CULTURAL STEREOTYPES OF MULTINATIONAL BANKS

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Abstract
Cultural trust biases (i.e., stereotypes) play an important role in shaping multinational banks' cross-border exposures. Exploiting a unique identification strategy and combining European regulatory data on banks' sovereign debt portfolios with existing and new surveys across 30 European countries, we show that multinational banks are more likely to lend to the government of a country when the residents of the countries where they operate exhibit more trust in the residents of that country. This result is robust to saturating our models with time-varying fixed effects at bank and country-pair levels, controlling for financial, informational, political and cultural linkages, and instrumenting trust via genetic and somatic similarities. Bank-level trust similarly drives corporate lending across borders and tilts banks' sovereign portfolios toward long-term maturities. Its role is amplified when governments are hit by salience shocks such as Eurozone crises and the Brexit referendum. As potential transmission channels of stereotypes from foreign bank branches to headquarters, we provide evidence consistent with culturally biased communication and internal transfers of human capital. (JEL: F34, G11, G21, G41, M14, Z10)

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Teaching Slides

A set of Teaching Slides to accompany this article is available online as Supplementary Data.

1. Introduction

Bilateral trust—the trust placed by residents of one country in the residents of another—has been shown to importantly influence international trade, foreign direct investment, portfolio allocations, and venture capital investment across countries (see, e.g., Guiso, Sapienza, and Zingales 2009). In this paper, we show that trust biases (i.e., stereotypes) also shape multinational banks' cross-border investments .[1]

We combine regulatory data on banks' investments in European sovereign debt with survey data on how much residents of European nations trust one another. By exploiting branch networks, we construct bank-specific measures of trust that differ across target countries of potential investment. This enables us to abstract from potential confounders at the country and bank levels.

As our focus is on variation across banks headquartered in the same home country facing the same target country of investment at the same point in time, we have a more convincing identification strategy than earlier studies of the impact of trust. We are also the first to systematically study how cultural trust stereotypes may play out in markets for government bonds. Since these are generally considered as the safest asset category, it is unlikely that our results are driven by differences in rational risk perceptions across banks. We further document the mechanisms through which cultural biases may spread from foreign bank branches to headquarters via internal communication and human capital transfers within banks. Last but not least, by conducting a new online survey of bilateral trust in 30 European countries, we update and expand the measures in this literature that has relied exclusively on historic Eurobarometer surveys of bilateral trust.

Specifically, we find that when the residents of the countries where a multinational bank operates exhibit higher trust in the residents of another country, a bank is more likely to hold sovereign claims on that other country. This relationship holds for

1. In using the term "trust bias", we follow the recent literature that focuses on how citizens of a country view the citizens of another in terms of their trustworthiness (Pursiainen, 2022). In popular usage, the term "bias" or "stereotype" has negative connotations; it is seen as indicating an unfair or irrational prejudice for or (more typically) against someone or something. One could argue that trust might instead be a rational phenomenon if the trustee can optimally differentiate between different trustors in a way that justifies the initial trust or lack of it (Guiso and Makarin, 2020). While this could be the case for various types of exchanges across countries, such as trade or foreign direct investments, it is unlikely that the trustees in our setting (i.e., sovereigns) can reciprocate by differentiating their debt repayment behavior across different trustors (i.e., banks) in response to initial levels of trust. This is even less likely to be the case if those compared banks are all headquartered in the same foreign country, as will be explained in our identification strategy later. Throughout the rest of the text, we interchangeably use the terms "trust biases" and "stereotypes". See Online Appendix G for further discussion.

whether a bank holds any bonds of the country in question and, alternatively, for a continuous measure of the value of bonds held by the bank. We present evidence for both a communication channel and a human capital channel of cultural transmission within banks. Our results are consistent with local branch managers' tendency to communicate *biased* information up a bank's hierarchy and with banks' tendency to hire *internally* across borders for high-level managerial positions. To our knowledge, this is the first systematic evidence of the transmission of cultural biases via banks' branch networks.

Previous studies have utilized survey data aggregated to the country level. The limitation of such country-level evidence is that average levels of trust are almost certainly correlated with unobserved characteristics of country pairs, which creates an empirical challenge that the previous literature has long been aware of.[2] To rule out such latent factors, we construct a bank-specific measure of trust. Our main analysis thus focuses on banks operating in and lending to multiple countries. It assigns to bank branches operating in a country that country's trust biases toward other countries. We aggregate this measure to the bank level by calculating a weighted average, where weights are the share of host-country branches in the network of the multinational bank. We do this for each target country, across which host-country trust biases differ. Our measure of bank-level trust biases is therefore specific to both the bank and target country of potential investment.

When a bank has more positive cultural trust bias toward a target country, it is more likely to hold its sovereign debt. The relationship has been stable for more than a decade. It is economically important: a one standard deviation rise in bank-level trust bias increases the probability of investing in a target country by 14%. For a bank that would otherwise, following the dictates of capital-asset pricing theory, hold the market portfolio of sovereign bonds, this accounts for one-third of the observed diversification gap of 42% in our sample.

Our findings hold for alternative definitions of trust and obtain for both large and small banks. Placebo tests confirm that they are not mechanically created by the properties of our empirical setting. They are not driven by domestic (i.e., home-country) exposures, exchange rate fluctuations, observations for relatively weak sovereigns, or banks headquartered there. Cultural stereotypes based on the geography of bank branches are not picking up the direct influence of branches on sovereign debt investments.[3] Our results are not driven by the heterogeneity in local supervision of

2. In one of the first quantitative studies of cultural distance and cross-border firm outcomes, Kogut and Singh (1988) conclude: "Unquestionably a scale measuring the cultural characteristics at the firm level would be preferable. Yet, the collection of such data appears formidable at this time" (p. 427).

3. The existence of branches in a country may contribute to more bank lending to the government of that country insofar as bank branches are a mechanism for information acquisition and dissemination within the bank (Portes and Rey, 2005; Saka, 2020). A bank with more branches in a country may have more information about that country, encouraging it to assume additional exposure. Our results are intact when we parametrically control for branch penetration in linear and nonlinear ways and, more conservatively, when we focus only on foreign target countries where none of the compared banks has branch presence. Also related is Burchardi, Chaney, and Hassan (2019), who show that firms in a given US county are more

these banks; if anything, the relevant estimates are larger when limiting the sample to banks subject to the European Central Bank's Single Supervisory Mechanism (SSM). By controlling for a large vector of characteristics at the bank–target-country level, we rule out the possibility that our bank-level measure of trust is picking up other financial, informational, political, geographical, and institutional linkages between banks and target countries. Our results carry over when we instrument trust with the standard measures of genetic and somatic similarities between nations. Trust remains significant even when we control for cultural distance. This justifies the presumption that trust biases also have a *distinct* and *direct* relationship with cross-border exposures that cannot be fully captured by cultural proximity between banks and sovereigns.

In our baseline results, we use Eurobarometer data on bilateral trust of the residents of 15 European countries in 1996. That this same dataset is used by previous investigators facilitates comparisons. But we also conduct, expressly for this paper, a new nationally representative survey of the residents of 30 European countries in 2022. Responses to the two surveys conducted a quarter of a century apart are strongly correlated, consistent with the presumption that trust depends on deep-seated cultural factors that result in strong persistence. Conducting this new survey enabled us to gather responses for additional 15 European countries, raising the total to 30. Reassuringly, results carry over to this expanded sample, confirming the external validity of our findings.

One may question whether cultural stereotypes in banks' sovereign lending decisions also apply to other cross-country credit exposures. To address this, we collected cross-border corporate sector exposures disclosed by European Banking Authority (EBA). We again find a positive relationship between bank-specific trust toward a target country and bank lending to its corporations. This is consistent with evidence in Giannetti and Yafeh (2012) and Hagendorff, Lim, and Nguyen (2023), who document how culture plays a role in the syndicated loan market. This result again supports the external validity of our bank-specific measure of trust and illustrates its applicability to other settings.

In the penultimate section, we rationalize our bank-level measure of cultural trust using a framework of banks as hierarchies. In this framework, cultural stereotypes shape the soft information communicated by subordinates up the hierarchy to headquarters, where the broad parameters guiding portfolio investment decisions are set. Although we cannot directly observe confidential information sharing between bank branches and headquarters, we employ the global dataset on earning call sentiments of Hassan et al. (2024) to document a positive and significant correlation

likely to engage in direct investment in a foreign country when a larger share of county residents have ancestral roots in that country, a result they attribute to reductions in information frictions by illustrating that the same ancestral roots also predict Google searches related to that country. Here, we use two informational proxies regarding traditional media and social media derived from newspaper coverage in Factiva and friendship connections on Facebook (more appropriate to our setting; see Guiso et al., 2009; Pursiainen, 2022) to illustrate that such informational flows between countries do not drive our results.

between the country-specific tone in corporate managers' public communication and trust biases held by the residents in their country.

A complementary way of rationalizing our bank-level measure is by focusing on how information sent from branches in host countries is favorably received by directors at bank headquarters, insofar as the latter share the same stereotypes. The existence of shared stereotypes reflects the extent to which banks hire and promote internally across borders, such that the composition of bank boards and officers mirrors the geography of the bank's branch network. We provide empirical support for this framework, showing that foreign branch networks significantly predict the national composition of high-level managerial teams at bank headquarters including executive board and board of directors.

Following a review of literature in Section 2, we describe our data and model in Sections 3 and 4. In Section 5, we present our findings. Section 6 develops a framework of banks as organizational hierarchies and presents suggestive evidence for potential mechanisms. Section 7 concludes.

2. Literature

Our paper is related to several literatures. First, there is research on trust and financial transactions. Guiso, Sapienza, and Zingales (2004, 2008) show that less trusting individuals are less likely to use cheques or purchase stocks and more likely to hold their financial holdings in cash. Gennaioli et al. (2022) show that the incidence of insurance claims and their dispute, rejection, and payment are affected by average levels of interpersonal trust in the country where the insurance is extended. Hagendorff, Lim and Nguyen (2023) examine the corporate loan market and find that lenders whose CEO comes from an ancestral country characterized by high levels of trust charge lower interest rates on US syndicated loans.[4]

In the context of cross-border transactions, a series of studies utilize measures of bilateral trust based on survey data from Eurobarometer. In a seminal paper, Guiso, Sapienza, and Zingales (2009) show that more trust between countries is positively associated with levels of economic exchange such as trade, portfolio investment and foreign direct investment. Bloom, Sadun, and Van Reenen (2012) find that more bilateral trust correlates with more decentralization by multinational firms, which increases productivity. Bottazzi, Da Rin, and Hellmann (2016) argue that the

4. A related literature investigates the determinants of public trust in banks and financial institutions. Knell and Stix (2015) find that trust in banks is negatively related to individuals' direct experience with bank failures. Fungacova, Hasan, and Weill (2017) use data for 72 countries from the World Values Survey to establish that women, the wealthy, the young, the religious, and individuals with pro-market economic views place the most trust in banks. Other studies consider the consequences of such trust for individuals and banks themselves. Analyzing survey data from five Central European countries, Stix (2013) finds that individuals with less trust in banks have a stronger preference for cash relative to savings accounts. Bachas et al. (2021) show that debit cards can help individuals build trust in their banks by more easily having access to their accounts.

international investment decisions of venture capital firms are influenced by trust, especially in the case of early-stage investments. Pursiainen (2022) finds that stock recommendations are biased in favor of firms in countries more trusted by residents of the equity analyst's home country, again as measured by Eurobarometer.

As shown in our online appendix, similar country-level results carry over to the present case of bank holdings of sovereign bonds. But our analysis departs from these earlier studies in that we construct measures of trust at the individual bank level. We show that bank-level trust shapes bank lending to sovereigns even after controlling via fixed effects for unobservables that may vary across country pairs and over time.

Second, there is a literature on cultural proximity and international investments. Kogut and Singh (1988) examine how cultural distance, captured by cultural indices of Hofstede (1980), shapes foreign firms' choice of entry mode into the US. Siegel, Licht, and Schwartz (2011) employ the concept of egalitarianism constructed by Schwartz (1994) to show that cross-border bond and equity issuance is lower between nations differing on this dimension. Constructing cultural proxies from the World Values Survey, Giannetti and Yafeh (2012) find that greater cultural distance between the countries of a borrower and lender leads banks to offer borrowers smaller and more expensive loans, whereas Ahern, Daminelli, and Fracassi (2015) find that cultural distance reduces merger activity across borders. Finally, Karolyi (2016) documents the negative association of cultural distance with institutional portfolio holdings.[5]

Our focus is trust, not cultural distance or other cultural proxies such as language. We therefore document the unique role that trust plays in bank lending to governments, controlling separately for cultural distance. In addition, we highlight the acquisition and diffusion of cultural traits through branch networks and informational/managerial flows within multinational banks.[6]

Third, there is the literature on the determinants of banks' sovereign exposures. Broner, Martin, and Ventura (2010) show that the value of government bonds may depend on which banks hold these assets, since governments are less likely to default if local banks are expected to suffer adverse consequences. Sovereign bonds tend to move from foreign- to domestic-bank portfolios in times of crisis in anticipation of these incentives. Other scholars observe that governments engage in financial repression by forcing banks in their jurisdiction to hold domestic government bonds;

5. In addition, a large literature measures cultural proximity using the commonality of different indicators across countries. Grinblatt and Keloharju (2001), cited above, find that investors are more likely to buy, hold, and sell the stocks of firms that are located close by, that communicate in an investor's native language, and that have CEOs of their ethnic background. Sarkissian and Schill (2004) show that firms prefer listing their stock in the markets of countries that are culturally close to their home country (as proxied by language or historic colonial relationship). Mian (2006) documents that greater physical distance between a foreign bank's headquarters and local branches depresses lending by the latter. Using data from an Indian bank, Fisman, Paravisini, and Vig (2017) find that cultural distance between borrower and lender, as captured by religion and caste, reduces the quantity of credit. Accetturo et al. (2023), using data from South Tyrol, where two cultural and linguistic groups, German and Italian, coexist by law, show that firms are more likely to apply for loans from culturally and linguistically proximate banks.

6. See Fisman and Miguel (2007) for how cultural norms spread when legal environment is muted; Fernández and Fogli (2009) for the diffusion of culture in the domains of individual work and fertility.

this aggravates home bias in banks' sovereign debt portfolios.[7] Undercapitalization and risk shifting also may explain banks' sovereign exposures specifically in crisis periods (Acharya and Steffen, 2015; Crosignani, 2021). More broadly, information asymmetries limit the diversification of banks' sovereign debt portfolios (Saka, 2020; De Marco, Macchiavelli, and Valchev, 2021).

Our paper points to an additional determinant of banks' sovereign lending decisions not analyzed previously. It shows that cultural stereotypes play a role in the composition of sovereign debt portfolios in normal times and have an especially powerful role when governments encounter financial or political turbulence.

3. Data

Europe is a natural laboratory for our analysis. Its Single Market poses few economic or regulatory barriers to cross-border investment, for which one otherwise must control.[8] It has an EBA and an SSM providing information on cross-border exposures and ensuring consistent application of regulations and supervisory policies. Levels of trust reported by residents of one European country in another vary widely. Qualitative accounts from the euro crisis and the Greek sovereign debt crisis emphasize trust, or lack thereof—of, inter alia, of Germans in Greeks and Greeks in Germans—as complicating orderly resolution.[9] The fact that European banks held Greek government bonds, and that those holdings were concentrated in the portfolios of some countries' banks but not others, complicated efforts to resolve the crisis. If cultural biases had an effect on these investment decisions and crisis-resolution efforts, it is important to recover their role.

Our data on bank-level debt portfolios are from the EBA. EBA first provided these disclosures in 2010 in response to the Eurozone debt crisis. Subsequently, it provided information at the consolidated parent-bank level biannually. We collect these data from CEBS and EBA websites.[10] Online Appendix Table A.1 documents the dates of

7. Such "moral suasion" by governments toward domestic banks has been investigated in the context of the Eurozone debt crises (see, among others, Becker and Ivashina, 2017; Ongena, Popov, and van Horen, 2019).

8. This is especially true for sovereign exposures, which are the focus of our paper. European banks are exempt from requirements to hold additional capital against their sovereign exposures to EU member states. European Systemic Risk Board (2015, p. 15) describes the relevant history. Hence regulatory treatment of sovereign exposures that we use in our sample is mostly homogenous across countries and sample period.

9. Thus, in March 2015, Reuters quoted German Finance Minister Wolfgang Schaeuble as saying that "the new Greek government (led by Syriza) had "destroyed all the trust that had been rebuilt" by its predecessors. A subsequent article also by Reuters, describes a German parliamentarian refusing to support financial assistance for Greece, saying "he has lost all trust in the Athens government...."

10. As the predecessor of the EBA, the Committee of European Banking Supervisors (CEBS) comprised of senior representatives of bank supervisory authorities and central banks of the European Union. The 2010 exercise was undertaken by CEBS and made public by national regulators; however, EBA does not provide the related data on its website. Hence, we obtain this first disclosure from the Peterson Institute

each disclosure alongside information on how many banks were included and which year-quarters sovereign portfolio information relates to.

Not all banks provide the full breakdown of their sovereign bond portfolios. In particular, the 2016 and 2017 exercises (derived from regulatory FINREP data at EBA) required banks to disclose country breakdowns only if they had more than 10% nondomestic exposures in their sovereign debt portfolios.[11] In addition, twelve banks in 2016 reported to EBA on an individual basis and thus did not provide a country breakdown. The introduction of EBA's COREP data disclosure framework from 2018 onward increased the coverage of banks with sovereign breakdowns and also brought finer granularity.[12] For each disclosure exercise, we thus consider banks that report the country breakdown of their sovereign portfolio and drop those reporting aggregate information.[13] In total, there are 14 different exercises with balance-sheet information on 22 distinct year-quarters for 62–131 banks at each point in time.

Because banks open, merge, and close, they must be traced over time.[14] To track and merge banks in a consistent manner, we use Legal Entity Identifiers (LEI) provided by EBA in some of the disclosures as well as Google searches and enquiries via SNL Financial. The result is an unbalanced panel of 199 banks headquartered in 27 European countries across 22 periods.[15] These data distinguish holdings of sovereign

for International Economics (PIIE), while all other data sets are manually accessed via the EBA. EU banks' exposures constitute around 20% of the total sovereign debt market (S&P Global, 2023), and EBA disclosures cover banks that would add up to 65% of the banking assets in Europe (Saka, 2020). Hence, our sample comprises around 13% (20% × 65%) of the sovereign debt market in Europe.

11. We show later that it is indeed banks that are under-diversified in their sovereign debt portfolios that tend to rely more on trust in their lending decisions to sovereigns. Hence, excluding such banks in 2016 and 2017 biases our estimates toward failing to reject our null hypothesis.

12. In the words of an EBA officer contacted via email: "Since 2016, data is exclusively based on supervisory reporting: the Transparency templates are therefore populated by the EBA using the data collected through the regular supervisory reporting data, without any additional reporting burden on the banks. As the reporting framework has changed and enhanced through the years, you may notice a consequent evolution of the Transparency templates. In particular, in 2016 the sovereign templates were based on FINREP data. In 2018, the introduction of sovereign data in COREP has allowed for a more granular disclosure, but also some discontinuity of the series with respect to the previous exercises."

13. Below, we confirm that our results are not driven by a particular period or set of periods. Our estimates are actually smaller for the period 2016–2018 when the country composition of the banks' sovereign debt portfolios was limited, consistent with the intuition that granularity is necessary for identifying the relationship between trust and bank lending to governments.

14. The European banking industry went through a major consolidation during our sample period (Boer and Portilla, 2020). Hence, when banks in our sample merge, consolidate with a different parent bank, or go bankrupt, they drop from the sample, and new banks are added. We treat an entity as unchanged (even if its official name changes) unless it is acquired by another main entity or merges, creating an independent third entity.

15. Countries (which will later be referred to as "home countries") are Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, and the United Kingdom.

bonds of 30 European countries.[16] To our knowledge, this is the only dataset in which the breakdown of sovereign debt portfolios can be systematically traced over time for a large panel of banks.[17]

We merge these bank-level data with country-level surveys of bilateral trust from Eurobarometer. This restricts the banks' home and target observations to 15 European countries.[18] The result is an unbalanced sample of 159 banks whose debt portfolios are observed over 22 year-quarters. For the analysis of bank-level trust, the sample further declines to 108 banks, for which we can observe European branch networks on SNL Financial.[19] The outcome variable is constructed using the definition of "Gross Direct Long Exposures" (composed of banking and trading books directly owned by banks), the only category consistently found across all EBA and CEBS disclosures.[20]

Information on bilateral trust is gathered from two distinct sources more than a quarter century apart: Eurobarometer and a new large-scale nationally representative survey across 30 European countries undertaken expressly for this paper.[21] The specific question included in the early editions of Eurobarometer and in our new survey is: *I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you have a lot of trust, some trust, not very much trust, or no trust at all.* Following Bloom et al. (2012) and Pursiainen (2022), we focus on the last Eurobarometer survey wave (i.e., 1996) when this question was asked. Our benchmark definition of country-level bilateral trust corresponds to the percentage of people in a home country expressing "a lot of trust" toward people in

16. Most disclosures provide the full country breakdown of each bank's sovereign debt portfolio for up to 200 countries. In order to establish consistency across disclosures, only the exposures to 30 European countries are included in the sample. These (which will later be referred to as "target countries") are Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom. Another reason for restricting target countries is that our main independent variable, trust bias derived from Eurobarometer surveys, is only available across 15 of these European countries. Robustness checks with a more comprehensive and recent survey of our own consider all 30 European countries and produce qualitatively similar results.

17. An earlier version of this dataset (up to year 2015) is used in Saka (2020). Similar information can be found in the proprietary data set at the European Central Bank (see Ongena, Popov, and Van Horen, 2019). However, compared to EBA data, ECB covers banks from a smaller subset of countries (only for Eurozone) and provides only a broad classification of countries represented in sovereign debt portfolios (that is, domestic vs. foreign) instead of full country breakdowns. Since our identification strategy builds on variation across foreign exposures, the EBA dataset is ideal for our setting.

18. These are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom. See Online Appendix Table A.4.

19. A full list of banks used in country-level or in bank-level analyses (those with branch information available) alongside the dates on which their sovereign portfolio information is available is in Online Appendix F.

20. We manually collect additional data from EBA on corporate exposures as well as the maturity breakdown of sovereign exposures. These details are only available for a subset of banks and disclosure exercises.

21. See Online Appendix Table D.1 for the country and respondent composition of our new survey.

a target country.[22] For our bank-level trust measure, we combine this country-pair-level data with branch networks of each bank, generating a time-invariant proxy of trust between each bank and each of these 15 (30) target countries when employing Eurobarometer (our new survey).

Data on branch networks of banks across European countries as a single snapshot are from SNL Financial (as of February 2016).[23] As a control variable in the country-level analysis, we compute the total number of bank branches in the target country of a bank that ultimately belong to a parent bank located in its home country.[24] For a subsample of banks included in EBA disclosures, we can directly associate bank branches at the bank–target-country level, which is what we use to construct both the measure of bank-level trust biases and the control variable employed in the bank-level analysis.[25]

Information on other variables and data sources is provided in Online Appendix A. Summary statistics for the main analysis in the paper are in Table 1, and those for the country-level analysis are reported in Online Appendix Table B.1. For the latter sample, the unconditional probability of exposure to a target country is 56%. Compared to a counterfactual with no frictions and full diversification in sovereign debt markets (i.e., unconditional probability = 1), this implies a diversification gap of 44%.[26] The

22. Our results are robust to alternative definitions such as that adopted by Guiso et al. (2009), which grades individual responses from 1 to 4 and then aggregates at the country-pair level. A summary of trust measures between home and target countries can be found in Online Appendix Tables A.4–A.5 for Eurobarometer and in Online Tables D.2–D.3 for the new survey.

23. This is the earliest date for which we can access a snapshot of bank branch networks via SNL Financial. SNL does not provide time-series information for branch networks, and, to our knowledge, there is no other publicly available dataset that does so. Banks change their branch networks very slowly (if they change them at all). Moreover, taking a single cross-section helps us avoid endogeneity over time between trust and bank branch networks. In unreported results, we find some weak evidence that the trust bias of a bank's home country toward a foreign country is correlated with the share of the bank's branches in that foreign country. Later, by comparing banks' sovereign exposures toward target countries where they do not have any branches, we show that the potential endogeneity of branch expansion decisions is not a major concern.

24. We aim to capture here the intensity of exchange of financial information between the two countries. This measure is created by taking all ultimate-parent banks located in 30 EEA countries in the SNL database, independent of whether the bank is included in EBA dataset. The purpose is to capture time-invariant banking linkages across countries. Hence, it is important to consider the full sample rather than only the restricted EBA sample. The results do not depend on this choice, however. These data cover 137,284 bank branches in total, which is 92% of all bank branches (149,242) in these countries according to World Bank data for 2014.

25. Aggregate bank branch flows between European countries are illustrated in Online Appendix Figure A.1, and bank-level branch penetrations for the ten largest multinational banks in our sample are mapped in Online Appendix Figure A.2. The subset of banks in our sample for which we can observe branch networks across Europe can be found in Online Appendix F. Note that this excludes from our bank-level analysis the European subsidiaries of all non-European banks (such as Bank of New York Mellon in Belgium), since we do not observe the branch networks of these non-European banks.

26. The diversification gap is defined as the difference between the case of full diversification and the unconditional mean observed in our sample (1–0.58 = 0.42). A simple asset pricing model with no frictions, such as the Capital Asset Pricing Model (CAPM), would predict that the share of a sovereign exposure in

TABLE 1. Summary statistics.

Variables	Mean	Std. dev.	Min	Max	Obs.	Source
Bank-level analysis						
Sovereign exposure (dummy)	0.58	0.49	0.00	1.00	23,760	EBA and CEBS
Sovereign exposure (log nominal—in millions)	3.08	3.38	0.00	12.32	23,760	EBA and CEBS
Corporate exposure (dummy)	0.29	0.45	0.00	1.00	18,255	EBA and CEBS
Corporate exposure (log nominal—in millions)	1.64	2.92	0.00	11.95	18,255	EBA and CEBS
Bank-level trust bias (lot of trust)	0.01	0.09	−0.15	0.41	1,620	Eurobarometer/SNL
Bank-level trust level (lot of trust)	0.16	0.11	0.00	0.72	1,620	Eurobarometer/SNL
Bank-level trust bias (graded)	0.00	0.17	−0.46	0.85	1,620	Eurobarometer/SNL
Bank-level trust level (graded)	2.26	0.94	0.00	3.66	1,620	Eurobarometer/SNL
Bank-level trust bias (online—lot of trust)	0.00	0.05	−0.14	0.36	3,240	Online survey/ SNL
Bank-level trust bias (online—graded)	0.00	0.11	−0.48	0.78	3,240	Online survey/ SNL
Bank-level branches (in 000)	0.05	0.33	0.00	5.80	1,620	SNL Financial
Bank-level branch relationship	0.74	3.55	0.00	28.72	1,620	SNL Financial
Bank-level merger relationship	0.02	0.07	0.00	0.61	1,620	SDC Platinum/SNL
Bank-level media relationship	0.08	0.11	0.00	0.75	1,620	Factiva/SNL
Bank-level political relationship	0.93	0.06	0.76	1.00	1,620	UNGA/SNL
Bank-level distance relationship	1.33	0.70	0.00	3.73	1,620	MapQuest/SNL
Bank-level legal origin relationship	0.26	0.40	0.00	1.00	1,620	LP (2008)/SNL
Bank-level religious relationship	0.24	0.24	0.00	0.87	1,620	GSZ (2009)/SNL
Bank-level social media relationship	0.19	0.95	0.00	12.12	1,620	Facebook (Meta)/SNL
Bank-level genetic distance	0.01	0.00	0.00	0.03	1,620	GSZ (2009)/SNL
Bank-level somatic distance	2.35	1.66	0.00	6.00	1,620	GSZ (2009)/SNL
Bank-level cultural distance (PC1) by Hofstede	−0.05	1.14	−2.96	3.47	1,620	Hofstede (2001) /SNL
Bank-level cultural distance (PC1) by Schwartz	0.16	0.99	−2.26	2.86	1,620	Schwartz (1994) /SNL
Bank-level cultural distance by Gelfand et al.	0.01	0.01	0.00	0.06	1,620	Gelfand et al. (2011)/SNL
Bank-level cultural distance by Pellegrino et al.	0.32	0.01	0.28	0.35	1,620	Pellegrino et al. (forthcoming)/SNL
Eurozone crises	0.08	0.27	0.00	1.00	330	Datastream
Brexit salience	0.03	0.17	0.00	1.00	6,375	Authors' calculations

TABLE 1. Continued

Variables	Mean	Std. dev.	Min	Max	Obs.	Source
Mechanisms						
Managerial sentiments	0.16	0.28	−4.31	4.84	12,212	Hassan et al. (2024)
Country-level trust bias (lot of trust—EB)	0.00	0.10	−0.18	0.42	163	Eurobarometer
Country-level trust bias (graded—EB)	0.00	0.21	−0.49	0.92	163	Eurobarometer
Country-level trust bias (lot of trust—online)	0.00	0.06	−0.14	0.36	336	Eurobarometer
Country-level trust bias (graded—online)	0.01	0.13	−0.48	0.41	336	Eurobarometer
Nationality at HQ	0.27	0.44	0.00	1.00	660	BankFocus
Nationality at HQ (senior managers)	0.25	0.43	0.00	1.00	660	BankFocus
Nationality at HQ (first nationalities)	0.19	0.39	0.00	1.00	660	BankFocus
Nationality at HQ (current managers)	0.21	0.41	0.00	1.00	630	BankFocus
Bank branches (in 000)	0.08	0.46	0.00	5.80	660	SNL Financial
Log bank branches	0.77	1.83	0.00	8.67	660	SNL Financial
Share of bank branches	0.03	0.15	0.00	1.00	660	SNL Financial

Notes: The table lists all the variables used in the main analyses of the paper. See Table B.1 for the variables from the additional country-level analyses reported in the online appendix. For the specific definitions and construction of variables, see Section 3 as well as Online Appendix A. The final column displays the data sources.

corresponding gap for the bank-level sample is 42%, meaning that 42% of the time a bank has no exposure to the sovereign debt of a potential target country of investment. These gaps are consistent with the idea that the sovereign debt market is far from frictionless. There is room, in other words, for factors such as trust to explain variations in banks' sovereign debt portfolios.

4. Empirical Model

We outline the empirical model and discuss the results of the country-level analysis in Online Appendix B. Our main analysis and contribution of the paper rests on the following bank-level specification:

$$\text{Sovereign Exposure}_{b,h,c,t} = \beta_1 \text{Bank-level Trust Bias}_{bc} + \beta_2 \text{Bank Branches}_{bc} + \beta_3 \gamma_{bt} + \beta_4 \lambda_{hct} + \varepsilon_{bhct}, \quad (1)$$

where $Sovereign\ Exposure_{bhct}$ is a dummy variable for whether or not bank b of home country h has any positive exposure to target country c at time t.

We estimate linear probability models, facilitating interpretation of our coefficients as marginal probabilities. A dummy variable provides several advantages (over a continuous one) in this setting. Because of the consolidated nature of EBA disclosures, we cannot distinguish between bonds purchased at headquarters and at subsidiaries. We therefore consider the extensive margin of sovereign exposures, since strategic decisions such as whether or not a bank should invest in a country are taken at bank headquarters. In addition, there is heterogeneity in sovereign debt valuation methods across disclosures and some flexibility at the bank level in categorizing sovereign exposures as residing on the trading versus banking books, which in turn affects reported values. Such flexibility could lead to self-reporting biases for the continuous variable but is less likely to affect its extensive margin (Kaplow and Shavell 1994). Finally, since we do not observe currency denomination, exchange rate fluctuations can introduce variation in reported sovereign exposures in different currencies in the absence of active investment decisions.[27]

$Bank-level\ Trust\ Bias_{bc}$ is constructed by computing a weighted average of *Country-level Trust Bias* across host countries for each bank–target-country pair (b, c), where the share of host-country (i) branches (in numbers) in the overall branch network

each bank's debt portfolio should be proportional to the share of that sovereign's total debt in the sovereign debt market (Sharpe, 1964). By implication, this would require each bank to have at least some positive exposure to each sovereign in our sample, thus implying an unconditional probability of one.

27. Despite its drawbacks, we consider the continuous exposure variable in robustness checks, employing the log of the nominal values (in million Euros) of sovereign lending reported by banks, and obtain similar results. The same holds when we define the dependent variable as the share of the specific target country in the bank's total sovereign debt portfolio (results available on request).

of the multinational bank is employed as weights:[28]

$$\text{Bank-level Trust Bias}_{b,c} = \sum_{i=1}^{n} (\text{Weight}_{b,i} \times \text{Country-level Trust Bias}_{i,c}). \quad (2)$$

We define *Country-level Bilateral Trust* as the share of respondents in home country h expressing "a lot of trust" in target country c. These self-reported measures are then adjusted for country fixed effects, because some nationalities may be universally regarded as more trustworthy and respondents of some nationalities may trust all foreigners more. In moving from $Country-level\ Bilateral\ Trust\ to\ Country-level\ Trust\ Bias_{hc}$ (the variable that appears in equation (2)), we follow Guiso et al. (2009), Bloom et al. (2012) and Pursiainen (2022), running a gravity regression of bilateral trust for country pairs:

$$\text{Country-level Bilateral Trust}_{h,c} = \alpha_1 \theta_h + \alpha_2 \vartheta_c + \epsilon_{hc}. \quad (3)$$

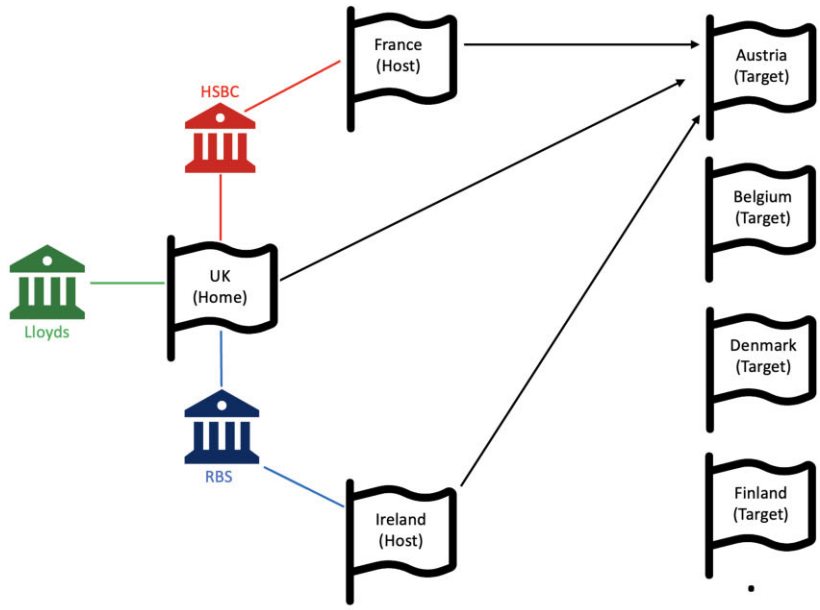
Residuals from this regression, after controlling for home-country (θ_h) and target-country (ϑ_c) fixed effects, capture the relative trust bias of home country h toward target country c ($\epsilon_{hc} = Country-level\ Trust\ Bias_{hc}$). For comparability across studies, we borrow this measure directly from Pursiainen (2022).[29]

The identification strategy is depicted in panel A of Figure 1. We exploit the variation across banks (i.e., HSBC vs. RBS) headquartered within the same home country (i.e., UK) facing the same target country (i.e., Austria) at the same point in time because these multinational banks have subsidiaries in different countries (i.e., France and Ireland) and because residents of those host countries have different perceptions of the same target country.[30] Hence, saturating our specification with *home-country* $\times$ *target-country* $\times$ *time* fixed effects (λ_{hct} in equation (1)) absorbs all time-varying country-level variation in our outcome variable. For instance, if banks located in EU countries shift away from UK exposures after Brexit, this would be controlled for in our setting. Thanks to this framework, we can also rule out explanations for observed

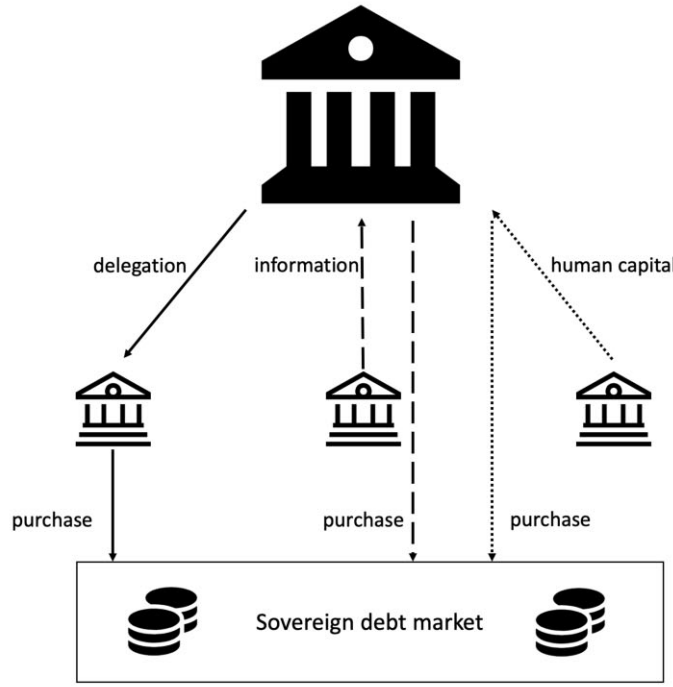
28. For instance, if a bank has 50% of its branches in country A and 50% in country B, then its trust bias toward country C is the simple average of trust biases in countries A and B toward country C. Recall that, in line with the notion of persistent cultural stereotypes, this measure is time-invariant and constructed from a single snapshot of bank branch networks for each bank. Hence, we do not have time variation in bank-level trust. That said, changes in branch networks tend to be very gradual. In addition, previous literature has emphasized the long-term stability of cultural stereotypes and used time-invariant measures to capture them (see, e.g., Guiso et al., 2009; Bloom et al., 2012; Bottazzi et al., 2016; Pursiainen, 2022). As we show below, our new survey from 2022 provides further evidence on the persistence of cultural stereotypes over time.

29. The resulting measure is illustrated in Online Appendix Table A.5 (see Table IA.II in Pursiainen (2022)) for Eurobarometer and Online Appendix Table D.3 for our online survey, whereas the corresponding Country-level Bilateral Trust (in levels without the gravity adjustment in equation 3) is reported in Online Appendix Table A.4 (see Table IA.I in Pursiainen (2022)) and Online Appendix Table D.2.

30. Domestic banks (i.e., Lloyds), on the other hand, do not add to our identifying variation as their treatment status only depends on the variation between home and target countries.



(a) Identification strategy at bank level



(b) Banks as hierarchies

FIGURE 1. Bank-level identification strategy and framework. This figure represents (a) the bank-level identification strategy as described in Section 4 and (b) the mechanisms that link foreign bank branches to multinational banks' sovereign exposures as described in Section 6.

investment behavior that attributes differences across banks to differential exposure to default risk, since it is unlikely that a sovereign will default on the bonds held by one bank but not another headquartered in the same foreign country.[31]

Banks hold sovereign bonds for different reasons. Some hold them for trading with clients (Duffie 2010). Others hold bonds of risky sovereigns because they are confident of being bailed out by the authorities (Admati and Hellwig 2013). Still others purchase government bonds as the price of obtaining other advisory, cash-management or investment-management mandates.[32] Insofar as motives and behaviors differ across banks, bank fixed effects will pick them up. Insofar as they differ over time, we can control for such variation by including *bank* × *time* fixed effects (γ_{bt} in equation (1)). We consequently exploit the variation across different target countries for the same bank at the same point in time, shielding our estimates from time-varying omitted shocks operating at the bank level.

We also control for the number of branches a bank has in a target country ($Bank\,Branches_{bc}$). This helps to distinguish the information channel (and, more broadly, direct financial linkages between banks and target countries) highlighted in Saka (2020). In additional analyses, we compare banks' lending to target countries in which none of the banks considered have branches (e.g., in Figure 1a, dropping observations of investments in the United Kingdom, France, and Ireland when comparing RBS and HSBC). We control for indirect relationships between banks and target countries that may be sustained through host countries (e.g., HSBC—compared to RBS—being financially closer to Austria because France is financially better linked to Austria than is Ireland). Finally, we control for various measures of cultural distance between banks and target countries to show that the role of trust cannot be fully explained by cultural differences.

We cluster standard errors by bank, given the possibility that the error term is correlated across target countries and time. Double clustering at country-pair and time levels or double clustering at country-pair and bank levels does not change the results.

31. We know of no 21st-century European case (that being the place and period of our data) where one class of foreign banks was treated better than another. Looking more broadly, we can find cases where some classes of nonbank creditors were treated more favorably (hedge funds that held out in the Argentine case). One can also find cases outside Europe where a government defaulted on external bonds but not on domestic bonds (in order to protect its banking system) and cases (such as Jamaica) where a government restructured bonds held by domestic banks but not foreign banks (to protect its foreign capital market access). Importantly, our results hold when we exclude domestic banks of the target country of investment from the sample. Above all, our results hold when we use fixed effects to limit our comparisons to banks headquartered in the same country lending to the same target country at the same point in time. So, for instance, it would have to be the Greek government treating Deutsche Bank and Commerzbank differentially, not treating German and Spanish banks differentially. We know of no evidence or discussion of such differential within-country treatment.

32. On competition for mandates more generally, see Ljungqvist, Marston, and Wilhelm (2006).

TABLE 2. Bank-level trust bias and probability of sovereign exposure.

Outcome →	(1) Sovereign exposure	(2) Sovereign exposure	(3) Sovereign exposure	(4) Sovereign exposure	(5) Sovereign exposure
Bank-level trust bias	1.353***	1.757***	1.604***	1.630***	1.562***
	[0.110]	[0.329]	[0.301]	[0.300]	[0.310]
Bank-level branches			−0.090***	−0.153***	−0.163***
			[0.027]	[0.053]	[0.056]
Bank-level branches (squared)				0.014	0.016
				[0.011]	[0.012]
Bank × time FEs	Yes	Yes	Yes	Yes	Yes
Target-country × time FEs	Yes	Yes	Yes	Yes	No
Home-country × target-country FEs	No	Yes	Yes	Yes	No
Home-country × target-country × time FEs	No	No	No	No	Yes
Observations	23,760	23,760	23,760	23,760	21,615

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the detailed construction of the data, see Section 3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

5. Results

5.1. Baseline Results

Trust can be relevant for banks' investments in sovereign bonds for several reasons. Multiple countries make for multiple courts with uncertain jurisdiction. Governments enjoy a degree of sovereign immunity, casting doubt on the existence of judicial solutions. Such considerations may heighten reliance on trust as an alternative to legal contract enforcement. Such cultural stereotypes, defined in our context as how trustworthy residents of one nation view residents of another, may apply directly to sovereign bonds, since these are claims on governments representing specific nationalities. Table 2 reports estimates of equation (1) using our bank-level measure of trust biases. Column (1) includes a rich set of fixed effects but no other controls. Column (2) renders country-pair-specific controls redundant by adding *home-country* × *target-country* fixed effects. Columns (3)–(4) include controls for branch linkages between banks and target countries, both linear and nonlinear. Column (5) saturates the model with *home-country* × *target-country* × time fixed effects. This limits the comparison to banks headquartered in the same country with exposures to the same government at the same point in time. It thereby enables us to disentangle the effect of bank lending supply, our concern here, from demand-side factors in the countries to which banks lend.

Estimates of the effect of bank-level trust bias are positive and statistically significant.[33] Point estimates grow larger as we add controls such as the number of bank branches and include country-pair fixed effects to capture other unobservables. The specification in Column (5) flexibly controls for country-level unobservables by allowing them to vary over time.[34] Here a one standard deviation rise in bank-level trust bias is associated with an increase of 14% in the probability of investing in a target country. This is a large effect, accounting for one-third of the diversification gap (i.e., 42%) in banks' sovereign exposures and one-fourth of the unconditional mean of the dependent variable (i.e., 58%). We reach similar conclusions when employing the logarithmic value (in millions) of banks' sovereign exposures (instead of a binary indicator) as the dependent variable in panel A of Online Appendix Table C.3. Here, a one standard deviation rise in trust (based on column (5)) is associated with more than a 105% increase, more than doubling the volume of sovereign lending in a target country.[35]

Figure 2 plots the coefficients from separate estimates of equation (1) over subperiods. The positive relationship between bank-level trust bias and sovereign exposures, whether measured as discrete (panel A) or continuous (panel B), is significant and stable despite the changes in bank coverage. This observation is consistent with the intuition that cultural biases persist over time. It rules out the concern that our estimates are driven by Eurozone crises in the early part of our period or by changes in regulation over time.[36]

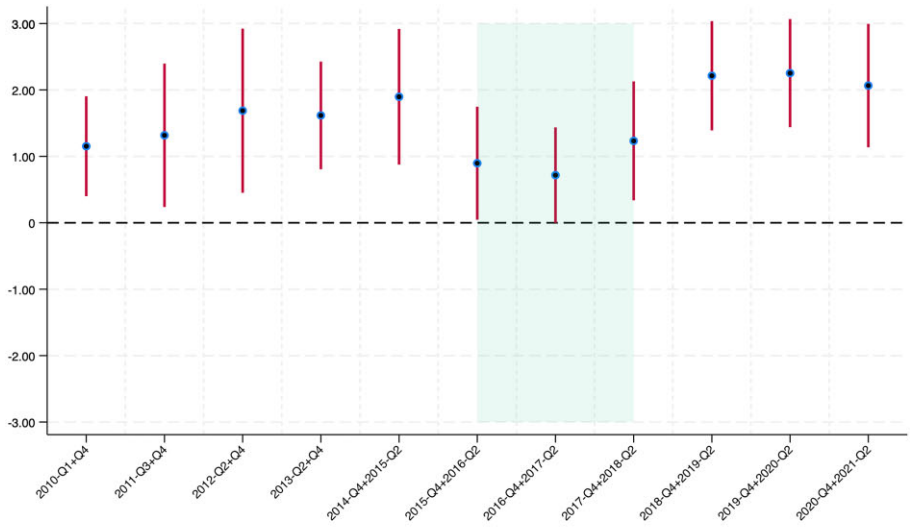
Our results remain intact when we exclude domestic (i.e., home country = target country) observations in Online Appendix Table C.5. This further shields our estimates from the influence of home bias (i.e., banks disproportionately holding the sovereign debt of their home countries). Although our baseline specification controls for home bias at the country level by including country-pair-specific fixed effects, one can imagine different degrees of home bias across different banks headquartered in the

33. The baseline estimate in Column (1) is slightly larger than estimates using country-level trust measures reported in Online Appendix B. However, elasticities (in response to one std. dev. change) are approximately equal (≈12%) in both cases.

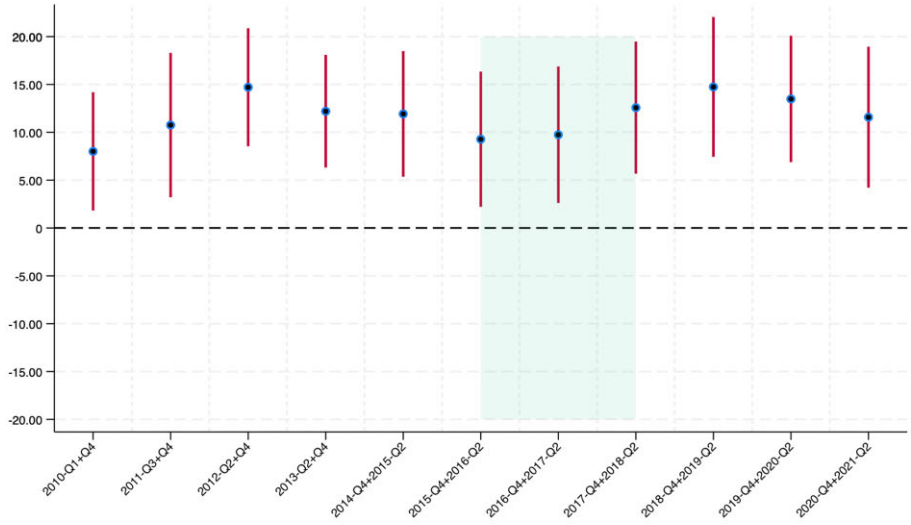
34. Note that including *home-country* × *target-country* × *time* fixed effects shields our estimates from the possibility of home bias (i.e., banks generally holding higher sovereign debt of their home countries) even when such bias is heterogenous across countries and varying over time. Our estimates remain significant at conventional levels with double clustering at country-pair and time levels (see Online Appendix Table C.1) or at country-pair and bank levels (see Online Appendix Table C.2).

35. Panel B of Online Appendix Table C.3 presents the intensive margin estimates where exposures with zero value are excluded and reports qualitatively similar results.

36. The reduction in the size of the coefficients in the period 2016 to 2018 (shaded in Figure 2) confirms that loss of granularity (due to changing reporting requirements during this period) in banks' sovereign exposures makes it more difficult to identify the effect of trust. EBA directly used regulatory FINREP reports during this period, which led to some banks not disclosing the country breakdown of their sovereign exposures at all or reducing the granularity in these exposures (i.e., categorizing exposures below a certain threshold under the name "other countries"). In line with Figure 2, our point estimate in Column (5) of Table 2 becomes approximately 12% larger when we drop FINREP disclosure dates from our sample (see Online Appendix Table C.4).



(a) Dependent variable: Sovereign exposure (dummy)



(b) Dependent variable: Sovereign exposure (log nominal)

FIGURE 2. Baseline estimates over subsample periods. This figure shows estimates for the coefficient of bank-level trust bias separately for eleven distinct subsample periods. Dependent variables are the probability of sovereign exposure (upper panel) and log nominal sovereign exposures—in millions—(lower panel). Shaded areas indicate subperiods during which EBA reported sovereign exposures based on regulatory FINREP data that restrict the level of granularity disclosed in banks' sovereign debt portfolios. The specification is Column (5) of Table 2. Only the estimated coefficient on *Bank-level Trust Bias* is plotted. Confidence intervals are at 90% significance level. Source: EBA, CEBS, Eurobarometer, and SNL Financial.

same country. However, when we exclude investments in the bonds of the home country, the association between cultural biases and foreign government exposures is, if anything larger than indicated by the baseline estimates in Table 2.

Regulators may prevent banks from investing in countries in which they have little trust. They may discourage banks from investing in foreign government bonds as a way of encouraging them to invest in their own country's government bonds. However, we obtain similar results, as shown in Online Appendix Table C.6, when limiting the sample to banks overseen by the EU's SSM. Focusing on banks supervised by the SSM thus rules out the alternative hypothesis that we are picking up the cultural stereotypes (or other idiosyncrasies) of local bank supervisors as opposed to bankers.[37]

Exchange rate risk could affect the decision to invest and thus the extensive margin of banks' sovereign exposures. Eurozone-headquartered banks may be inclined to invest in the bonds of Eurozone governments while refusing to invest in the local-currency bonds of other countries subject to exchange risk. In Online Appendix Table C.7, we therefore include only banks headquartered in the Eurozone and target countries of investment that are members of the Eurozone. The results carry over.

Banks situated in the Eurozone's crisis countries—Greece, Italy, Ireland, Portugal, and Spain—were subject to financial problems at the beginning of our sample period, which could have affected banks' investment decisions. While Figure 2 speaks against this concern by showing that our results extend beyond the crisis period, we can directly exclude both banks headquartered in these countries and their governments as potential targets for cross-border investment. There is again little change in our results (Online Appendix Table C.8). This further rules out the possibility that the patterns we observe are driven by the large spreads or relatively generous treatment under supervisory stress tests of the bonds of these countries.[38]

Our empirical setting with banks' branch networks and a weighted computation of trust biases could conceivably be conducive to mechanically generating the results in Table 2. Online Appendix Table C.12 therefore presents two placebo tests in which we randomly distribute observed branch networks either across banks located in the same home country (panel A) or across all banks in our sample (panel B). Both tests confirm that the previous findings are not an artifact of our empirical setting.

37. The SSM, housed in the ECB in Frankfurt, supervises more than 100 of the largest banks in Europe; the same supervisors apply the same rules and scrutiny to all of them. Since SSM started its operations in 2014, there has been limited time variation in terms of the number and identity of systemically significant banks that it supervises. Our results in Appendix Table C.6 take this time variation into account, although the results are very similar if we focus only on the initial set of banks that came under the supervision of SSM in 2014.

38. In Online Appendix Table C.9, we substitute trust bias (as in Online Appendix Table A.5) with the trust measure in levels (as in Online Appendix Table A.4), considering the simple proportion of people in a country with "a lot of trust" toward another country aggregated at the bank level. Online Appendix Table C.10 substitutes the *graded* cultural trust bias proxy employed in Guiso et al. (2009), which uses the full variation in survey respondents' answers ranging from 1 (i.e., "no trust at all") to 4 (i.e., "lot of trust"). In Online Appendix Table C.11, we use the *graded* proxy in levels without computing the residuals as in equation (3). Results carry over.

TABLE 3. Bank-level trust bias and probability of sovereign exposure in foreign target countries with no branch connections.

Outcome →	(1) Sovereign exposure	(2) Sovereign exposure	(3) Sovereign exposure
Bank-level trust bias	1.230*** [0.240]	2.026*** [0.660]	1.972*** [0.734]
Bank × time FEs	Yes	Yes	Yes
Target-country × time FEs	Yes	Yes	No
Home-country × target-country FEs	No	Yes	No
Home-country × target-country × time FEs	No	No	Yes
Sample included	Foreign + no branch	Foreign + no branch	Foreign + no branch
Observations	18,984	18,984	16,728

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2; but only for the bank–target country pairs in which the bank does not own any branches in the target country. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the detailed construction of the data, see Section 3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

Including the number of bank branches does not affect the results in Table 2, as noted. Still, it is possible (despite our parametric controls) that a measure of bank-specific trust bias based on bank branches is picking up not the effect of trust but, rather, financial linkages with the target country of potential investment owing to branch presence. Relatedly, the same factors that convince a bank to expand its branch network to a country may lead it to purchase more debt of that country. Or financial linkages may operate through moral suasion: Italian officials may pressure a German bank with Italian branches to purchase Italian government debt. Table 3 therefore excludes target countries where a bank has any branch presence, shutting down this potential channel.[39] These estimates compare banks headquartered in the same country with regard to the same target country of investment, but only when none of the banks in question has branch presence in that target country. The estimated effect is larger, not smaller. Insofar as a bank's decision to expand its branch network to a foreign country is orthogonal to its investment in the government bonds of third countries, the results point to a causal relationship between bank-level trust and sovereign exposures.

The fact that banks operate in multiple countries may not only lead them to adopt the cultural traits of these host countries but also help them to establish financial, informational, political or other types of linkages via their host countries

39. Note that this includes all types of bank presence in a country whether it is via subsidiaries or single branches.

to other target countries. Including country-pair-level fixed effects does not rule out the possibility, for example, that banks combine information from multiple countries and that branch networks play a role in aggregating financial information, just as they do in aggregating cultural stereotypes. In Table 4, we therefore construct measures of such indirect linkages at the bank–target-country level, focusing on branch penetration, historical merger activity, media coverage, political closeness, geographical distance, commonality of legal origins, religious similarity and social media (i.e., Facebook) connections between host and target countries.[40] We construct these proxies in the same way as for bank-level trust bias, using a weighted average of host-country characteristics to aggregate at the bank–target-country level (à la equation (2)). None of these variables is statistically significant when included as a control in Table 4. Estimates of bank-level trust bias and their statistical significance are stable across models, consistent with the view that branch networks are not providing indirect financial or other types of relationships with target countries but rather that they are specifically transmitting cultural stereotypes from their host countries, which in turn influence bank headquarters' sovereign lending decisions.

The EBA provides the maturity breakdown of banks' sovereign exposures for each target country for a subset of banks and disclosure dates. By using this information, we construct separate dependent variables in Figure 3 corresponding to seven distinct terms to maturity and study how trust shapes the maturity structure of sovereign debt holdings. Panel A (B) for the full sample (foreign subsample) documents the consistent role that trust plays across maturities. However, differences between the estimates for the longest and the shortest maturities are positive and significant at conventional levels, meaning trust is a more important driver of long-term bank lending. These results suggest that trust tilts banks' sovereign portfolios toward the longer end of the maturity structure. Intuitively, when trust is high, banks are more inclined to make long-term commitments. When it is low, they prefer the option value of exiting without losses and therefore are more inclined to hold short-maturity debt.

5.2. Genetic and Somatic Distance as Instruments for Trust

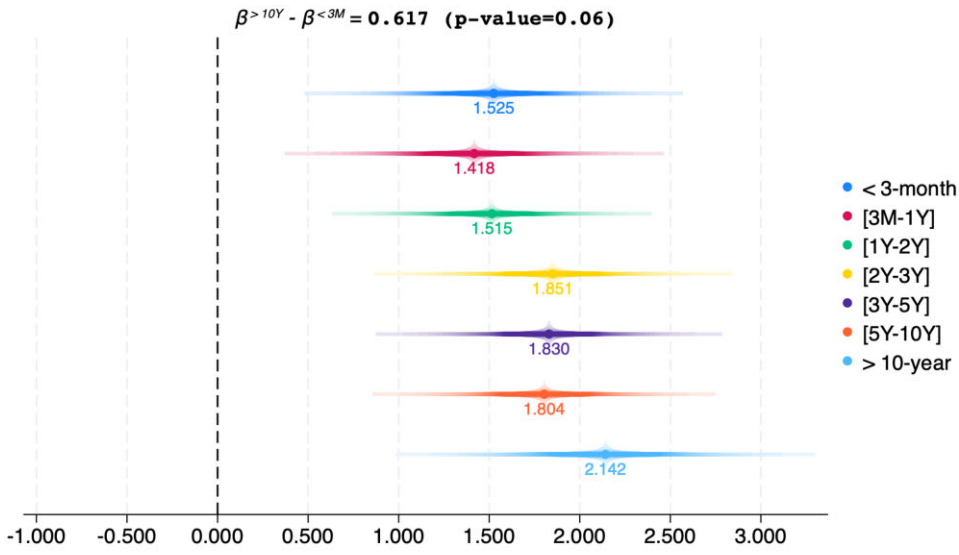
We have shown that the relationship between bilateral trust and sovereign exposures is stable over time and that our results carry over when removing crisis periods during which bond market conditions could conceivably impact trust. Still, one may question whether trust is truly exogenous with respect to bond market conditions. Following Guiso et al. (2009) and Ahern et al. (2015), we therefore instrument cultural trust with

40. These variables are frequently used in gravity models of international economic exchange. See, for instance, Guiso et al. (2009) for media coverage, commonality of legal origins, and religious similarity; Portes and Rey (2005) and Saka (2020) for branch penetration and historical merger activity; Fisman et al. (2022) for political relationships; Pursiainen (2022) for social media connections; and countless other papers for geographical distance. As Online Appendix Table C.13 shows, all but two (legal origin and religious relationships) of these variables have the expected sign and are statistically significant when included in a specification that excludes bank-level trust bias.

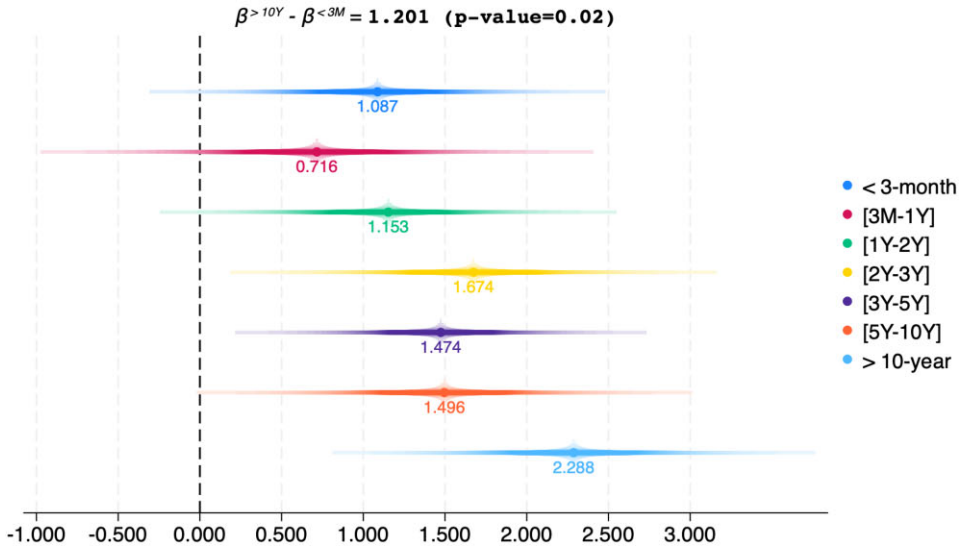
TABLE 4. Bank-level trust bias and probability of sovereign exposure when controlling for bank-level relationships with target country.

Outcome →	(1) Sovereign exposure	(2) Sovereign exposure	(3) Sovereign exposure	(4) Sovereign exposure	(5) Sovereign exposure	(6) Sovereign exposure	(7) Sovereign exposure	(8) Sovereign exposure	(9) Sovereign exposure
Bank-level trust bias	1.562***	1.638***	1.732***	1.381***	1.371***	1.287***	1.309***	1.290***	1.121**
	[0.310]	[0.368]	[0.384]	[0.460]	[0.467]	[0.458]	[0.442]	[0.451]	[0.491]
Bank-level branch relationship		−0.004	0.000	−0.004	−0.010	−0.012	−0.013	−0.013	−0.008
		[0.009]	[0.012]	[0.014]	[0.015]	[0.014]	[0.015]	[0.014]	[0.016]
Bank-level merger relationship			−0.370	−0.447	−0.418	−0.396	−0.402	−0.366	−0.272
			[0.641]	[0.609]	[0.642]	[0.622]	[0.620]	[0.638]	[0.642]
Bank-level media relationship				0.496	0.472	0.394	0.359	0.394	0.174
				[0.358]	[0.360]	[0.383]	[0.381]	[0.393]	[0.508]
Bank-level political relationship					0.929	0.872	0.827	0.844	0.786
					[0.806]	[0.806]	[0.790]	[0.769]	[0.766]
Bank-level distance relationship						−0.071	−0.084	−0.079	−0.074
						[0.088]	[0.093]	[0.091]	[0.090]
Bank-level legal origin relationship							−0.048	−0.051	−0.028
							[0.059]	[0.061]	[0.066]
Bank-level religious relationship								0.042	0.085
								[0.244]	[0.263]
Bank-level social media relationship									0.037
									[0.048]
Control for bank-level branches	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control for bank-level branches (squared)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank × time FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Home-country × target-country × time FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615	21,615

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. For the detailed construction of the data and other variables, see Section 3 and Online Appendix A. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.



(a) Full sample



(b) Foreign target countries

FIGURE 3. Bank-level trust bias and probability of sovereign exposure with different maturities. This figure shows estimates for the coefficient of *Bank-level Trust Bias* separately estimated for seven distinct maturities of sovereign debt. Dependent variable is the probability of sovereign exposure and the specification is Column (5) of Table 2. Confidence intervals are at 95% significance level. Source: EBA, CEBS, Eurobarometer, and SNL Financial.

genetic and somatic distance.[41] These two measures are again aggregated at the bank–target-country level by using bank branch networks as relative weights.

Table 5 shows that the results carry over. Columns (1) and (2) present 2SLS estimates for the full sample, and columns (3) and (4) for the sample where we drop banks' home country exposures. The *F*-statistics on the first stage are considerably above the Stock-Yogo threshold of 10. Both instruments are significant at conventional levels with expected signs (greater genetic or somatic distance influencing trust negatively). The coefficients on bank-level trust bias are consistently significant at the 1% level. They are larger than the baseline estimates in Table 2. The most conservative of these estimates (i.e., 2.037 in column (1) of panel B) indicates that a one -standard-deviation rise in bank-level trust bias increases the probability of investing in a target country by more than 18%. This corresponds to nearly half of the observed diversification gap in European banks' sovereign portfolios.

5.3. Trust and Cultural Distance

In light of the large literature on cultural distance and financial outcomes (e.g., Siegel et al., 2011; Ahern et al., 2015), one may ask whether our results are simply capturing the effects of cultural distance as operationalized by Hofstede (1980, 2001), Schwartz (1994), Gelfand et al. (2011), and Pellegrino, Spolaore, and Wacziarg (forthcoming) rather than identifying a distinct factor, namely trust.

In panel A of Table 6, we document the relationship between four frequently used measures of cultural distance and sovereign exposures. Column (1) utilizes the first principal component of the six cultural dimensions of Hofstede (1980, 2001).[42] Column (2) then utilizes the first principal component of the three dimensions identified by Schwartz (1994).[43] Column (3) uses the cultural tightness index of

41. Our bilateral country-level measure of genetic distance computes the probability that two random alleles taken from the DNA sequences of two different country populations do *not* overlap (Cavalli-Sforza, Menozzi, and Piazza, 1996). This measure is evolutionarily correlated with the length of time that passed since the two populations separated back in history. Country-level somatic distance is based on anthropometric measures on four dimensions in a population: height, cephalic index, hair color, and skin pigmentation (Biasutti, 1954). Countries are first divided into three ordinal categories in each dimension. Somatic distance for each country-pair is then computed by taking the sum of the absolute differences in each of these four dimensions. Both measures are provided by Guiso et al. (2009). Hence, the bilateral trust instrumented in these regressions derives from deeper ethnic and ancestral ties.

42. Of these six dimensions, Long-term Orientation defines cultures prioritizing practicality in the long term, whereas Individualism emphasizes cultures centered around self-sufficiency. Uncertainty Avoidance assesses an individual's unease with unpredictability and ambiguity, while Masculinity accentuates traits like competitiveness and assertiveness. Power Distance and Indulgence gauge the importance of hierarchy and of satisfaction of human desires in a society, respectively. We take the first principal component of these six dimensions to minimize multicollinearity in our regressions.

43. Schwartz (1994) distinguishes three dimensions of national culture: embeddedness, harmony, and egalitarianism. We take the first principal component of these three dimensions to minimize multicollinearity in our regressions.

TABLE 5. *Instrumented* bank-level trust bias and probability of sovereign exposure.

Outcome →	(1) (2SLS) Sovereign exposure	(2) (First-stage) Bank-level trust bias	(3) (2SLS) Sovereign exposure	(4) (First-stage) Bank-level trust bias
Panel A				
Bank-level trust bias	3.014***		4.491***	
	[0.871]		[1.608]	
Bank-level branches	−0.167***	0.007	−1.113**	0.149**
	[0.055]	[0.013]	[0.453]	[0.066]
Bank-level branches (squared)	0.020**	−0.003	1.015*	−0.123
	[0.009]	[0.003]	[0.516]	[0.089]
Bank-level genetic distance		−13.676***		−7.619***
		[1.229]		[0.882]
First-stage Kleibergen–Paap *F*-stat		123.84		74.65
First-stage Montiel–Pflueger *F*-stat		178.86		74.18
Panel B				
Bank-level trust bias	2.037***		2.658***	
	[0.531]		[0.874]	
Bank-level branches	−0.164***	0.004	−0.786**	0.105**
	[0.055]	[0.010]	[0.396]	[0.045]
Bank-level branches (squared)	0.017*	−0.002	0.724	−0.081
	[0.010]	[0.003]	[0.459]	[0.061]
Bank-level somatic distance		−0.043***		−0.027***
		[0.003]		[0.003]
First-stage Kleibergen–Paap *F*-stat		221.00		69.15
First-stage Montiel–Pflueger *F*-stat		254.85		137.79
Bank × time FEs	Yes	Yes	Yes	Yes
Home-country × target-country × time FEs	Yes	Yes	Yes	Yes
Observations	21,615	21,615	20,241	20,241
Bank sample	All	All	Foreign	Foreign

Notes: The table summarizes the results of 2SLS estimations over the full sample period from 2010-Q1 to 2021-Q2. *Bank-level Trust Bias* is instrumented with *Bank-level Genetic Distance* in panel A and with *Bank-level Somatic Distance* in panel B. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. *Bank-level Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the definition of the other variables, see Section 5.2. First-stage Montiel–Pflueger *F*-stat tests for weak instruments in the first-stage estimation are implemented in a way that is robust to heteroscedasticity, autocorrelation, and clustering. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

TABLE 6. Bank-level trust bias and probability of sovereign exposure when controlling for bank-level cultural distance.

Outcome →	(1) Sovereign exposure	(2) Sovereign exposure	(3) Sovereign exposure	(4) Sovereign exposure	(5) Sovereign exposure
Panel A					
Bank-level trust bias	1.562***				
	[0.310]				
Bank-level cultural distance by Hofstede		−0.116***			
		[0.024]			
Bank-level cultural distance by Schwartz			−0.066***		
			[0.023]		
Bank-level cultural distance by Gelfand et al.				−6.675	
				[4.898]	
Bank-level cultural distance by Pellegrino et al.					−8.269**
					[4.165]
Panel B					
Bank-level trust bias	1.562***	0.947**	1.101**	1.037**	1.287***
	[0.310]	[0.391]	[0.432]	[0.408]	[0.439]
Bank-level cultural distance by Hofstede		−0.069**	−0.073**	−0.070**	−0.075**
		[0.030]	[0.031]	[0.030]	[0.031]
Bank-level cultural distance by Schwartz			0.027	0.023	0.011
			[0.029]	[0.026]	[0.028]
Bank-level cultural distance by Gelfand et al.				−2.246	−2.036
				[4.283]	[4.207]
Bank-level cultural distance by Pellegrino et al.					6.716
					[5.861]
Control for bank-level branches	Yes	Yes	Yes	Yes	Yes
Control for bank-level branches (squared)	Yes	Yes	Yes	Yes	Yes
Bank × time FEs	Yes	Yes	Yes	Yes	Yes
Home-country × target-country × time FEs	Yes	Yes	Yes	Yes	Yes
Observations	21,615	21,615	21,615	21,615	21,615

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the definition of the other variables, see Section 5.3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

Gelfand et al. (2011).[44] The final column employs the cultural distance measure derived

44. Based on earlier anthropological work on small societies by Pelto (1968), Gelfand et al. (2011) measure how strict a country' residents are with its cultural norms without explicitly defining what those norms are and construct an index indicating the cultural tightness (or inversely, looseness) of a nation. We directly use this index in our regressions.

from World Value Surveys by Pellegrino et al. (forthcoming).[45] For each of these measures, we first calculate/obtain cultural distance for each country-pair, computing absolute differences (or directly taking the values in the case of Pellegrino et al. (forthcoming)) and then aggregating at bank–target-country level, using bank branch networks as relative weights.

Trust and cultural distance both matter: all four distance measures have their expected negative sign and are statistically significant at the 1% level, with the exception of the cultural distance measure of Gelfand et al. (2011). When we include these variables as controls (panel B), *Bank-level Trust Bias* still carries a large and significant coefficient. Evidently, standard cultural distance proxies between banks and target countries cannot *fully* explain the impact of trust on sovereign exposures. Trust continues to have an independent effect on banks' lending decisions to governments.

5.4. External Validity: A New Online Survey/Corporate Exposures

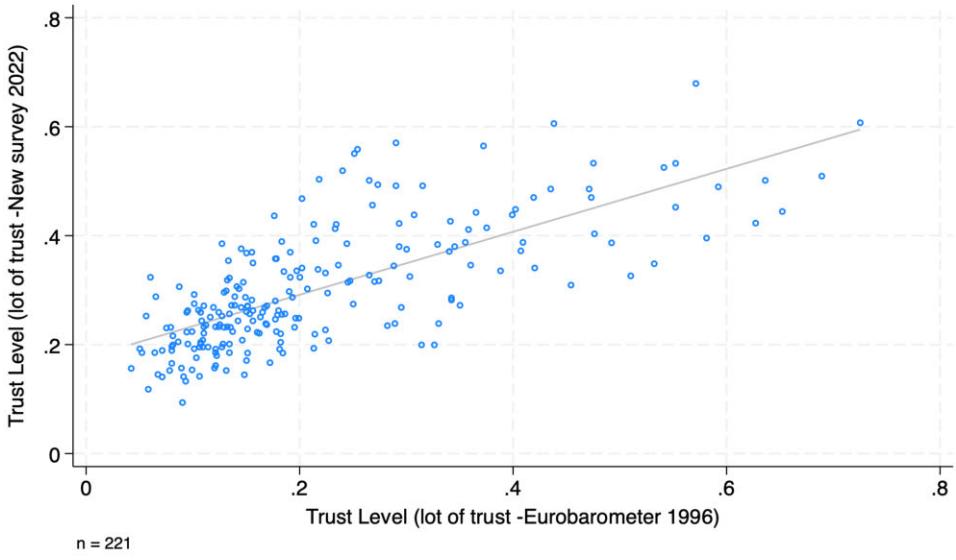
In the preceding, we use the most recent Eurobarometer survey of cultural trust perceptions, which dates from 1996. Previous literature takes culture as given and assumes that it is persistent over time (see Guiso et al., 2009). Still, one may worry that trust perceptions have changed significantly. We therefore conducted a new online survey across 30 European countries to shed light on the stability of bilateral trust over time and the external validity of our results.

The new survey was conducted from June through December, 2022, with the help of the survey company Respondi and its partners. Respondents were asked a set of basic demographic questions as well as their trust levels, using the exact same question-and-answer choices as in the Eurobarometer survey. Each country's survey was translated into the local language and was made nationally representative by imposing quotas on demographic characteristics taken from Gallup World Polls. Only respondents who satisfied these quotas and passed attention tests are included in the final sample.[46] Table 1 provides the relevant summary statistics for bank-level treatment. Online Appendix Table D.1 lists the set of countries covered.

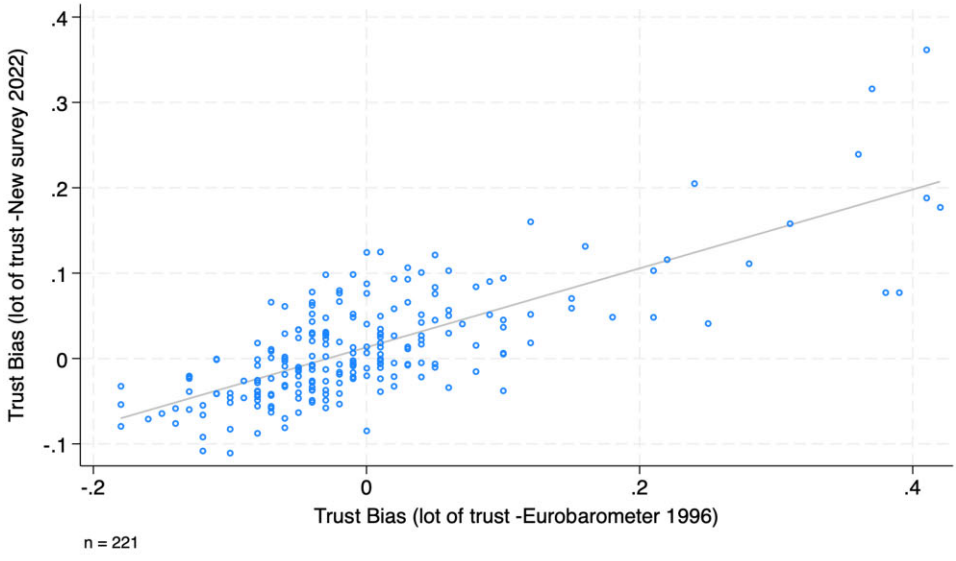
We can compare the Eurobarometer surveys and our online survey by plotting them side-by-side. Figure 4, which shows trust levels (biases) in panel A (B), confirms

45. These authors define cultural distance for each country pair as the average expected disagreement on a question of the World Values Survey by two individuals randomly drawn from those two countries (disagreement = 1 for different answers, 0 for identical answers). Only questions that are available for each country in the pair are used to compute the distance value, which means the precision of the estimate differs across country-pairs. We employ the earliest year available (i.e., 1984) to obtain a time-invariant cross-section of cultural distance values for each country-pair in our sample.

46. Online Appendix Table D.2 shows the resulting estimates of trust levels between countries, where trust is defined as the portion of individuals in the home country expressing "a lot of trust" toward target country. In Online Appendix Table D.3, we compute the resulting biases in trust after taking into account home- and target-country fixed effects. While we report the estimates only for 15 countries in these tables for comparability with Eurobarometer, our new survey includes information for an additional 15 European countries, which we also utilize in our analysis.



(a) Trust levels



(b) Trust biases

FIGURE 4. Trust levels and biases (lot of trust)—Eurobarometer vs. new online survey. This figure represents the scatterplot of the trust levels and biases as measured via Eurobarometer (*x*-axis) and our new online survey (*y*-axis). Trust in both cases is defined as the portion of individuals in home country expressing "a lot of trust" toward target country. Unit of observation is at home–target-country level and sample size is 221.

the strongly positive relationship between the two surveys conducted more than a quarter century apart, consistent with the notion that cultural biases are persistent. The correlation coefficients between the two surveys are 0.72 for trust levels and 0.75 for trust biases (both significant at the 0.01 level).[47]

Next, we check the external validity of our main results using this new survey covering 30 countries (as opposed to 15 in Eurobarometer). This not only gives us a chance to include banks headquartered in additional European countries but also expands the target countries in our sample.[48] Panel A of Table 7 employs the same definition of trust (based on responses affirming "a lot of trust") as in Table 2, while panel B does the same for the alternative measure based on grading responses from 1 to 4.[49] The coefficients of interest are all statistically significant at the 5% level or better. Estimates in panel A for bank-level trust bias are strikingly similar in size to our baseline estimates in Table 2 (especially in column (5)).[50] The results thus support the external validity of our findings and confirm our assumption that cultural stereotypes are persistent over time.

We additionally check the externality validity of our findings vis-à-vis other types of exposures that banks have in the same target countries. For this purpose, we separately collect data from EBA on banks' corporate exposures, which cover only a subset of banks and disclosure dates. Table 8 presents the results, where the dependent variable is defined as a dummy indicating positive corporate exposures in the target country and, alternatively, a continuous variable with log nominal values (in millions) of corporate exposures. In line with the findings of Giannetti and Yafeh (2012) and Hagendorff et al. (2023), we detect a positive and significant relationship between cultural trust and banks' corporate exposures.[51]

47. These high correlations exist despite certain structural differences between our new survey and Eurobarometer. First, our survey was undertaken online, whereas Eurobarometer takes place in person, leading to different selection biases in sampling. Second, our survey has smaller sample sizes per country. Third, different demographic characteristics have been used to make the two surveys nationally representative.

48. A caveat is that our variable of interest (i.e., trust) is in this case measured after sovereign exposures are realized and thus could suffer from endogeneity. The fact that our sample period includes sovereign debt crises heightens the possibility of reverse causality from sovereign debt exposures to trust (measured later in time). Hence, we utilize the historical Eurobarometer surveys for the baseline and additional results in the paper.

49. This is the same definition used in Online Appendix Table C.10.

50. Similarly, the estimates in panel B are very similar to those in Online Appendix Table C.10. However, despite the increase in sample size, standard errors are now substantially larger, potentially reflecting the smaller samples of individuals per country in our new survey compared to Eurobarometer. Online Appendix Table D.4 reports corresponding results when dropping all domestic observations from the sample. Estimates are again comparable but are not as statistically precise as before, especially in more saturated specifications.

51. Results are very similar, even when we focus only on foreign exposures of these banks (see Online Appendix Table D.5).

TABLE 7. External validity—bank-level trust bias (from online survey) and probability of sovereign exposure.

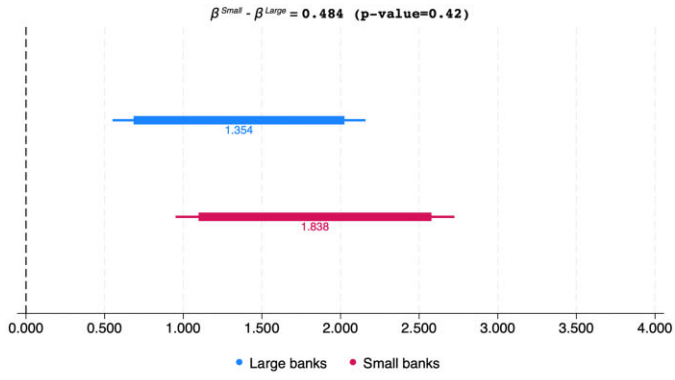
Outcome →	(1) Sovereign exposure	(2) Sovereign exposure	(3) Sovereign exposure	(4) Sovereign exposure	(5) Sovereign exposure
Panel A					
Bank-level trust bias (online—lot of trust)	1.439***	1.531***	1.549***	1.508***	1.561***
	[0.176]	[0.428]	[0.427]	[0.419]	[0.470]
Panel B					
Bank-level trust bias (online—graded)	0.486***	0.664***	0.679***	0.664***	0.682**
	[0.075]	[0.222]	[0.223]	[0.224]	[0.266]
Control for bank-level branches	No	No	Yes	Yes	Yes
Control for bank-level branches (squared)	No	No	No	Yes	Yes
Bank × time FEs	Yes	Yes	Yes	Yes	Yes
Target-country × time FEs	Yes	Yes	Yes	Yes	No
Home-country × target-country FEs	No	Yes	Yes	Yes	No
Home-country × target-country × time FEs	No	No	No	No	Yes
Observations	47,520	47,520	47,520	47,520	43,230

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2. Panel A and panel B display separate estimations with two different independent variables, both of which are sourced from our new online survey undertaken across 30 European countries in the second half of the year 2022. Dependent variable is *Sovereign Exposure*, defined as a dummy variable indicating any positive exposure of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias (online—lot of trust)* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country. *Bank-level Trust Bias (online—graded)* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the average across individuals in home country expressing values from 1 (i.e., "no trust at all") to 4 (i.e., "lot of trust") toward target country. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the detailed construction of the data, see Section 3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

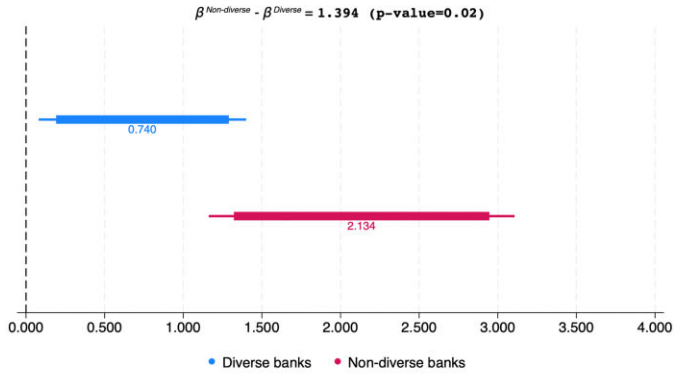
5.5. *Heterogeneity*

Figure 5 reports additional results for banks with more and fewer total assets, banks with more or less widely diversified bond portfolios, and target countries more and less frequently present in those portfolios. In panel A, we categorize banks based on their average total assets within our sample period. In panel B, we compute the number of countries to which a bank has positive exposures and average it over time for each bank. This allows us to calculate a time-invariant measure of diversification and to separate high- and low-diversification banks by choosing the median bank as a threshold. In panel C, we compute the number of times the bonds of a target country are included in portfolios across all banks and times, and then separate countries into two groups based on median values.

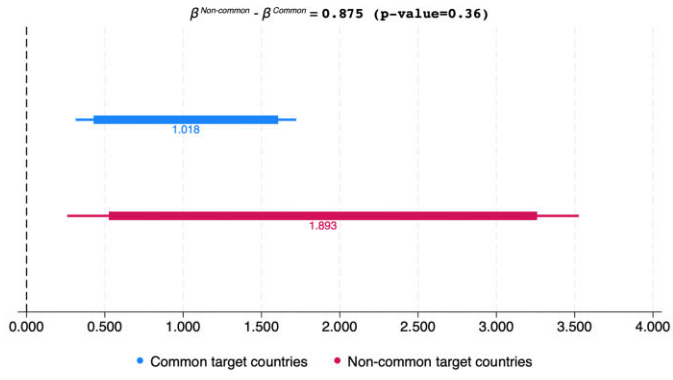
Panel A confirms that stereotypes influence the sovereign portfolios of both large and small banks. Panel B shows that banks whose investment portfolios are



(a) Bank size



(b) Bank diversification



(c) Target country commonness

FIGURE 5. Bank- and country-level heterogeneity in baseline results. The figure summarizes the baseline results estimated for six different subsamples over the full sample period from 2010-Q1 to 2021-Q2. The estimated specification corresponds to column (5) in Table 2, and the coefficients for *Bank-level Trust Bias* are plotted for each subsample. Thicker lines indicate 90% and thinner lines indicate 95% confidence intervals.

TABLE 8. External validity—bank-level trust bias and corporate exposures.

Panel A Outcome →	(1) Corporate exposure (dummy)	(2) Corporate exposure (dummy)	(3) Corporate exposure (dummy)	(4) Corporate exposure (dummy)	(5) Corporate exposure (dummy)
Bank-level trust bias	2.200***	1.592***	1.687***	1.596***	1.556***
	[0.131]	[0.435]	[0.462]	[0.436]	[0.484]
Panel B Outcome →	Corporate exposure (log nominal)	Corporate exposure (log nominal)	Corporate exposure (log nominal)	Corporate exposure (log nominal)	Corporate exposure (log nominal)
Bank-level trust bias	18.338***	12.688***	13.868***	13.034***	12.751***
	[0.916]	[3.197]	[3.504]	[3.194]	[3.498]
Control for bank-level branches	No	No	Yes	Yes	Yes
Control for bank-level branches (squared)	No	No	No	Yes	Yes
Bank × time FEs	Yes	Yes	Yes	Yes	Yes
Target-country × time FEs	Yes	Yes	Yes	Yes	No
Home-country × target-country FEs	No	Yes	Yes	Yes	No
Home-country × target-country × time FEs	No	No	No	No	Yes
Observations	18,255	18,255	18,255	18,255	16,620

Notes: The table summarizes the results of equation (1) estimated over the full sample period from 2010-Q1 to 2021-Q2. Dependent variable is *Corporate Exposure*, defined either as a dummy variable indicating any positive exposure (panel A) or the logarithmic—log $(x + 1)$—nominal exposure (in millions; panel B) of a bank toward a target country at a point in time reported in EBA and CEBS disclosures. *Bank-level Trust Bias* is computed for each bank–target-country pair as the branch-weighted average (see equation (2)) of the residuals from a gravity model of trust (see equation (3)), where trust is defined as the portion of individuals in home country expressing "a lot of trust" toward target country, measured via Eurobarometer surveys. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. All branch-related information is from SNL Financial. For the detailed construction of the data, see Section 3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

widely diversified across countries are less likely to allow trust biases to affect their lending decisions. An interpretation is that more widely diversified banks are more sophisticated and have more sources of hard information. These findings are thus consistent with previous evidence that sophisticated investors are less likely to exhibit cultural biases (Grinblatt and Keloharju, 2001). In addition, trust appears to be less important—albeit insignificantly—for target countries whose bonds are frequently present in bank portfolios (panel C), an example being Germany. This is consistent with evidence that familiarity may mitigate the role of trust in financial decisions (Pursiainen, 2022).

5.6. Salience Shocks: Eurozone Crises and Brexit Referendum

In this section, we focus on two types of salience shocks potentially amplifying the role of trust in banks' lending decisions to governments. The first one is the

Eurozone debt crisis impacting countries such as Greece and Italy. Second is the Brexit referendum, which highlighted questions about the steadfastness of the UK's commitment to the European Union and potentially amplified the role of trust in EU banks' lending decisions to the country. We think of both shocks as focusing the attention of bank investment committees on the trustworthiness of the affected countries, thereby amplifying the effects of preexisting trust biases. We thus think of these shocks as increasing the "salience" of trust biases, similar to how Fouka and Voth (2022) characterize the Eurozone crisis as increasing the salience of preexisting resentment in Greece over historic German wartime acts, and how Guiso and Makarin (2020) show that trust had a larger than average impact on trade flows following the Global Financial Crisis.

We analyze these events both by focusing on short time intervals around the relevant shocks (plus/minus 2 years) and by utilizing our full sample, estimating the following model:

$$\begin{aligned}\text{Sovereign Exposure}_{b,h,c,t} = {} & \beta_1 \text{Bank-level Trust Bias}_{bc} \times \text{Eurozone Crises}_{ct} \\ & + \beta_2 \text{Bank-level Trust Bias}_{bc} + \beta_3 \text{Bank Branches}_{bc} \\ & + \beta_4 \gamma_{bt} + \beta_5 \lambda_{hct} + \varepsilon_{bhct}, \end{aligned} \tag{4}$$

where $Eurozone\,Crises_{ct}$ is a dummy variable indicating when target country c experiences a sovereign debt crisis at time point t. To gauge the point of crisis, we use a threshold for the preceding 3 month-period of at least 400 basis points average daily bond yields above that of Germany (as in Brutti and Saure, 2016).

Results are reported in Online Appendix Table D.6. Panel A defines the dependent variable as a dummy for sovereign exposures, while panel B uses the continuous version of the same variable. Columns (1) and (2) employ the full sample, whereas columns (3) and (4) create an event study setting focusing on the plus/minus two-year period around ECB President Mario Draghi's "Whatever it takes" speech on July 26, 2012. The resulting coefficients support our prediction that salience shocks strengthen the role of trust in banks' investment decisions. When faced with adverse shocks hitting sovereign debt markets of target countries, banks increasingly resort to their cultural stereotypes in deciding to which country and how much to lend. In panel A, the total effect for bank-level trust bias (interaction + baseline) is at least three times that in our baseline estimates in Table 2, underlining the importance of these time-varying salience shocks for the relationship between trust and investments.

The second part of our investigation, focusing on Brexit salience, estimates the following model:

$$\begin{aligned}\text{Sovereign Exposure}_{b,h,c,t} = {} & \beta_1 \text{Bank-level Trust Bias}_{bc} \times \text{Brexit Salience}_{hct} \\ & + \beta_2 \text{Bank-level Trust Bias}_{bc} + \beta_3 \text{Bank Branches}_{bc} \\ & + \beta_4 \gamma_{bt} + \beta_5 \lambda_{hct} + \varepsilon_{bhct}, \end{aligned} \tag{5}$$

where $Brexit\,Salience_{hct}$ is a dummy variable indicating banks headquartered in EU countries (h), facing the United Kingdom as a target country (c), after Brexit

referendum took place on June 23, 2016 (t). Note that this variable, similar to $Eurozone\,Crises_{ct}$ in our previous setting, can only be estimated in interaction form due to our saturated fixed effect specification.

Results are reported in Online Appendix Table D.7, where we again focus on both types of dependent variables (panels A and B), the full period versus event study periods around the Brexit referendum (columns (1)–(2) vs. (3)–(4)), and all exposures versus foreign exposures (columns (1)–(3) vs. (2)–(4)). Estimates for the interaction coefficient generally have the expected positive sign but are precisely estimated only in panel B. This suggests that the *Brexit Salience* operates more strongly via the intensive margin of sovereign exposures. That is, assuming Brexit was a negative shock for the UK sovereign debt market, low-trust EU banks do not exit the UK sovereign debt market more than the high-trust EU banks. Instead, they reduce their exposures.

6. Mechanisms

In this section we discuss why the cultural biases of branch employees are important for an investment strategy whose broad parameters are set by board members and officers at bank headquarters.

Decisions at bank headquarters are shaped by information and personnel flows up the organizational hierarchy from branches to the C-suite and boardroom. As the Corporate Finance Institute (2021) writes, "... banks have a rigid and strict hierarchy that is comparable to a military organization, where each rank means a great deal..." A number of studies have examined the impact of these organizational hierarchies on banks' economic decision-making. Liberti and Mian (2009) find that greater hierarchical and geographical distance between the information-collecting agent and loan-approving officer leads to less reliance on subjective information and more on objective information. Skrastins and Vig (2018) find that increased hierarchization of branches reduces the volume of credit extension, worsens loan performance, and leads to greater standardization of loan contracts. Motivation for these studies differs, but they have in common their treatment of banks as hierarchies.

We follow this literature by modeling banks as hierarchies linking headquarters, where broad strategic decisions are made, with branches and subsidiaries, from which human capital and information flow. Panel B in Figure 1 is a visual representation.[52] Loan officers, portfolio managers, investment analysts and other subordinates in

52. Despite being theoretically possible, we consider the first mechanism here, namely the delegation of sovereign bond investment decisions from bank headquarters to subsidiaries, to be of negligible importance, given that our focus is on the entry/exit decisions of multinational banks, which are centrally decided by high-level managerial teams at bank headquarters. The literature discusses cases where bank subsidiaries and branches set their own deposit rates, hire their own tellers, award promotions to their own employees, pick bank hours, and design the process for selling new investment products to retail customers (Nagar, 2002; Dlugosz et al. 2024), but not their entry/exit decisions from a particular sovereign debt market. Our discussions with individuals working in multinational banks also provided various anecdotes inconsistent with the operation of this mechanism.

the countries in which the bank operates provide information to headquarters. Headquarters, which in practice means the CEO, board, and investment committee, is then responsible for making broad strategic decisions about the investment portfolio. Those inputs are colored by the trust subordinates display toward countries of potential investment. Those inputs are aggregated and assessed by the bank's top officers, who then establish guidelines for the bank's investment decisions.

Employees of a foreign subsidiary are residents of the country in question and tend also to be citizens of that country. This justifies imputing to them the cultural attitudes of residents of that country. In practice, the cultural stereotypes of the employees of foreign subsidiaries can influence decisions made at headquarters through disembodied information flows transmitted via internal reports, meetings, phone calls, and other types of communication. We cannot directly distinguish this channel, however, since we lack data on such internal information flows for banks in our sample.

We therefore utilize a dataset made available by Hassan et al. (2024), which documents firm-level sentiments toward various target countries expressed during earnings calls by managers of publicly traded firms. This dataset, spanning the 2002–2020 period, covers a broad range of countries where firms are located (i.e., home countries) and a broad range of countries that firm managers "talk about" (i.e., target countries). Because such communications are open to the public, managers are less likely to reveal subjective beliefs and biases in their statements, which stacks the cards against our hypothesis.

We aggregate these firm-level data at the country level and construct a dependent variable by computing the average managerial sentiments across firms located in the same home country, talking about the same target country at the same point in time. We then estimate the following specification:

$$\text{Managerial Sentiments}_{h,c,t} = \beta_1 \text{Country-level Trust Bias}_{hc} + \beta 2\gamma_{ht} + \beta_3 \lambda_{ct} + \varepsilon_{hct}. \tag{6}$$

A positive coefficient for β_1 would be consistent with the information channel in panel B of Figure 1. It implies that managers express sentiments that are positively related to the cultural trust biases of the country where their firms are located. The fact that we include time-varying target-country fixed effects makes it unlikely that managerial sentiments reflect any fundamental information regarding these target countries.

Table 9 reports the results for four alternative definitions of trust biases. The first two columns focus only on financial firms, whereas the latter two columns aggregate the data across all firms available in Hassan et al. (2024). Columns (1) and (3) include all country-pair observations, while columns (2) and (4) exclude the observations where home and target countries overlap. Overall, there is a strong positive relationship between country-level trust biases and managerial sentiments expressed with regard to different target countries. According to Column (1) of panel A, a one-standard-deviation increase in trust biases is associated with a 0.16 more positive

TABLE 9. Country-level trust bias and managers' country-specific sentiments during earning calls.

Outcome →	(1) Managerial sentiments	(2) Managerial sentiments	(3) Managerial sentiments	(4) Managerial sentiments
Panel A				
Country-level trust bias (lot of trust—Eurobarometer)	1.612***	0.838**	1.046***	0.571***
	[0.288]	[0.365]	[0.121]	[0.145]
Observations	11,465	10,750	12,212	11,459
Panel B				
Country-level trust bias (graded—Eurobarometer)	0.593***	0.153*	0.406***	0.125***
	[0.141]	[0.087]	[0.076]	[0.045]
Observations	11,465	10,750	12,212	11,459
Panel C				
Country-level trust bias (lot of trust—online survey)	2.173***	0.594**	1.823***	0.322**
	[0.626]	[0.262]	[0.506]	[0.152]
Observations	18,956	17,988	21,910	20,869
Panel D				
Country-level trust bias (graded—online survey)	0.481**	0.060	0.494**	0.026
	[0.189]	[0.088]	[0.192]	[0.042]
Observations	18,956	17,988	21,910	20,869
Home-country × time FEs	Yes	Yes	Yes	Yes
Target-country × time FEs	Yes	Yes	Yes	Yes
Aggregated over	Financial firms	Financial firms	All firms	All firms
Country-pair sample	All	H-Country≠ T-Country	All	H-Country≠ T-Country

Notes: The table summarizes the results of equation (6) estimated over the full sample period from 2002-Q1 to 2020-Q4. Each panel displays a separate estimation with a different definition of *Country-level Trust Bias*, sourced either from Eurobarometer (panels A/B) or from our new online survey (panels C/D). Dependent variable is *Managerial Sentiments*, defined as the average managerial sentiment expressed across firms located in the same home country, talking about the same target country, at the same point in time, sourced from Hassan et al. (2024). For the detailed construction of the data, see Section 3. Robust standard errors are clustered at country-pair level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

tone in managerial sentiments. This is more than half of the standard deviation of the dependent variable (see Table 1).

One might think that senior managers at headquarters are able to override prejudices and inefficiencies created by a lack of trust of employees of local subsidiaries. But the cultural stereotypes of employees of foreign subsidiaries can also affect decisions at headquarters through human capital flows that shape the composition of high-level managerial teams. Corporate culture in bank headquarters can be shaped by the tendency of banks to hire and promote internally for high-level

managerial posts.[53] Given this tendency toward internal promotion, the more branches and employees a bank has in a country, the more likely it is that this nationality will be represented at directorial/managerial levels, other things being equal.

To provide empirical support for this mechanism, we gathered data from *BankFocus* on current and former directors and managers employed in the headquarters of the banks in our sample.[54] We then estimated the following specification at the bank–target-country level:

$$\text{Nationality at HQ}_{b,h,c} = \beta_1 \text{Bank Branches}_{bc} + \beta_2 \gamma_b + \beta_3 \mu_c + \beta_4 \lambda_{hc} + \varepsilon_{bhc}, \quad (7)$$

where *Nationality at* $HQ_{b,h,c}$ indicates whether, as of year 2022, bank b headquartered in country h has (or had) directors or managers with the nationality of the target country c. The variable of interest, *Bank Branches*$_{bc}$, measures branch presence of the bank b in target country c in 2016.

The first panel of Table 10 uses the number of bank branches, the second the log number of bank branches, and the third the share of the branches in the target country within the total branch portfolio of the bank. Column (1) does not include controls; subsequent columns progressively saturate the estimations with *Bank*, *Target Country*, and *Home-Country* × *Target-Country* fixed effects. The results support the conjecture that managerial teams disproportionately come from countries where banks have subsidiaries/branches. Column (5) indicates that a one-standard-deviation increase in the log number of branches in a target country is associated with an 8.4% rise in the probability of that country being represented among employees at bank headquarters. This corresponds to one third of the mean for the outcome variable.[55]

While this analysis does not establish a causal link between branch networks and the nationality composition of employees at bank headquarters, it is consistent with our framework of banks as hierarchies. It is consistent with the assumption that banks hire and promote from within, such that that the national composition of its branch network will affect the national composition of its board of directors, and that cultural stereotypes coloring information transmitted by subordinates will be received by directors with broadly similar cultural traits and biases.

53. To cite one data point, UBS filled more than a third of its vacancies internally in 2015 (Butcher, 2016).

54. Although we can trace individuals' names across all banks in our sample, we can see directors' and managers' nationalities only for a subset of banks, which is why the number of banks included in the sample for this part of the analysis is smaller (≈20% of the bank sample in Table 2).

55. In Online Appendix Table E.1, we restrict our sample to foreign target countries; and in Online Appendix Table E.2, we double-cluster the standard errors by country-pair and bank. In Online Appendix Tables E.3 and E.4, we restrict the sample of employees to senior managers (i.e., the executive board, board of directors, and senior management) for the full sample and only for foreign target countries, respectively. In Online Appendix Tables E.5 and E.6, we restrict the sample to the first (i.e., main) nationalities of the employees, again separately for all targets and for foreign targets. And in Online Appendix Tables E.7 and E.8, we similarly restrict the sample to the current managers (as of November 2022). Our interpretations are supported in all cases.

TABLE 10. Bank-level branch networks and nationalities of directors/managers at bank headquarters.

Outcome →	(1) Nationality at HQ	(2) Nationality at HQ	(3) Nationality at HQ	(4) Nationality at HQ	(5) Nationality at HQ
Panel A					
Bank branches in target country	0.278***	0.281***	0.157***	0.156***	0.121**
	[0.043]	[0.042]	[0.024]	[0.024]	[0.053]
Panel B					
Log of bank branches in target country	0.110***	0.111***	0.074***	0.071***	0.046***
	[0.008]	[0.008]	[0.009]	[0.010]	[0.014]
Panel C					
Share of bank branches in target country	1.105***	1.105***	0.590***	0.590***	0.682**
	[0.087]	[0.087]	[0.096]	[0.096]	[0.282]
Bank FEs	No	Yes	No	Yes	Yes
Target-country FEs	No	No	Yes	Yes	No
Home-country × target-country FEs	No	No	No	No	Yes
Observations	660	660	660	660	600

Notes: The table summarizes the results of equation (7) estimated over a subset of banks included in EBA and CEBS disclosures. Each panel displays a separate estimation. Dependent variable is *Nationality at HQ*, defined as a dummy variable indicating whether the nationality of a target country is (or has ever been) represented among the employees of the bank at headquarters, sourced from BankFocus. *Bank Branches* measures the number of bank branches (in thousands) that the bank owns in the target country. *Log of Bank Branches* measures the logarithmic number ($x + 1$) of bank branches (in thousands) that the bank owns in the target country. *Share of Bank Branches* measures the bank branches that the bank owns in the target country divided by the total number of bank branches it owns across all target countries. All branch-related information is from SNL Financial. For the detailed construction of the data, see Section 3. Robust standard errors are clustered at the bank level and reported in brackets. *Significant at 10%; **significant at 5%; ***significant at 1%.

A further implication relates to how banks should think about the composition of managerial teams. In our framework, biases transmitted by bank managers of different nationalities cut in different directions. If cultural biases matter, and if their influence is partially imposed via the national composition of managerial teams, then diversity in bank management could bring a more balanced view of potential investments and consequently a more efficient portfolio allocation.[56]

7. Conclusion

Individuals vary in the trust they place in residents of other countries. This variation has been shown, using aggregate country-level data, to affect a range of cross-border transactions. We consider how these cultural stereotypes (or biases) influence

56. Consistent with this view, a recent literature across social sciences documents the benefits of cultural diversity in increasing the informational quality of consensus decisions reached within group settings (see, among others, Herring, 2009; Levine et al., 2014; Page, 2019; Merkley, Michaely, and Pacelli, 2020).

investment decisions at the individual bank level. Building on the geography of branch networks, we develop a bank-specific measure of these cultural stereotypes. This allows us to compare the sovereign exposures of banks headquartered in the same country, at the same point in time, with regard to the same target country of investment, thus ruling out omitted factors at the country and country-pair level that potentially confound previous analyses.

Using data on the sovereign bond portfolios, we then show that the trust of residents of a bank's countries of operation in residents of the country that is a potential target of investment has a positive, statistically significant and economically important impact on its sovereign exposures. This is the first evidence of the importance of cultural biases for bank lending to governments. It is the first analysis of the acquisition and transmission of such biases via the operation of multinational bank branch networks.

Well-diversified, relatively sophisticated banks are less likely to be influenced by trust biases. Similarly, banks with well-diversified branch networks and management teams suffer less from such biases. For a bank with a branch network that is well diversified geographically, the overall bias transmitted by different national branches will tend to zero. Since trust bias can take on both positive and negative values, the pluses and minuses will tend to cancel out as more nationalities are represented in decision-making processes.

Our findings have implications for the operation of financial markets. Because we are comparing banks from the same home country investing in the same target country, and because we are focusing on sovereign debt markets where lender-borrower interactions are not relational and default is rarely selective, trust differentials affecting portfolio composition may lead to inefficiencies in investment decisions of banks. Insofar as trust-induced differences in portfolio decisions across banks have nothing to do with the fundamental risk-return trade-off of investing in the target country but simply reflect cultural stereotypes held by that bank's employees and board, they are likely to indicate divergences from optimal portfolio allocations.

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Supplementary Material

Supplementary data are available at *JEEA* online.

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