090** [0.489]	-1.055** [0.510]
$\beta_{1906-1910}$	-0.877** [0.424]	-0.705 [0.523]	-1.104 [0.687]	-0.412 [0.504]	-0.846 [0.558]	-1.249 [0.810]	-0.891** [0.377]	-1.117*** [0.391]
$\beta_{1911-1914}$	-1.009* [0.521]	-0.868 [0.573]	-1.234* [0.731]	-0.583 [0.551]	-0.972 [0.624]	-1.093 [0.846]	-0.815* [0.452]	-1.417*** [0.429]
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y	Y	Y
$\ln(\text{cotton}_o) \times t$			Y					
$\ln(\text{cotton manu}_o) \times t$				Y				
$\ln(\text{population}_o) \times t$					Y			
SITC industry _o $\times t$						Y		
Region _o $\times t$							Y	Y
$I(\text{Brit bank}_o) \times t$	Y	Y	Y	Y	Y	Y	Y	Y
Country _d	Y							
Country _{dt}		Y	Y	Y	Y	Y	Y	Y
N	67378	67378	67378	67378	55391	49006	49006	67378
Clusters	129	129	129	129	54	48	48	129
Adj. R ²	0.530	0.530	0.531	0.531	0.545	0.559	0.558	0.532

Notes: Table E8 reports the point estimates for the long-term effects of the credit shock on the value of country-level exports. The dependent variable is the log value of exports from origin country o to destination country d . Baseline controls are the log distance between country o and country d . Cotton, cotton manufactured goods, and population are calculated in 1865 and interacted with the 5-year dummies. Countries that did not export cotton are given ln values of zero. Controlling for pre-crisis population and the SITC industry of exports reduces the sample size to countries that were exporting pre-crisis. Column 7 artificially restricts the sample to countries with SITC codes available. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E9: Long-term effects: robustness to gravity measures of commonality

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{odt} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\beta_{1850-1855}$	-0.340 [0.322]	-0.259 [0.306]	-0.227 [0.315]	-0.324 [0.334]	-0.264 [0.324]	-0.273 [0.316]
$\beta_{1856-1860}$	-0.203 [0.234]	-0.139 [0.221]	-0.186 [0.239]	-0.157 [0.228]	-0.139 [0.226]	-0.235 [0.239]
$\beta_{1866-1870}$	-1.452*** [0.329]	-1.537*** [0.342]	-1.163*** [0.391]	-1.491*** [0.306]	-1.535*** [0.347]	-1.221*** [0.379]
$\beta_{1871-1875}$	-1.732*** [0.502]	-1.797*** [0.522]	-1.383** [0.604]	-1.754*** [0.460]	-1.797*** [0.522]	-1.446** [0.595]
$\beta_{1876-1880}$	-1.709*** [0.558]	-1.803*** [0.571]	-1.407** [0.656]	-1.740*** [0.536]	-1.802*** [0.570]	-1.479** [0.653]
$\beta_{1881-1885}$	-1.290** [0.547]	-1.393** [0.556]	-1.033* [0.602]	-1.317** [0.544]	-1.391** [0.556]	-1.102* [0.595]
$\beta_{1886-1890}$	-1.113** [0.496]	-1.236** [0.499]	-0.869 [0.526]	-1.172** [0.500]	-1.236** [0.499]	-0.933* [0.527]
$\beta_{1891-1895}$	-1.079** [0.490]	-1.203** [0.503]	-0.847 [0.538]	-1.107** [0.491]	-1.203** [0.504]	-0.906* [0.535]
$\beta_{1896-1900}$	-1.154*** [0.423]	-1.269*** [0.429]	-0.905* [0.468]	-1.223*** [0.425]	-1.269*** [0.432]	-0.961** [0.466]
$\beta_{1901-1905}$	-0.789 [0.505]	-0.888* [0.509]	-0.587 [0.569]	-0.859* [0.498]	-0.885* [0.512]	-0.645 [0.566]
$\beta_{1906-1910}$	-0.640 [0.505]	-0.735 [0.503]	-0.437 [0.549]	-0.724 [0.503]	-0.738 [0.504]	-0.493 [0.551]
$\beta_{1911-1914}$	-0.842 [0.568]	-0.893 [0.554]	-0.610 [0.597]	-0.939 [0.572]	-0.900 [0.553]	-0.669 [0.601]
Common language	1.102*** [0.157]					
Common border		0.854*** [0.212]				
Common empire			1.741*** [0.162]			
Controls	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y
Common language \times t				Y		
Common border \times t					Y	
Common empire \times t						Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y
N	67378	67378	67378	67378	67378	67378
Clusters	129	129	129	129	129	129
Adj. R ²	0.547	0.534	0.557	0.547	0.533	0.557

Notes: Table E9 reports the coefficients every five years. The control variables are time-invariant and time-varying measures of distance standard to gravity estimations, such as common language. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E10: Long-term effects: robustness to monetary standard and conflict

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\beta_{1850-1855}$	-0.114 [0.430]	-0.280 [0.321]	-0.249 [0.377]	-0.260 [0.432]	-0.261 [0.336]	-0.243 [0.331]	-0.245 [0.342]
$\beta_{1856-1860}$	-0.308 [0.280]	-0.177 [0.228]	-0.110 [0.267]	0.0321 [0.283]	-0.0357 [0.197]	-0.141 [0.232]	-0.139 [0.219]
$\beta_{1866-1870}$	-1.527*** [0.426]	-1.581*** [0.382]	-1.693*** [0.384]	-1.488*** [0.410]	-1.368*** [0.427]	-1.472*** [0.369]	-1.460*** [0.373]
$\beta_{1871-1875}$	-1.865*** [0.626]	-1.887*** [0.510]	-1.992*** [0.486]	-1.745*** [0.535]	-1.553*** [0.579]	-1.735*** [0.523]	-1.726*** [0.524]
$\beta_{1876-1880}$	-1.966*** [0.690]	-1.875*** [0.562]	-1.992*** [0.555]	-1.739*** [0.615]	-1.550** [0.594]	-1.738*** [0.572]	-1.727*** [0.569]
$\beta_{1881-1885}$	-1.520** [0.680]	-1.472*** [0.548]	-1.595*** [0.608]	-1.341** [0.651]	-1.152** [0.556]	-1.344** [0.551]	-1.330** [0.547]
$\beta_{1886-1890}$	-1.337** [0.663]	-1.226** [0.538]	-1.444** [0.592]	-1.190* [0.614]	-1.005* [0.514]	-1.193** [0.511]	-1.182** [0.503]
$\beta_{1891-1895}$	-1.342* [0.684]	-1.142** [0.545]	-1.407** [0.582]	-1.164* [0.625]	-0.956* [0.534]	-1.141** [0.521]	-1.130** [0.512]
$\beta_{1896-1900}$	-1.386** [0.629]	-1.196** [0.466]	-1.448*** [0.530]	-1.200** [0.558]	-1.019** [0.483]	-1.202** [0.461]	-1.193*** [0.453]
$\beta_{1901-1905}$	-0.998 [0.736]	-0.789 [0.549]	-1.048* [0.590]	-0.839 [0.637]	-0.683 [0.531]	-0.842 [0.545]	-0.831 [0.537]
$\beta_{1906-1910}$	-0.840 [0.717]	-0.651 [0.541]	-0.924 [0.615]	-0.671 [0.622]	-0.521 [0.525]	-0.701 [0.528]	-0.686 [0.523]
$\beta_{1911-1914}$	-0.958 [0.741]	-0.795 [0.596]	-1.126* [0.658]	-0.875 [0.665]	-0.668 [0.564]	-0.863 [0.577]	-0.853 [0.573]
Controls	Y	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y	Y
Gold standard _o \times t	Y						
Silver standard _o \times t		Y					
Conflict (any) _o \times t			Y				
Conflict (interstate) _o \times t				Y			
Conflict (other) _o \times t					Y		
Country _{ot} war						Y	
Country-pair _{odt} war							Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y	Y
N	56937	56937	67378	67378	67378	67378	67378
Clusters	55	55	129	129	129	129	129
Adj. R ²	0.543	0.543	0.530	0.530	0.530	0.530	0.530

Notes: Table E10 reports the coefficients every five years. The monetary and conflict variables are binary variables taking a value of 1 if the exporting country had that characteristic in 1865 or 1866 and are interacted with year dummies. Column 6 controls for war in the origin country (including civil war) in any year, and Column 7 controls for war between dyadic pairs of countries in any year. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E11: Long-term effects: robustness to industry composition of exports

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\beta_{1850-1855}$	-0.291 [0.313]	-0.339 [0.402]	-0.229 [0.344]	-0.326 [0.397]	-0.378 [0.386]	-0.348 [0.318]	-0.166 [0.314]
$\beta_{1856-1860}$	-0.140 [0.226]	-0.362 [0.249]	-0.102 [0.233]	-0.334 [0.250]	-0.207 [0.233]	-0.256 [0.229]	-0.214 [0.217]
$\beta_{1866-1870}$	-1.380*** [0.361]	-1.630*** [0.442]	-1.620*** [0.389]	-1.500*** [0.479]	-1.735*** [0.426]	-1.469*** [0.445]	-1.456*** [0.369]
$\beta_{1871-1875}$	-1.517*** [0.477]	-2.028*** [0.605]	-1.788*** [0.516]	-1.751*** [0.643]	-2.022*** [0.557]	-1.813*** [0.511]	-1.724*** [0.520]
$\beta_{1876-1880}$	-1.549*** [0.532]	-2.152*** [0.668]	-1.759*** [0.537]	-1.750*** [0.701]	-2.036*** [0.590]	-1.799*** [0.548]	-1.735*** [0.565]
$\beta_{1881-1885}$	-1.183** [0.529]	-1.795*** [0.685]	-1.390** [0.558]	-1.388** [0.678]	-1.674*** [0.603]	-1.419*** [0.526]	-1.369** [0.541]
$\beta_{1886-1890}$	-1.094** [0.520]	-1.684** [0.675]	-1.303** [0.501]	-1.311** [0.621]	-1.558*** [0.574]	-1.209** [0.480]	-1.154** [0.518]
$\beta_{1891-1895}$	-1.064** [0.520]	-1.635** [0.684]	-1.208** [0.481]	-1.236** [0.631]	-1.443** [0.579]	-1.182** [0.496]	-1.101** [0.524]
$\beta_{1896-1900}$	-1.167** [0.454]	-1.693*** [0.622]	-1.145** [0.439]	-1.205** [0.563]	-1.479*** [0.527]	-1.293*** [0.421]	-1.182*** [0.449]
$\beta_{1901-1905}$	-0.840 [0.524]	-1.420** [0.696]	-0.700 [0.486]	-0.704 [0.616]	-1.010* [0.547]	-0.878 [0.545]	-0.791 [0.551]
$\beta_{1906-1910}$	-0.820 [0.509]	-1.291* [0.674]	-0.536 [0.500]	-0.544 [0.634]	-0.871 [0.601]	-0.834 [0.515]	-0.662 [0.535]
$\beta_{1911-1914}$	-0.963* [0.532]	-1.440** [0.699]	-0.668 [0.558]	-0.663 [0.701]	-1.051 [0.679]	-0.935 [0.588]	-0.781 [0.585]
Controls	Y	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y	Y
$\ln(\text{coffee}_o) \times t$	Y						
$\ln(\text{grains}_o) \times t$		Y					
$\ln(\text{bullion}_o) \times t$			Y				
$\ln(\text{alcohol}_o) \times t$				Y			
$\ln(\text{tobacco}_o) \times t$					Y		
Commodities share _o $\times t$						Y	
Export share to UK _o $\times t$							Y
I(Brit bank _o) $\times t$	Y	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y	Y
N	67378	67378	67378	67378	67378	62109	67378
Clusters	129	129	129	129	129	81	129
Adj. R ²	0.531	0.532	0.531	0.531	0.532	0.538	0.530

Notes: Table E11 reports the coefficients every five years. The industry-level exports are calculated in 1865 and interacted with the 5-year dummies. Countries that did not export a commodity are given ln values of zero. The Commodities share of exports is the fraction of goods exported in 1865 that are categorized as raw or primary products. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E12: Long-term effects: robustness to excluding cotton exporting countries

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\beta_{1850-1855}$	0.0141 [0.234]	-0.281 [0.358]	0.0470 [0.221]	-0.231 [0.328]	0.0783 [0.201]	-0.167 [0.311]
$\beta_{1856-1860}$	-0.0175 [0.153]	0.0118 [0.214]	-0.0715 [0.148]	-0.162 [0.227]	-0.0354 [0.143]	-0.104 [0.216]
$\beta_{1866-1870}$	-1.590*** [0.347]	-1.498*** [0.439]	-1.501*** [0.326]	-1.469*** [0.377]	-1.453*** [0.294]	-1.373*** [0.371]
$\beta_{1871-1875}$	-1.715*** [0.498]	-1.550** [0.606]	-1.744*** [0.468]	-1.737*** [0.524]	-1.710*** [0.426]	-1.656*** [0.505]
$\beta_{1876-1880}$	-1.789*** [0.556]	-1.439** [0.609]	-1.889*** [0.529]	-1.758*** [0.571]	-1.843*** [0.488]	-1.654*** [0.550]
$\beta_{1881-1885}$	-1.374*** [0.483]	-1.068* [0.588]	-1.498*** [0.456]	-1.374** [0.551]	-1.434*** [0.435]	-1.260** [0.534]
$\beta_{1886-1890}$	-1.330*** [0.427]	-0.940* [0.561]	-1.398*** [0.395]	-1.218** [0.510]	-1.342*** [0.387]	-1.117** [0.497]
$\beta_{1891-1895}$	-1.233*** [0.429]	-0.881 [0.573]	-1.325*** [0.390]	-1.174** [0.515]	-1.270*** [0.373]	-1.067** [0.502]
$\beta_{1896-1900}$	-1.319*** [0.363]	-0.966* [0.530]	-1.393*** [0.332]	-1.227*** [0.456]	-1.334*** [0.325]	-1.121** [0.444]
$\beta_{1901-1905}$	-0.903** [0.420]	-0.481 [0.559]	-1.038** [0.412]	-0.860 [0.541]	-0.971** [0.400]	-0.745 [0.527]
$\beta_{1906-1910}$	-0.750* [0.437]	-0.366 [0.552]	-0.863** [0.429]	-0.711 [0.528]	-0.796* [0.425]	-0.592 [0.508]
$\beta_{1911-1914}$	-0.883* [0.528]	-0.535 [0.592]	-1.041** [0.526]	-0.928 [0.574]	-0.917* [0.523]	-0.745 [0.555]
Controls	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y
excluding USA	Y	Y				
excluding Brazil			Y	Y		
excluding Egypt					Y	Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y
Country _d	Y		Y		Y	
Country _{dt}		Y		Y		Y
N	63851	63851	66381	66381	66570	66570
Clusters	128	128	128	128	128	128
Adj. R ²	0.524	0.524	0.531	0.531	0.530	0.530

Notes: Table E12 reports the coefficients every five years. Exports from the USA, Brazil, and Egypt are excluded in columns 1–2, 3–4, and 5–6, respectively. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E13: Long-term effects: robustness to excluding countries that may have experienced correlated shocks

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\beta_{1850-1855}$	-0.248 [0.330]	-0.264 [0.340]	-0.249 [0.341]	-0.248 [0.330]	-0.509 [0.348]	-0.562 [0.386]
$\beta_{1856-1860}$	-0.152 [0.224]	-0.218 [0.229]	-0.165 [0.227]	-0.152 [0.224]	-0.181 [0.240]	-0.284 [0.259]
$\beta_{1866-1870}$	-1.476*** [0.372]	-1.585*** [0.360]	-1.442*** [0.362]	-1.547*** [0.371]	-1.330*** [0.384]	-1.477*** [0.336]
$\beta_{1871-1875}$	-1.743*** [0.522]	-1.845*** [0.545]	-1.588*** [0.479]	-1.834*** [0.537]	-1.670*** [0.634]	-1.635*** [0.579]
$\beta_{1876-1880}$	-1.745*** [0.568]	-1.853*** [0.598]	-1.584*** [0.513]	-1.737*** [0.577]	-1.760** [0.724]	-1.544** [0.622]
$\beta_{1881-1885}$	-1.347** [0.547]	-1.463** [0.569]	-1.134** [0.463]	-1.305** [0.549]	-1.586** [0.664]	-1.340** [0.525]
$\beta_{1886-1890}$	-1.199** [0.506]	-1.364*** [0.503]	-1.093** [0.485]	-1.153** [0.505]	-1.390** [0.538]	-1.416*** [0.490]
$\beta_{1891-1895}$	-1.148** [0.511]	-1.311** [0.511]	-1.039** [0.499]	-1.125** [0.513]	-1.239** [0.575]	-1.270** [0.565]
$\beta_{1896-1900}$	-1.210*** [0.451]	-1.315*** [0.443]	-1.208*** [0.453]	-1.220*** [0.453]	-1.127** [0.476]	-1.250*** [0.475]
$\beta_{1901-1905}$	-0.848 [0.535]	-0.943* [0.534]	-0.947* [0.531]	-0.869 [0.541]	-0.569 [0.562]	-0.866 [0.595]
$\beta_{1906-1910}$	-0.705 [0.523]	-0.808 [0.523]	-0.876* [0.524]	-0.668 [0.525]	-0.746 [0.599]	-1.151* [0.622]
$\beta_{1911-1914}$	-0.868 [0.573]	-0.967* [0.576]	-1.114* [0.582]	-0.804 [0.574]	-1.085 [0.669]	-1.605** [0.669]
Controls	Y	Y	Y	Y	Y	Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y
Excl. Romania		Y				Y
Excl. Netherlands			Y			Y
Excl. Ottoman				Y		Y
Excl. France					Y	Y
N	67378	66767	65188	66520	64588	60929
Clusters	129	128	128	128	128	125
Adj. R ²	0.530	0.531	0.531	0.530	0.523	0.525

Notes: Table E13 reports the coefficients every five years. Exports from the Romania, the Netherlands, the Ottoman Empire, and France are excluded in columns 2-5, respectively. Column 6 shows the estimation with all four countries excluded. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E14: Long-term effects: robustness to contemporaneous financial crises

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\beta_{1850-1855}$	-0.298 [0.333]	-0.288 [0.342]	-0.247 [0.324]	-0.297 [0.336]	-0.288 [0.335]	-0.291 [0.336]	-0.288 [0.332]	-0.270 [0.327]
$\beta_{1856-1860}$	-0.152 [0.228]	-0.134 [0.219]	-0.118 [0.212]	-0.153 [0.228]	-0.140 [0.227]	-0.140 [0.227]	-0.115 [0.227]	-0.103 [0.226]
$\beta_{1866-1870}$	-1.410*** [0.401]	-1.397*** [0.405]	-1.437*** [0.397]	-1.411*** [0.401]	-1.428*** [0.404]	-1.422*** [0.404]	-1.419*** [0.407]	-1.443*** [0.397]
$\beta_{1871-1875}$	-1.724*** [0.538]	-1.701*** [0.537]	-1.757*** [0.545]	-1.741*** [0.540]	-1.761*** [0.546]	-1.725*** [0.541]	-1.724*** [0.542]	-1.707*** [0.549]
$\beta_{1876-1880}$	-1.713*** [0.581]	-1.697*** [0.574]	-1.717*** [0.574]	-1.739*** [0.587]	-1.732*** [0.595]	-1.685*** [0.580]	-1.712*** [0.583]	-1.683*** [0.589]
$\beta_{1881-1885}$	-1.242** [0.553]	-1.217** [0.548]	-1.278** [0.542]	-1.256** [0.553]	-1.260** [0.554]	-1.231** [0.549]	-1.260** [0.553]	-1.262** [0.551]
$\beta_{1886-1890}$	-1.126** [0.521]	-1.102** [0.515]	-1.188** [0.507]	-1.129** [0.520]	-1.161** [0.515]	-1.147** [0.516]	-1.127** [0.521]	-1.127** [0.518]
$\beta_{1891-1895}$	-1.084** [0.534]	-1.058** [0.525]	-1.140** [0.530]	-1.086** [0.531]	-1.109** [0.524]	-1.097** [0.526]	-1.060** [0.529]	-1.044* [0.533]
$\beta_{1896-1900}$	-1.229** [0.469]	-1.210** [0.464]	-1.248*** [0.462]	-1.232** [0.468]	-1.243*** [0.462]	-1.234** [0.464]	-1.234** [0.471]	-1.229** [0.474]
$\beta_{1901-1905}$	-1.038* [0.549]	-1.014* [0.540]	-0.971* [0.549]	-1.042* [0.548]	-1.057* [0.538]	-1.046* [0.540]	-1.033* [0.550]	-1.031* [0.552]
$\beta_{1906-1910}$	-0.832 [0.552]	-0.806 [0.542]	-0.748 [0.527]	-0.836 [0.551]	-0.868 [0.538]	-0.853 [0.539]	-0.836 [0.553]	-0.825 [0.551]
$\beta_{1911-1914}$	-0.920 [0.594]	-0.898 [0.585]	-0.839 [0.560]	-0.923 [0.593]	-0.956 [0.578]	-0.941 [0.580]	-0.926 [0.591]	-0.915 [0.589]
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y	Y	Y
Currency crisis _{ot}	Y							
Inflation crisis _{ot}		Y						
Stock mkt crisis _{ot}			Y					
Sovereign debt (domestic) _{ot}				Y				
Sovereign debt (external) _{ot}					Y			
Sovereign debt (any) _{ot}						Y		
Banking crisis _{ot}							Y	
Any crisis _{ot}								Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y	Y	Y
N	57305	57305	52480	57305	57305	57305	57305	57305
Clusters	62	62	44	62	62	62	62	62
Adj. R ²	0.543	0.544	0.545	0.543	0.544	0.544	0.544	0.544

Notes: Table E14 reports the coefficients every five years. Different types of financial crises are binary variables, which take the value of 1 if the exporting country is experiencing it in any given year. These are contemporaneous measures taken from Reinhart and Rogoff (2009). Data limitations reduce the number of observations. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E15: Long-term effects: robustness to financial crises in 1865

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$				
	(1)	(2)	(3)	(4)	(5)
$\beta_{1850-1855}$	-0.202 [0.325]	-0.314 [0.359]	-0.264 [0.330]	-0.306 [0.342]	-0.187 [0.356]
$\beta_{1856-1860}$	-0.0976 [0.214]	-0.203 [0.264]	-0.226 [0.240]	-0.234 [0.229]	-0.257 [0.245]
$\beta_{1866-1870}$	-1.352*** [0.431]	-1.541*** [0.399]	-1.248*** [0.417]	-1.419*** [0.406]	-1.340*** [0.399]
$\beta_{1871-1875}$	-1.621*** [0.538]	-1.941*** [0.432]	-1.634*** [0.548]	-1.769*** [0.524]	-1.657*** [0.504]
$\beta_{1876-1880}$	-1.608*** [0.566]	-1.958*** [0.446]	-1.701*** [0.588]	-1.754*** [0.572]	-1.642*** [0.535]
$\beta_{1881-1885}$	-1.179** [0.546]	-1.465*** [0.522]	-1.260** [0.551]	-1.253** [0.553]	-1.178** [0.547]
$\beta_{1886-1890}$	-1.063** [0.526]	-1.320** [0.505]	-1.111** [0.531]	-1.120** [0.523]	-1.074* [0.538]
$\beta_{1891-1895}$	-0.958* [0.527]	-1.281** [0.502]	-1.125** [0.524]	-1.069* [0.535]	-1.024* [0.535]
$\beta_{1896-1900}$	-1.110** [0.473]	-1.386*** [0.436]	-1.247** [0.474]	-1.229** [0.471]	-1.178** [0.482]
$\beta_{1901-1905}$	-0.883 [0.542]	-1.129** [0.522]	-1.140** [0.544]	-1.030* [0.549]	-0.969* [0.537]
$\beta_{1906-1910}$	-0.640 [0.540]	-0.909* [0.526]	-0.933 [0.565]	-0.827 [0.553]	-0.756 [0.557]
$\beta_{1911-1914}$	-0.726 [0.583]	-0.987* [0.582]	-0.990 [0.607]	-0.922 [0.592]	-0.852 [0.604]
Controls	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y
Inflation crisis _o \times t	Y				
Stock mkt crisis _o \times t		Y			
Sovereign debt crisis _o \times t			Y		
Banking crisis _o \times t				Y	
Any crisis _o \times t					Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y
N	57305	52483	57305	57305	57305
Clusters	62	44	62	62	62
Adj. R ²	0.544	0.545	0.544	0.543	0.543

Notes: Table E15 reports the coefficients every five years. Different types of financial crises are binary variables, which take the value of 1 if the exporting country is experiencing it in 1865, taken from Reinhart and Rogoff (2009), and interacted with year dummies. No country experienced a currency crisis or domestic sovereign debt crisis in 1865 so these are not reported. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E16: Long-term effects: robustness to borrowing from London Stock Exchange

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$\beta_{1850-1855}$	-0.249 [0.329]	-0.251 [0.330]	-0.251 [0.331]	-0.247 [0.330]	-0.248 [0.331]	-0.255 [0.331]
$\beta_{1856-1860}$	-0.152 [0.225]	-0.150 [0.224]	-0.155 [0.225]	-0.152 [0.224]	-0.150 [0.220]	-0.151 [0.224]
$\beta_{1866-1870}$	-1.495*** [0.391]	-1.470*** [0.384]	-1.415*** [0.382]	-1.385*** [0.395]	-1.433*** [0.374]	-1.457*** [0.372]
$\beta_{1871-1875}$	-1.775*** [0.548]	-1.785*** [0.546]	-1.712*** [0.538]	-1.671*** [0.541]	-1.751*** [0.532]	-1.723*** [0.526]
$\beta_{1876-1880}$	-1.808*** [0.586]	-1.817*** [0.583]	-1.752*** [0.567]	-1.715*** [0.577]	-1.744*** [0.573]	-1.792*** [0.571]
$\beta_{1881-1885}$	-1.376** [0.547]	-1.469*** [0.549]	-1.334** [0.532]	-1.373** [0.538]	-1.321** [0.564]	-1.375** [0.545]
$\beta_{1886-1890}$	-1.231** [0.503]	-1.229** [0.508]	-1.168** [0.500]	-1.193** [0.506]	-1.192** [0.512]	-1.220** [0.503]
$\beta_{1891-1895}$	-1.180** [0.510]	-1.117** [0.509]	-1.133** [0.510]	-1.138** [0.513]	-1.135** [0.511]	-1.161** [0.508]
$\beta_{1896-1900}$	-1.119** [0.465]	-1.127** [0.445]	-1.172*** [0.439]	-1.219*** [0.439]	-1.206*** [0.451]	-1.257*** [0.447]
$\beta_{1901-1905}$	-0.596 [0.536]	-0.714 [0.513]	-0.839 [0.537]	-0.934* [0.552]	-0.846 [0.558]	-0.914* [0.532]
$\beta_{1906-1910}$	-0.564 [0.569]	-0.789 [0.524]	-0.718 [0.516]	-0.727 [0.532]	-0.722 [0.549]	-0.748 [0.520]
$\beta_{1911-1914}$	-0.811 [0.616]	-1.000* [0.573]	-0.921* [0.547]	-0.904 [0.569]	-0.915 [0.578]	-0.916 [0.569]
Controls	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y
Sovereign debt _{ot}	Y					
Any equity _{ot}		Y				
Corporate debt _{ot}			Y			
Railway issuance _{ot}				Y		
Bank issuance _{ot}					Y	
Any industry issuance _{ot}						Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y
N	67378	67378	67378	67378	67378	67378
Clusters	129	129	129	129	129	129
Adj. R ²	0.531	0.531	0.530	0.530	0.530	0.530

Notes: Table E16 reports the coefficients every five years. Variables denoting borrowing on the London Stock Exchange are binary variables which take the value of 1 if the exporting country issued a given type of debt or equity each year. These data are taken from the Investor's Manual Monthly, discussed in Appendix 2. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E17: Long-term effects: robustness to composition of banks

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\beta_{1850-1855}$	-0.141 [0.350]	-0.271 [0.335]	-0.173 [0.341]	-0.258 [0.327]	-0.159 [0.349]	-0.129 [0.321]	-0.215 [0.322]
$\beta_{1856-1860}$	-0.0169 [0.250]	-0.0179 [0.259]	-0.0488 [0.221]	-0.136 [0.220]	-0.0133 [0.261]	0.0231 [0.209]	0.121 [0.234]
$\beta_{1866-1870}$	-1.361*** [0.421]	-1.739*** [0.435]	-1.575*** [0.403]	-1.604*** [0.414]	-1.448*** [0.398]	-1.669*** [0.421]	-1.762*** [0.437]
$\beta_{1871-1875}$	-1.554** [0.636]	-2.026*** [0.541]	-1.851*** [0.550]	-1.900*** [0.570]	-1.544*** [0.573]	-1.962*** [0.567]	-2.005*** [0.549]
$\beta_{1876-1880}$	-1.641*** [0.582]	-2.159*** [0.602]	-1.963*** [0.631]	-2.018*** [0.594]	-1.530*** [0.555]	-2.105*** [0.600]	-2.169*** [0.593]
$\beta_{1881-1885}$	-1.253** [0.558]	-1.722*** [0.627]	-1.616** [0.632]	-1.640*** [0.587]	-1.191** [0.534]	-1.763*** [0.614]	-1.790*** [0.629]
$\beta_{1886-1890}$	-1.154** [0.497]	-1.589*** [0.602]	-1.491** [0.618]	-1.482** [0.574]	-0.995** [0.493]	-1.632*** [0.609]	-1.686*** [0.606]
$\beta_{1891-1895}$	-1.091** [0.506]	-1.501** [0.588]	-1.450** [0.641]	-1.370** [0.553]	-0.934* [0.504]	-1.561** [0.603]	-1.565*** [0.596]
$\beta_{1896-1900}$	-1.155*** [0.440]	-1.540*** [0.527]	-1.510** [0.583]	-1.392*** [0.483]	-0.942** [0.460]	-1.568*** [0.536]	-1.635*** [0.537]
$\beta_{1901-1905}$	-0.783 [0.514]	-1.308** [0.548]	-1.166* [0.675]	-1.055* [0.537]	-0.644 [0.494]	-1.252** [0.600]	-1.406** [0.555]
$\beta_{1906-1910}$	-0.634 [0.503]	-1.190** [0.563]	-1.028 [0.661]	-0.904 [0.550]	-0.519 [0.512]	-1.072* [0.599]	-1.278** [0.572]
$\beta_{1911-1914}$	-0.788 [0.554]	-1.348** [0.620]	-1.207* [0.716]	-1.070* [0.605]	-0.690 [0.543]	-1.261* [0.657]	-1.448** [0.637]
Controls	Y	Y	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y	Y	Y
British banks _{ot}	Y						
Local banks _{ot}		Y					
French banks _{ot}			Y				
German banks _{ot}				Y			
US banks _{ot}					Y		
European (non-Brit) banks _{ot}						Y	
Total banks _{ot}							Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y	Y	Y
N	67378	67378	67378	67378	67378	67378	67378
Clusters	129	129	129	129	129	129	129
Adj. R ²	0.530	0.532	0.530	0.530	0.531	0.531	0.531

Notes: Table E17 reports the coefficients every five years. The composition of banks is given by the log of the total number of each type of bank, calculated every 5 years. Countries that did not have any of a type of bank are given ln values of zero. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E18: Correlation between bank failures and pre-crisis location characteristics:
additional industries

Panel A: SITC industries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Medicines (54)	-0.0899 [0.144]						
Animal & veg materials (29)		0.0810 [0.0467]					
Animal fats (42)			0.0822 [0.110]				
Non-ferrous metals (68)				0.00159 [0.0320]			
Misc (89)					0.0267 [0.0274]		
Meat (1)						-0.0242 [0.128]	
Cork & wood (24)							0.0913 [0.0722]
N	128	128	128	128	128	128	128

Panel B: SITC industries, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Dyes (53)	-0.0278 [0.131]					
Fish (3)		0.0239 [0.0790]				
Coal (32)			0.106*** [0.0230]			
Crude minerals (27)				-0.0194 [0.0278]		
Petroleum prod (33)					-0.0866 [0.128]	
Iron (67)						0.290*** [0.0779]
N	128	128	128	128	128	128

Panel C: SITC industries, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Metal manu (69)	0.0913*** [0.0225]					
Inorganic chem (52)		-0.0143 [0.0275]				
Organic chem (51)			-0.140 [0.126]			
Machinery (71)				0.0860*** [0.0170]		
Paper (64)					0.0970*** [0.0213]	
Metal ores (28)						-0.0738 [0.0610]
N	128	128	128	128	128	128

Panel D: SITC industries, continued

	(1)	(2)	(3)	(4)	(5)	(6)
Nonmetallic mineral manu (66)	-0.0143 [0.0333]					
Wood manu (63)		-0.0960 [0.123]				
Leather goods (61)			-0.0920 [0.0514]			
Rubber (23)				-0.0493 [0.0352]		
Soap (55)					-0.113 [0.0897]	
Clothing (84)						-0.0315 [0.0311]
N	128	128	128	128	128	128

Notes: Table E18 reports estimates from the bank-level regression of bank exposure to location characteristics pre-crisis on bank failure rates. The dependent variable is $\mathbb{I}(\text{Failure}_b)$, the measure of bank failure. The independent variable of interest \bar{X}_b is the share-weighted exposure of banks to location characteristics, normalized to have zero mean and unit variance. The coefficients are interpreted as the increase in the probability that a bank fails given a standard deviation increase in the average bank exposure to a particular characteristic. Regressions are weighted by each the average location's exposure to bank b . * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E19: Long-term effects: robustness to SITC industries

	$\ln(\text{Ex}_{odt}) = \beta_t F_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$				
	(1)	(2)	(3)	(4)	(5)
$\beta_{1850-1855}$	-0.389 [0.326]	-0.183 [0.345]	-0.421 [0.313]	-0.515 [0.349]	-0.468 [0.329]
$\beta_{1856-1860}$	-0.194 [0.241]	-0.0530 [0.212]	-0.196 [0.233]	-0.181 [0.240]	-0.171 [0.234]
$\beta_{1866-1870}$	-1.262*** [0.383]	-1.163*** [0.369]	-1.343*** [0.364]	-1.349*** [0.383]	-1.426*** [0.378]
$\beta_{1871-1875}$	-1.632*** [0.617]	-1.386*** [0.501]	-1.686*** [0.607]	-1.681*** [0.632]	-1.733*** [0.617]
$\beta_{1876-1880}$	-1.756** [0.725]	-1.493** [0.594]	-1.777** [0.693]	-1.774** [0.720]	-1.722** [0.676]
$\beta_{1881-1885}$	-1.564** [0.658]	-1.117** [0.531]	-1.679** [0.664]	-1.602** [0.655]	-1.454** [0.631]
$\beta_{1886-1890}$	-1.331** [0.552]	-1.019** [0.498]	-1.501** [0.576]	-1.420*** [0.535]	-1.324** [0.528]
$\beta_{1891-1895}$	-1.211** [0.583]	-0.930* [0.529]	-1.276** [0.564]	-1.277** [0.569]	-1.169** [0.576]
$\beta_{1896-1900}$	-1.152** [0.493]	-1.018** [0.484]	-1.273** [0.495]	-1.167** [0.474]	-1.124** [0.475]
$\beta_{1901-1905}$	-0.785 [0.607]	-0.906 [0.631]	-0.905 [0.622]	-0.664 [0.561]	-0.599 [0.548]
$\beta_{1906-1910}$	-0.875 [0.631]	-0.836 [0.583]	-0.995 [0.648]	-0.817 [0.598]	-0.741 [0.576]
$\beta_{1911-1914}$	-1.178* [0.691]	-1.031* [0.572]	-1.241* [0.671]	-1.118* [0.668]	-1.013 [0.646]
Controls	Y	Y	Y	Y	Y
I(Brit bank _o) \times t	Y	Y	Y	Y	Y
Country _o FE	Y	Y	Y	Y	Y
Country _{dt}	Y	Y	Y	Y	Y
Coal (32) _o \times t	Y				
Iron (67) _o \times t		Y			
Metal manu (69) _o \times t			Y		
Machinery (71) _o \times t				Y	
Paper (64) _o \times t					Y
N	67378	67378	67378	67378	67378
Clusters	129	129	129	129	129
Adj. R ²	0.530	0.532	0.530	0.530	0.530

Notes: Table E19 reports the coefficients every five years. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table E20: Long-term effects: robustness to GDP controls

$$(1) \ln(\text{Ex}_{odt}) = \beta_t F_o + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

$$(2) \ln(\text{Ex}_{odt}) = \beta_t F_o + \gamma_o + \gamma_d + \phi \ln(\text{GDP}_{dt}) + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

$$(3) \ln(\text{Ex}_{odt}) = \beta_t F_o + \gamma_o + \gamma_{dt} + \psi \ln(\text{GDP}_{ot}) + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

$$(4) \ln(\text{Ex}_{odt}) = \beta_t F_o + \gamma_o + \gamma_d + \psi \ln(\text{GDP}_{ot}) + \phi \ln(\text{GDP}_{dt}) + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

	(1)	(2)	(3)	(4)
$\beta_{1850-1855}$	-0.138 [0.301]	-0.0664 [0.375]	0.0362 [0.271]	0.519 [0.418]
$\beta_{1856-1860}$	-0.113 [0.185]	-0.206 [0.234]	-0.169 [0.187]	-0.0831 [0.268]
$\beta_{1866-1870}$	-1.189*** [0.268]	-1.102*** [0.299]	-1.165*** [0.255]	-1.125*** [0.238]
$\beta_{1871-1875}$	-1.512*** [0.408]	-1.770*** [0.411]	-1.473*** [0.380]	-1.809*** [0.382]
$\beta_{1876-1880}$	-1.480*** [0.448]	-1.544*** [0.452]	-1.315*** [0.415]	-1.377*** [0.442]
$\beta_{1881-1885}$	-1.112** [0.467]	-0.944 [0.592]	-0.920** [0.410]	-0.791 [0.587]
$\beta_{1886-1890}$	-1.008** [0.448]	-0.694 [0.605]	-0.800** [0.358]	-0.539 [0.563]
$\beta_{1891-1895}$	-0.980** [0.432]	-0.744 [0.632]	-0.813** [0.399]	-0.650 [0.614]
$\beta_{1896-1900}$	-1.072*** [0.381]	-0.369 [0.663]	-1.077*** [0.344]	-0.517 [0.685]
$\beta_{1901-1905}$	-0.785* [0.441]	-0.211 [0.639]	-0.964** [0.404]	-0.576 [0.681]
$\beta_{1906-1910}$	-0.619 [0.435]	-0.165 [0.631]	-0.729* [0.392]	-0.559 [0.631]
$\beta_{1911-1914}$	-0.703 [0.477]	-0.345 [0.655]	-0.794* [0.435]	-0.744 [0.678]
Controls	Y	Y	Y	Y
I(Brit bank _o) \times t	Y	Y	Y	Y
$\ln(\text{GDP}_{dt})$		Y		Y
$\ln(\text{GDP}_{ot})$			Y	Y
Country _o FE	Y	Y	Y	Y
Country _d FE		Y		Y
Country _{dt} FE	Y		Y	
N	66791	43266	44231	24794
Clusters	129	129	34	34
Adj. R ²	0.531	0.548	0.573	0.600

Notes: Table E20 reports the coefficients every five years. Specifications for each column are written at the top. Standard errors in brackets are clustered by the origin country. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

E.2.2 Dropping countries individually

Figure E3 plots the distribution of the estimated coefficients as well as the distribution of the associated p-values in estimations of the baseline long-run regression dropping countries individually.

Figure E3: Robustness to dropping each country individually

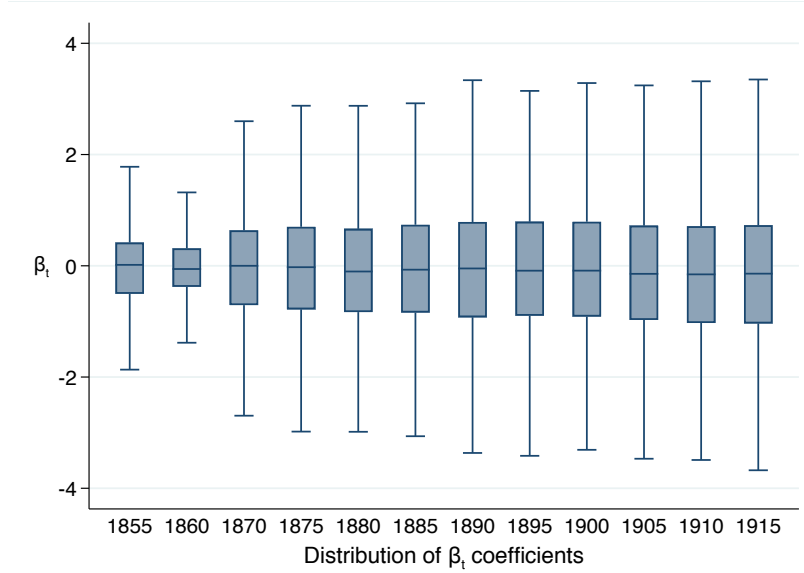


Notes: Figure E3 plots the median, 25th and 75th percentile (edges of the box), and lower and upper adjacent values for the frequency distribution of estimates of β_t from running 128 regressions, dropping one exporting country at a time in each regression. The end year for each β 's range of year is given on the x -axis (for instance, 1855 refers to $\beta_{1850-1855}$).

E.2.3 Placebo test

Figure E4 plots the distribution of coefficients for the placebo estimation where the true treatment is randomized and simulated in 1,000 regressions.

Figure E4: Treatment placebo

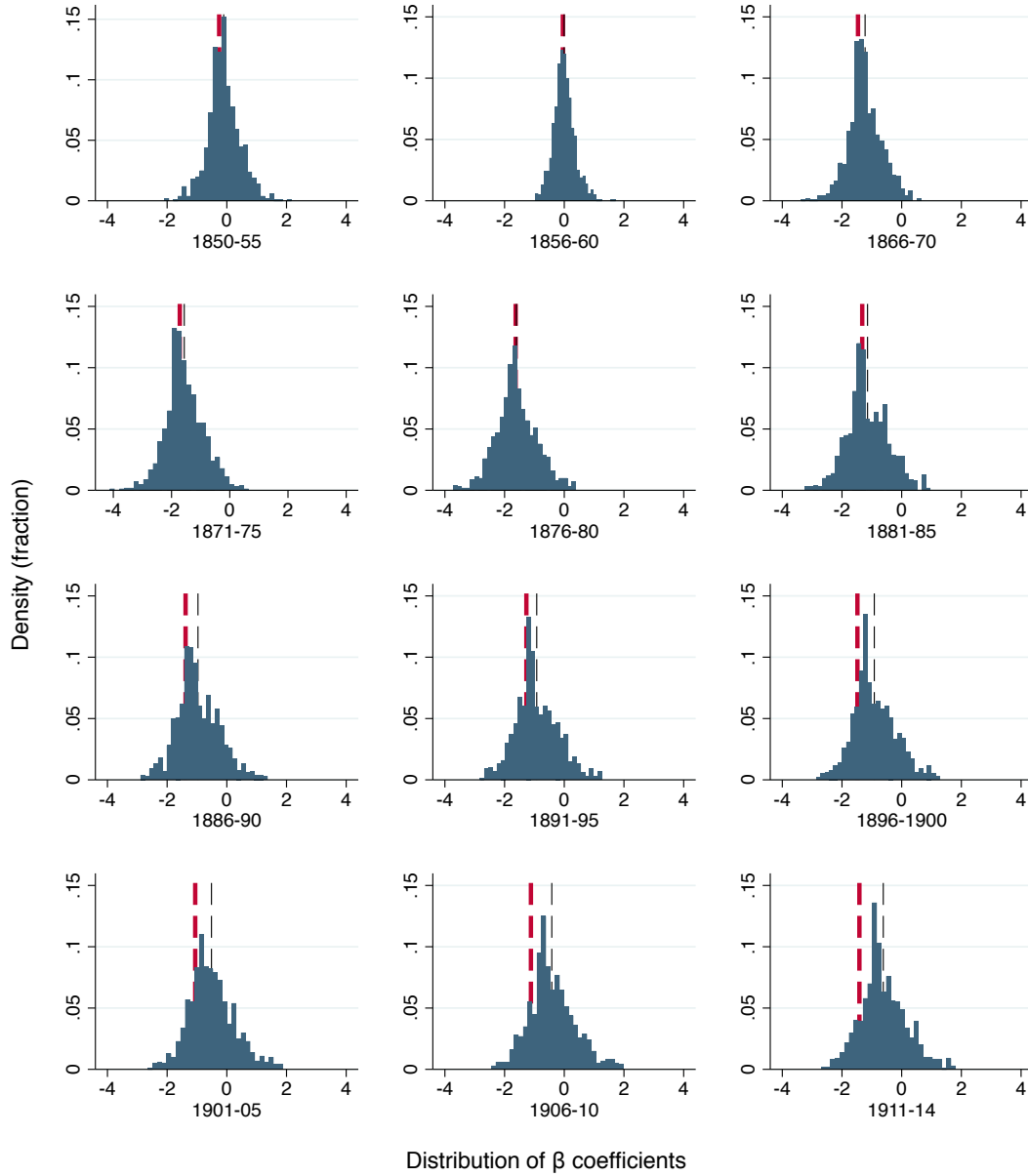


$$\ln(EX_{odt}) = \beta_t \text{Fail}_o + \Gamma' X_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

Notes: Figure E4 plots the median, 25th and 75th percentile (edges of the box), and lower and upper adjacent values for the frequency distribution of estimates of β_t from running 1,000 regressions on simulated data corresponding to equation 10 (above). The simulated data are generated from randomly replacing the country-level exposure to failure Fail_o with the exposure from another country. The end year for each β 's range of year is given on the x -axis (for instance, 1855 refers to $\beta_{1850-1855}$).

E.2.4 Robustness of within-region effects

Figure E5: Country region placebo



$$\ln(\text{EX}_{odt}) = \beta_t \text{Fail}_o + \Gamma' \text{Region}_{ot} + \gamma_o + \gamma_{dt} + \theta_t \ln(\text{dist})_{od} + \varepsilon_{odt}$$

Notes: Figure E5 plots the frequency distribution of estimates of β_t from running 1,000 regressions corresponding to equation 10 (above) including origin-country region-year fixed effects, where the origin-country is randomly assigned to a geographic region. The x -axis of each subfigure plots the magnitude of the estimates for each group of years. The baseline impact of exposure to bank failures on exports, estimated in column 8 of Table E8, is plotted as the thicker red dashed line, while the mean placebo estimate (averaging across the 1,000 estimates) is plotted as the thin black dashed line.

F Data sources & definitions

F.1 Index of variables

Variable	Definition	Construction	Data sources
z_{lbt}	Importance of bank b 's bills in location l at time t	$\frac{bills_{lbt}}{\sum_b bills_{lbt}}$	BoE discount ledgers
$Fail_b$	Failure rate of bank b	Indicator	Newspapers
$Fail_o$	Failure rate of banks in origin country o	$\sum_b z_{ob,pre} \times I(\text{Failure}_b)$	BoE discount ledgers
$Fail_{po}$	Failure rate of banks in port p in origin country o	$\sum_b z_{pob,pre} \times I(\text{Failure}_b)$	BoE discount ledgers
$Fail_{other,o}$	Average failure rate of other ports in country o for given port p	Average($Fail_{p'o}$ for $p' \neq p, p \in o$)	BoE discount ledgers
Region $Fail_{-o,t}$	Average failure rate of other countries $-o$ for given country o in Region at time t	Average ($Fail_{o'}$ for $o' \neq o, o \in \text{Region}$)	BoE discount ledgers
S_{ot}	Exports (proxied by number of ships) from origin country o in period t	Count of number of ships in period	Lloyd's List
S_{pot}	Exports (proxied by number of ships) from origin port p in country o in period t	Count of number of ships in period	Lloyd's List
EX_{odt}	Value of exports from origin country o to destination country d in year t	Value in nominal pounds sterling	Historical trade database

F.2 Data constructed

Bank financial characteristics

I gathered the banks' 1865 and 1866 balance sheets and histories from annual reports published in *Banker's Magazine*, *Banking Almanac and Directory*, and *The Economist*. These data include their age, capital (equity financing), leverage ratio, and reserve ratio. Publicly traded banks did not consistently publish balance sheets until 1890, and even then only half the private banks did so (Michie, 2016). Prior to that legislation, banks had complete freedom over whether they publicly disseminated their balance sheets, so this information is not available for all banks.

Bank qualitative characteristics

The narrative evidence on bank management practices, risk-taking, and account of the crisis come from thousands of pages of summaries and transcripts of bi-annual general shareholder meetings published in *Banker's Magazine* and *The Economist* in the years 1865–1867.

Overend & Gurney shareholder connection

The full shareholder list for Overend & Gurney was obtained from the Lloyds Banking Group archives in Edinburgh, Scotland and dates from January 1, 1866. This was the last list to be published before the firm’s bankruptcy, and it is the one that was disseminated during the crisis. The names of the managers and directors of the banks were obtained from the shareholder meeting records and newspaper advertisements published in *Banker’s Magazine*, *Banking Almanac and Directory*, and *The Economist*.

Port-level panel of trade

The source for the port-level is the daily publications of the *Lloyd’s List* newspaper. *Lloyd’s* employed agents in ports around the world to gather information on international shipping activity to send back to London. The primary consumers of this newspaper were insurance agents, merchants, and family members of ship crews. The reporting in *Lloyd’s List* is organized by port, based on the distance to London spiraling outwards. Under each port, ships are listed individually with their name, their captain’s name, type of ship, whether they arrived to the port or sailed from it, the destination of their movements, and the date of the event. Coastal (i.e. domestic) trade was omitted from the records for non-British ports. *Lloyd’s* also usually listed the date the intelligence was sent, as there was often a lag between then and when it would have been received for publication.

Processing the scans of the original prints required a labor-intensive combination of OCR (Optical Character Recognition), python word processing, and manual data entry. Almost 420,000 unique shipping events were processed. *Lloyd’s List* is very geographically precise, so ports located within 10 kilometers of each other are aggregated into one port unit. An example is that Cape of Good Hope is distinguished from Cape of Good Hope Point, which are in the same bay. Ports that were aggregated into the same geographic unit are matched to the same city for banking services.

Country-level panel of trade

The country-level panel of bilateral trade includes over 68,000 observations for 130 countries from 1850-1914. The sources are Pascali (2017), Dedinger and Girard (2017), and Fouquin and Hugot (2016), along with the *Statistical Tables* published by the United Kingdom and United States. Measures of bilateral resistance between countries, such as common language, land border, and common colonial background were taken from Fouquin and Hugot (2016). I recalculate geodesic distance based on the center of the standardized pre-WWI country borders. Measures of GDP and population from Fouquin and Hugot (2016) were also recalculated to reflect those borders.

Industry composition of exports

I collected the composition of exports by country pre-crisis from the *Statistical Tables relating to Foreign Countries* and *Statistical Tables relating to the Colonial and Other Possessions of the United Kingdom* published in 1866. Values of exports by types of goods were converted from various currencies into nominal pounds sterling as necessary. The types of goods were manually standardized according to Standard International Trade Classification (SITC) codes version 4. Appendix figure B5 lists the value of exports by SITC category.

Sailing distances between ports

The sailing distance between ports is reported in nautical miles in the *Philips' Centenary Mercantile Marine Atlas II* published in 1935. Distances for different sailing routes are given, but I exclude the Suez Canal route because it was not open until 1869. The routes that are allowed include the Kiel Canal, Cape of Good Hope, Strait of Magellan, Cape Horn, and Torres Strait.

City-level panel of banks

I gathered the names and city-level locations of all banks operating around the world from 1850-1913 using the annual editions of the *Banking Almanac*. The data from 1861-1867 are annual; for the rest of the period I digitized almanacs at 5-year intervals. These records make it possible to observe the operations of non-British banks throughout the entire period. Nationalities are not given in the original source, so I assign bank nationalities based on the locations of their headquarter offices (when known), the source of their capital (usually given in their individual histories), and their names and areas of operation. This dataset contains over 55,000 unique bank-location observations.

F.3 Data collected

Conflicts

I use Sarkees and Wayman (2010) from the Correlates of War project for data on inter-state, intra-state, and extra-state conflicts from 1850–2014 to document conflicts within the exporter-country and between country-pairs. For inter-state wars, I standardize country borders to coincide with pre-WWI borders, the same way as in the panel of trade data. Wars that occurred within one country's borders (for instance, the Second Italian War of Independence in which regions of Italy fought each other) are included as a conflict for the exporting country, but is not included in the dyadic war variable because the outcomes do not include own-country trade. Intra-state conflicts are recorded as a war within the state where it is occurring (for instance the United States for the US Civil War). Extra-state conflicts are recorded as a war for the official state and are not included in the dyadic calculations of conflict.

In the pre-period balance checks in Table 3, I include all conflicts that occurred or were ongoing in 1865 and 1866. There are 11 countries involved in inter-state conflicts, 3 in intra-state conflicts, and 2 in extra-state conflicts. These include the Paraguayan War (Paraguay, Argentina, Brazil, Uruguay), Austro-Prussian War (Austria-Hungary, Germany), Chincha Islands War (Spain, Peru, Chile), Second French intervention in Mexico (France, Mexico), Third Italian War of Independence (Italy, Austria-Hungary), Taiping Rebellion (China), Cretan Revolt (Ottoman Empire), United States Civil War (USA), Polish Rebellion in Siberia (Russia), Bhutan War (United Kingdom).

Monetary standard

I gathered the data on the monetary standard of each country in 1866 using published monetary histories or the wikipedia article for each country's historical currency. In cases, like

in the British West Indies, when the official currency (pegged to the pound in gold) circulated alongside unofficial currencies (like the Spanish pieces of eight in silver), I categorized the country as being “bimetallic.” The results are not sensitive to being categorized by the official currency (gold in this case).

Crises

The sovereign debt, currency, and banking crises used in the controls come from Reinhart and Rogoff (2009).

F.4 Country abbreviations

Country	ISO code	Region	British Empire
Australia	AUS	OCEA	1
Austria-Hungary	AUTHUN	ESTEUR	0
Azores	AZORES	STHEUR	0
Belgium	BEL	NWEUR	0
Brazil	BRA	STHAM	0
British Guiana	GUY	STHAM	1
British West Indies	GBRWINDIES	CARIB	1
Canada	CAN	NORAM	1
Cape of Good Hope	ZAF	STHAFR	1
Ceylon	LKA	STHASI	1
Chile	CHL	STHAM	0
China	CHN	ESTASI	0
Colombia	COL	STHAM	0
Cuba	CUB	CARIB	0
Curacao	ANT	CARIB	0
Danish West Indies	VIR	CARIB	0
Denmark	DNK	SCANDI	0
Egypt	EGY	NORAFR	0
France	FRA	NWEUR	0
Germany	DEU	NWEUR	0
Gibraltar	GIB	STHEUR	1
Greece	GRC	STHEUR	0
Guatemala	GTM	CTRAM	0
Hong Kong	HKG	ESTASI	1
India - British Possessions	GBRIND	STHASI	1
Italy	ITA	STHEUR	0
Jamaica	JAM	CARIB	1
Japan	JPN	ESTASI	0
Java	IDN	STHASI	0
Malta	MLT	STHEUR	1
Mauritius	MUS	STHAFR	1
Mexico	MEX	CTRAM	0

Netherlands	NLD	NWEUR	0
New Zealand	NZL	OCEA	1
Norway Sweden	SWENOR	SCANDI	0
Panama	PAN	CTRAM	0
Persia	IRN	MIDEST	0
Peru	PER	STHAM	0
Philippines	PHL	STHASI	0
Poland	POL	ESTEUR	0
Portugal	PRT	STHEUR	0
Puerto Rico	PRI	CARIB	0
Romania	ROU	ESTEUR	0
Russia	RUS	ESTEUR	0
Siam	THA	STHASI	0
Sierra Leone	SLE	WSTAFR	1
Spain	ESP	STHEUR	0
St Helena	SHN	STHAFR	1
Straits Settlements	STRAITS	STHASI	1
Trinidad and Tobago	TTO	CARIB	1
Turkey	OTTO	MIDEST	0
USA	USA	NORAM	0
Uruguay	URY	STHAM	0
Venezuela	VEN	STHAM	0

F.5 Other references

Bagehot, Walter. 1873. *Lombard Street: a description of the money market*. Scribner, Armstrong & Company.

Cameron, A. Colin, and Douglas L. Miller. 2014. “Robust inference for dyadic data.” Working paper.

Cassis, Youssef. 2016. “Private banks and private banking.” *The Oxford Handbook of Banking and Financial History*, 87–109.

Dedinger, Béatrice, and Paul Girard. 2017. “Exploring trade globalization in the long run: The RICardo project.” *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 50(1): 30–48.

Fouquin, Michel, and Jules Hugot. 2016. “Two centuries of bilateral trade and gravity data: 1827-2014.” Universidad Javeriana-Bogotá.

Jones, Geoffrey. 2000. *Merchants to multinationals: British trading companies in the nineteenth and twentieth centuries*. Oxford University Press.

Juhász, Réka, and Claudia Steinwender. 2017. “Drivers of fragmented production chains: Evidence from the 19th century.” working paper.

King, Wilfred T.C. 1936. *History of the London discount market*. Routledge.

- Michie, Randal C.** 2016. *British banking: continuity and change from 1694 to the present*. Oxford University Press.
- Pascali, Luigi.** 2017. “The wind of change: Maritime technology, trade and economic development.” *American Economic Review*, 107(9): 2821–2854.
- Reinhart, Carmen M., and Kenneth S. Rogoff.** 2009. *This time is different: eight centuries of financial folly*. Princeton University Press.
- Sarkees, Meredieth Reid, and Frank Wayman.** 2010. *Resort to war: 1816-2007. Correlates of War*. Washington DC: CQ Press.