Banking under Conflict: Managers and Organizational Design*

Job Market Paper

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Abstract

How do organizations adapt internally when ethnic divisions intensify? We develop a model in which organizations jointly choose managerial appointments and delegation when locally matched managers have better information but are less aligned with headquarters, and test it using a panel of Ethiopian bank branches. Exploiting variation in banks' exposure to ethnic conflict across their branch networks, we find that conflict increases the appointment of locally matched managers, while reducing those managers' lending autonomy. Conflict-exposed branches are more likely to be staffed by insiders reassigned within the bank. An LLM-based CEO vignette exercise corroborates this mechanism.

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1 Introduction

How do organizations allocate decision-making authority when they operate across socially divided populations, and how do they adapt when those divisions deepen? Organizations face a well-known trade-off between local knowledge and internal communication costs (Garicano, 2000): delegating decisions to better-informed local agents improves the use of specialized knowledge but exposes the organization to those agents' biases (Dessein, 2002; Alonso, Dessein and Matouschek, 2008). In socially divided environments, this trade-off takes on an additional dimension, as employees' group identity can shape organizational design. Matching employees to customers by group identity may improve access to local information, but also create incentives for employees to favor those customers at the organization's expense. We examine these issues in the context of the banking sector – an ideal setting given its reliance on information and its comparative advantage in gathering and processing data to screen and monitor customers (Hertzberg, Liberti and Paravisini, 2010; Liberti and Mian, 2009).

Over the last decade, we have collected a novel panel dataset on the ethnicity of the manager and the organizational structure of bank branches in Ethiopia to study this issue. We also collect data highlighting a distinctive feature of banking in Ethiopia: banks are strongly associated with specific ethnic groups, as reflected in their leadership and dominant language (Regasa, Fielding and Roberts, 2022). Banks operating in areas populated by other ethnic groups must choose between hiring managers of the city's predominant ethnic group ("city-coethnic"), who are better informed about local borrowers, and less-informed managers coethnic with the bank ("bank-coethnic"), who facilitate better communication about those clients within the bank.

The empirical identification of how banks respond to changes in this information-alignment trade-off is challenging, as it requires variation exogenous to both bank-level and local conditions. To address this, we focus on a source of variation that affects the costs of information acquisition and communication within banks, without directly influencing local conditions. Specifically, we study the effect of banks' exposure to conflict involving the bank's ethnic group. To separate this effect from local economic conditions, we measure exposure through a bank's branch network, excluding conflict events near the branch's own city (Hjort, 2014; Rohner, Thoenig and Zilibotti, 2013; Korovkin and Makarin, 2023).[1] Using a panel of 979 branches operated by 16 banks before and after the onset of the 2020 civil war, we estimate how this network-based exposure reshapes branch organization and lending, controlling for branch and time fixed effects.

To guide our analysis, we develop a model of managerial assignment and delegation building on Dessein (2002) and Alonso, Dessein and Matouschek (2008). The key extension relative

[1] We use data from the Armed Conflict Location and Event Data Project (ACLED) to measure the location, timing, actors and intensity of conflict.

to these frameworks is that the bank jointly chooses the ethnicity of the branch manager and the authority delegated to that manager. City-coethnic managers may be better able to acquire soft information, but may also be less aligned with headquarters and more prone to in-group favoritism. When ethnic conflict intensifies, this trade-off between information and alignment sharpens. The model yields an unambiguous prediction for delegation: headquarters reduces the authority delegated to managers who match the city's ethnicity. The prediction for manager ethnicity, however, is ambiguous – the optimal adjustment depends on the relative effects of conflict on information acquisition and incentive alignment.

We first document a sharp shift in manager ethnicity in cities where the predominant local ethnicity differs from the bank's dominant ethnic group. In 2018, before the civil war, 77 percent of branch managers in these cities were coethnic with the bank; by 2022, that share had fallen to 35 percent. We then show that this shift is concentrated in branches more exposed, through the bank's branch network, to ethnic conflict involving the bank's ethnic group. Greater conflict exposure increases the likelihood that these branches appoint city-coethnic managers, while reducing those managers' lending autonomy, measured by the largest loan they can approve without headquarters' approval. This pattern suggests that banks respond to ethnic conflict by relying more on managers who share customers' ethnicity to acquire local information, while limiting the resulting incentive costs by lowering loan approval limits. Consistent with this interpretation, the greater the share of the population that shares the manager's ethnicity, the less authority the manager is granted, in particular after the onset of the conflict. Conflict-exposed branches are also more likely to be staffed by experienced managers reassigned from elsewhere in the same bank, suggesting greater reliance on trusted insiders. By contrast, we find no evidence of a change in the choice of manager ethnicity in bank-coethnic cities.

We then examine how network conflict exposure changes branch-level lending. In cities not coethnic with the bank, exposed branches issue fewer loans, but we find no evidence for an effect on the size of the geographic area these branches serve or average loan size. In bank-coethnic cities, exposed branches serve customers closer to the branch, and increase the average loan size. Lending rates, collateral requirements, and default rates appear unaffected. This suggests lending activity is sustained through these organizational adjustments.

We complement the main analysis with a vignette exercise using LLM-generated synthetic bank CEOs, following Horton, Filippas and Manning (2023). Across branch-year scenarios constructed from our survey data and bank annual reports, we vary the ethnicity of the hypothetical branch manager and the branch network's exposure to ethnic conflict. The synthetic CEOs mirror the same trade-off highlighted by the model and the data: they view managers who match the city's population as better able to acquire local information, but also as more prone to favoritism and harder to align with headquarters, leading to tighter delegation when conflict exposure is high.

We use this exercise to discipline interpretation of our findings and to open the organizational black box.

We corroborate the main findings using an instrument based on banks' pre-conflict proximity to cities historically associated with Beta Israel communities. The migration of Ethiopian Jews from these areas is linked to later disputed border configurations, which in turn predict subsequent exposure to ethnic conflict through the bank's branch network. The resulting estimates support our main organizational and lending results. Finally, we show that the combination of the patterns we document is difficult to reconcile with alternative mechanisms, including managers' own safety concerns, customers' preferences for coethnic managers, and employees' preferences for managers who share their ethnicity.

We contribute to three bodies of literature. First, we contribute to the literature on conflict by showing how violent ethnic conflict reshapes the internal organization of firms. Recent work shows that conflict can reorganize economic and social activity well beyond directly exposed markets (Fetzer et al., 2021; Sviatschi, 2022; Melnikov, Schmidt-Padilla and Sviatschi, 2025; Korovkin, Makarin and Miyauchi, 2025), and distort investment and other economic interactions (Fisman et al., 2020; Hjort, Song and Yenkey, 2025). We show that firms also respond by reorganizing internally, changing both who holds authority and how much authority is delegated. We complement Hjort (2014), who studies firms' adjustment of a single incentive margin, by documenting a broader set of organizational responses that help sustain lending under ethnic conflict. Specifically in banking, our paper joins a growing body of evidence on both the costs and the benefits of matching customers and employees along group lines: Fisman, Paravisini and Vig (2017) and Frame et al. (2025) study the benefits of matching in lending, while D'Acunto, Ghosh and Rossi (2026), Fisman et al. (2020) and Eichengreen and Saka (2026) study how cultural proximity and stereotypes can distort credit allocation.

Second, we contribute to organizational economics by providing an empirical setting to study the trade-off between local information and incentive alignment that is central to theories of delegation (Aghion and Tirole, 1997; Dessein, 2002; Alonso, Dessein and Matouschek, 2008). The theoretical literature typically varies the allocation of authority while holding the agent fixed, while the assignment literature varies who is appointed while holding authority fixed (Xu, Bertrand and Burgess, 2023; Dlugosz et al., 2024). Our setting allows us to study how organizations jointly adjust these margins when external conditions shift. This highlights how organizations actively manage the distortions documented in a recent finance literature: social ties can improve the quality of credit, but cultural proximity and stereotypes can also distort lending decisions (Brock and De Haas, 2023; Rehbein and Rother, 2025).

Third, we contribute to the literature on diversity and economic performance, showing that in polarized environments firms may optimally increase customer-facing diversity while simulta-

neously tightening internal controls. This highlights an important caveat to a recent literature that emphasizes the value of in-group homogeneity within firms (e.g., Espinosa and Delfino, 2024; Spenkuch, Teso and Xu, 2023; Colonnelli, Neto and Teso, 2025; Benson, Board and Meyer-ter Vehn, 2024; Ghosh, 2025), and complements evidence that diversity within organizations can improve performance (Rasul and Rogger, 2015; Lu, Naik and Teo, 2024). These firm-level adaptations help connect the macroeconomic literature on the negative link between diversity and economic growth (Easterly and Levine, 1997; Alesina and La Ferrara, 2005; La Ferrara, 2003; Miguel and Gugerty, 2005; Ashraf and Galor, 2013) with the microeconomic literature on inter-group frictions in economic interactions described above. Our findings also speak to how private organizations, alongside public institutions (Carlitz et al., 2025), adapt to govern inter-group frictions in divided societies.

The remainder of the paper proceeds as follows. Section 2 presents the theoretical framework and outlines the institutional context. In Section 3, we describe the data, our empirical testing strategy for the theoretical predictions, and the quasi-experimental variation in conflict stemming from the Beta Israel migration. Section 4 then details the empirical model, the main results and the synthetic CEO methodology. Section 5 considers alternative mechanisms. Finally, we discuss and interpret our findings in Section 6.

2 Model

Consider a bank operating a network of branches in a diverse environment in which a city's local population and the bank may be associated with different ethnic groups. The bank now faces a choice between hiring a manager coethnic with the bank and a manager coethnic with the city. This choice matters as the latter has better access to information from loan applicants who share her ethnicity (Fisman, Paravisini and Vig, 2017), but may also have an incentive to give those loan applicants excessively favorable lending terms from the bank's perspective (Fisman et al., 2020). Here, we develop a theoretical model building on the cheap-talk delegation literature (Aghion and Tirole, 1997; Dessein, 2002; Alonso, Dessein and Matouschek, 2008; Stein, 2002; Liberti and Mian, 2009) to formalize this trade-off. This model yields a joint prediction on the choice of the ethnicity of the manager and the amount of delegated authority to give that manager conditional on her ethnicity.

We model conflict as affecting both the relative ability of managers of different ethnic groups to acquire information from a loan applicant, and their bias toward members of their own group. These assumptions follow from an extensive literature that shows identity shapes economic behavior (Akerlof and Kranton, 2000), and that conflict affects how individuals identify with their own ethnic group and their general trust (Rohner, Thoenig and Zilibotti, 2013). Extant literature shows

that exposure to conflict affects the biases of loan officers toward their own group (Fisman et al., 2020) and the biases of professionals more generally (Shayo and Zussman, 2017).

Environment. A loan has verifiable size $L \in [\underline{L}, \bar{L}]$ and a mean-zero payoff-relevant state s (the optimal lending stance) with variance V. The party holding authority chooses a noncontractible lending stance y, and HQ incurs $L(y-s)^2$. Let B denote a manager coethnic with the bank, C one coethnic with the city. Then, let $\pi_i \equiv \mathbb{P}(g = i)$ be the share of borrowers coethnic with manager i; when the bank and city groups differ, $\pi_C > \pi_B$. Manager types have the same ability to acquire information from and bias toward in-group loan applicants; differences in their behavior arise through π_i. Manager i has payoff

$$u_i(y, s, g, L) = -L\left[y - (s + b(\gamma)\mathbf{1}\{g = i\})\right]^2, \tag{1}$$

where $b(\gamma) > 0$ is own-group bias; she is aligned with HQ on out-group loans.

When a branch manager evaluates a loan, the loan applicant generates a mean-zero recordable posterior assessment x_i, with variance $\chi^I(\gamma)$ for an in-group borrower and $\chi^O(\gamma)$ for an out-group borrower. Because x_i is a posterior mean, a larger χ represents a more informative assessment.

When the branch manager and loan applicant share an ethnic group, this additionally generates soft information: an assessment $t_i \sim U[-q(\gamma), q(\gamma)]$. Define

$$\Delta_\chi(\gamma) \equiv \chi^I(\gamma) - \chi^O(\gamma) \geq 0, \qquad \bar{\chi}_i(\gamma) \equiv \chi^O(\gamma) + \pi_i \Delta_\chi(\gamma), \tag{2}$$

$$I_i(\gamma) \equiv V - \bar{\chi}_i(\gamma) - \pi_i \frac{q(\gamma)^2}{3}. \tag{3}$$

Conflict satisfies

$$b'(\gamma) > 0, \qquad q'(\gamma) \leq 0, \qquad \chi^{O\prime}(\gamma) < \chi^{I\prime}(\gamma) \leq 0, \tag{4}$$

so $\Delta'_\chi(\gamma) > 0$: cross-group information deteriorates more quickly than in-group information. See A.2 for a Bayesian implementation.

Before information is realized, HQ appoints a manager and commits to an authority schedule based on manager type and loan size. Under delegation, the manager chooses y. Under review, HQ observes x_i, receives a cheap-talk report about t_i on own-group loans, chooses y, and pays $\kappa > 0$. $\kappa > 0$ captures a fixed cost the HQ incurs to process a loan application. We do not allow the authority schedule to condition on the loan applicants' ethnicity. See A.1–A.4 for the microfoundations.

Authority. Under delegation and centralization, respectively, the expected losses are

$$\ell_i^{\text{del}}(L) = \left(I_i + \pi_i b^2\right) L, \tag{5}$$

$$\ell_i^{\text{hq}}(L) = \left(I_i + \pi_i \frac{q^2}{3}\right) L + \kappa. \tag{6}$$

Centralization removes the manager's bias, at the cost of soft information. Define

$$d(\gamma) \equiv b(\gamma)^2 - \frac{q(\gamma)^2}{3}, \qquad h_i(\gamma) \equiv \pi_i d(\gamma). \tag{7}$$

HQ delegates if and only if $h_i(\gamma)L \leq \kappa$. If $h_i \leq 0$, all loans are delegated; if $h_i > 0$, the approval limit is

$$\widehat{L}_i^*(\gamma) = \frac{\kappa}{h_i(\gamma)}. \tag{8}$$

Appointment. Let loan size have a continuous distribution F and mean $\mu \equiv \mathbb{E}[L]$. Anticipating the authority rule, HQ's operating loss under manager i is

$$\Lambda_i(\gamma) = V\mu - \bar{\chi}_i(\gamma)\mu + \mathbb{E}[\min\{\pi_i d(\gamma)L, \kappa\}]\,. \tag{9}$$

Let $w_i(\gamma)$ represent the ethnicity-specific assignment costs, varying with ethnicity and conflict due to potential safety or relocation costs, and set $\Omega_i \equiv \Lambda_i + w_i$. HQ chooses the candidate with the lowest Ω_i. For B and C, let $\Phi \equiv \Lambda_B - \Lambda_C$ and $\Psi \equiv \Omega_B - \Omega_C = \Phi + w_B - w_C$; conflict favors C when $\Psi' > 0$. See A.6 for the exact decomposition and A.7 for the assignment-cost extension.

2.1 Comparative statics and empirical interpretation

Let $D_i(L, \gamma) = \mathbf{1}\{\pi_i d(\gamma)L \leq \kappa\}$, $A_i = \mathbb{E}[D_i]$, and $M_{D,i} = \mathbb{E}[LD_i]$.

Proposition 1 (Appointment and authority)**.** *Suppose the primitives are differentiable, π_i is fixed in conflict, (4) holds, and F is continuous; for Part 1, suppose the bank and city groups differ, so $\pi_C > \pi_B$.*

(i). Conflict favors C if and only if

$$\mu(\pi_C - \pi_B)\Delta_\chi' + (w_B' - w_C') > d'\left(\pi_C M_{D,C} - \pi_B M_{D,B}\right). \tag{10}$$

With equal assignment-cost responses, the interpretable comparison is

$$\Delta_\chi'(\gamma) > d'(\gamma), \tag{11}$$

which is sufficient in general and necessary and sufficient under full delegation.

(ii). Conflict weakly reduces authority conditional on manager type. For $\pi_i > 0$ and $\gamma_2 > \gamma_1$, $D_i(L, \gamma_2) \leq D_i(L, \gamma_1)$ for every L; whenever $h_i > 0$, $\widehat{L}_i^*$ strictly decreases.

(iii). Holding b and q fixed, a larger coethnic customer share weakly lowers authority. If $d > 0$, $\widehat{L}_i^* = \kappa/(\pi_i d)$ strictly decreases in $\pi_i > 0$; if $d \leq 0$, all loans remain delegated.

Derivation. The envelope theorem gives

$$\Psi' = \mu(\pi_C - \pi_B)\Delta'_\chi + (w'_B - w'_C) - d'(\pi_C M_{D,C} - \pi_B M_{D,B}).$$

Because $\pi_C > \pi_B$ implies $D_C \leq D_B$, $\pi_C M_{D,C} - \pi_B M_{D,B} \leq (\pi_C - \pi_B)\mu$, proving Part 1. Parts 2 and 3 follow from $d' = 2bb' - 2qq'/3 > 0$ and $h_i = \pi_i d$; aggregate authority changes strictly only when positive loan mass crosses the cutoff. □

Appointment identifies only whether the cross-group information premium and relative assignment costs dominate the own-group control wedge; it cannot separate these channels. The authority prediction is unambiguous: conflict weakly reduces authority within every manager type. Holding b and q fixed, managers with larger coethnic borrower shares have weakly less authority.

Corollary (appointment ordering). For any candidates j and k with $\pi_j > \pi_k$, condition (11) and equal assignment-cost responses imply

$$\frac{\mathrm{d}}{\mathrm{d}\gamma}\left(\Omega_j - \Omega_k\right) < 0. \tag{12}$$

Thus conflict favors candidates with larger local borrower shares. In particular, any third-group manager N with $\pi_N > \pi_B$ becomes more attractive relative to B; whether N is appointed depends on assignment costs and on π_N relative to the other candidates.

2.2 Banking in Ethiopia

The Ethiopian banking sector provides an ideal setting to study this mechanism for two reasons. First, Ethiopia is ethnically diverse, yet local areas are homogeneous. Second, banks have strong affiliations with specific ethnic groups, yet operate both in areas where the majority of the population shares their ethnicity and in cities where few people do.

In terms of ethnic diversity, Ethiopia is home to more than 90 ethnic groups, although four – the Oromo (34%), Amhara (30%), Somali (6%), and Tigray (6%) – account for roughly three-quarters of the population. Ethnicity is salient and discernible through appearance, language, and names (Abbay, 2004). The country's federal structure, established in 1992 after the fall of the military regime, organizes regions along ethnic lines. As a result, the major regions – including

Oromiya, Amhara, Somali, and Tigray – are highly homogeneous.[2] More broadly, over 85% of Ethiopians live in a woreda (district) where a single ethnic group constitutes at least 85% of the population. Appendix Figure E1 shows ethnic diversity at the local level.

Following liberalization in the early 1990s, privately owned banks entered the market, many with strong ties to specific ethnic groups and regions. These ethnic affiliations are evident in bank names, such as the "Cooperative Bank of Oromiya" and "Amhara Bank," branch locations (Regasa, Fielding and Roberts, 2022), the ethnicity of C-suite executives, and the predominant language used within banks. Despite these affiliations, banks now operate across ethnic boundaries. As competition intensified, banks established branches well beyond their home regions, often in cities where a different ethnic group predominates. This creates the trade-off our theoretical model formalizes: a bank can hire a city-coethnic manager to acquire better local information or a bank-coethnic manager to communicate more effectively with headquarters.

2.3 Conflict in Ethiopia

After relative peace and strong economic growth from 2000 to 2020, the Tigray War broke out in late 2020 following a rupture between the federal government and the Tigray People's Liberation Front (TPLF), the dominant political movement in Tigray. This setting suits our analysis for three reasons. First, conflict intensity varied sharply across time and space, with some areas experiencing severe violence while others remained relatively insulated. Second, violence involved multiple ethnic groups, reducing concerns that our estimates are driven by shocks specific to one group or region. Third, the conflict was unanticipated at the time of our 2018 data collection, supporting the exogeneity of pre-conflict bank and branch characteristics.

The war and subsequent civil conflict caused an estimated 300,000–800,000 civilian deaths by 2022 (Cedoca, 2024) and affected much of northern Ethiopia, with fighting concentrated in Tigray and along the north–south corridor linking Mekelle to Addis Ababa. Instability subsequently spread to Oromia (involving the Oromo Liberation Front, OLF) and to Amhara (involving Fano). Figure 1 summarizes conflict intensity over time (Panel A) and space (Panel B) in our data. Panel A shows that fatalities are positive but low and relatively stable during 2005–2019, then rise sharply starting in late 2020, with the number of fatalities peaking in 2021. Panel B maps events from 2019–2022 and indicates that conflict is widely distributed across central and northern Ethiopia, with substantial incidence in densely populated areas.[3]

The conflict would have been difficult to foresee when we collected our data in 2018. A

[2] Using microdata from the 2007 Ethiopian census (IPUMS), 96% of residents of Tigray are Tigrayan, 91% of residents of Amhara are Amhara, and 88% of residents of Oromiya are Oromo.

[3] Appendix Figure G2 shows the geographic distribution by year, with concentration in the north in 2020–2021 and new hotspots in other regions thereafter.

new prime minister had only just assumed power that year, beginning a political transition that culminated in the exclusion of the TPLF from the ruling coalition in late 2019. The exclusion left the TPLF with substantial military capacity but diminished political power, creating conditions conducive to conflict (Morelli, Ogliari and Hong, 2024). Because our data collection predates these developments, pre-conflict branch and manager attributes are unlikely to reflect anticipation of the violence. We exploit this timing in our empirical strategy.

3 Data and empirical strategy

3.1 Data

We use two main datasets for our analysis. The first is a novel branch-level panel covering the period before (2018) and after (2022) the onset of civil war in Ethiopia. The second is the Armed Conflict Location & Event Data Project (ACLED), which records the location, date, actors, and fatalities of conflict events. We complement this with several other sources detailed below.

Our initial sampling frame covered the universe of 3,232 Ethiopian bank branches at the time. We completed phone interviews with 1,910 branches in 2018 and targeted every one for follow-up in 2022. We re-interviewed 996 branches of 16 banks across 188 cities in 2022 to construct a panel. Our main analysis sample consists of the 979 branches that were interviewed in both waves and for which we could determine the location.[4] Appendix Table H2 shows that attrition is largely unrelated to our measure of conflict exposure, in particular in our main analysis sample. We therefore do not think attrition is likely to substantially bias our main results. Appendix F provides further detail on sample construction.

For each branch, we interview the most senior manager present at the time of the survey. The questionnaire covers three areas. First, we ask a series of questions about the manager's characteristics including their age, work experience, and education. Second, we administer a questionnaire we developed based on the World Management Survey (Bloom and Van Reenen, 2007), customized to reflect bank operations and lending activities, and ask questions about branch organization.[5] Finally, we ask a series of questions about lending at the branch, including the volume of lending, interest rates, collateral, non-performing loans, and the degree of autonomy the manager has to make lending decisions.

As ethnicity is highly salient in Ethiopia, we infer each manager's ethnic group based on the interview. To do so, two interviewers – the primary interviewer and an observer – jointly determine ethnicity based on the manager's region of birth, accent, spoken languages, and name.

[4] We exclude one re-interviewed branch because its identifier appears to link different branches across waves and 16 branches because of an issue encoding their locations.

[5] The management practices questions are the subject of a separate paper.

Appendix Table E3 reports the distribution of manager ethnicities for 2018 and 2022. For 261 managers in 2022, our enumerators did not record the ethnicity. For these managers, we infer their ethnicity based on (a) the manager's ethnicity in 2018 if they were already in the branch at the time (20 managers), or (b) the manager's place of birth (241 managers). Appendix Section I provides details on this imputation and shows that the main results related to ethnicity are robust to dropping branches where we imputed the manager's ethnicity.

Table 1 presents summary statistics for the main variables. Appendix Table F2 reports descriptive statistics for branches' organizational characteristics and lending activities by survey wave. Appendix F provides further details on survey design and implementation.

We use ACLED to measure the spatial intensity of ethnic conflict in Ethiopia. ACLED records the date, location (latitude/longitude), actors, and reported fatalities of events. To link events to ethnic groups, we use the actors listed in each event together with the Ethiopia Peace Observatory's actor–ethnicity classifications.[6] Throughout the paper, we keep all ACLED event types but restrict attention to events with at least one reported fatality. This focuses on high-severity incidents and reduces sensitivity to cross-area differences in the reporting of low-intensity episodes. Figure 1 summarizes this data, showing the sharp escalation of fatalities from ethnic conflict after 2020 (Panel A) and its spatial concentration during the civil-war period (Panel B).[7]

We also identify the ethnic affiliation of banks and cities. Ethiopian naming conventions – typically a first name followed by the father's first name, with no surnames – make it possible to infer ethnicity from publicly available records (Gebre, 2010; Fessha, 2016; Kefale, Kamusella and Van der Beken, 2021). We classify each bank by the ethnicity of its CEO and board members, assigning it to the ethnic group that holds the majority of board seats. We classify cities by their predominant ethnic group using the Murdock Ethnographic Atlas. Together with the manager-level data from our survey, this allows us to measure the ethnicity of banks, branch managers, and cities. Appendix E reports their distribution.[8]

Finally, we measure the ethnic composition of the population each branch serves using the IPUMS International 10-percent sample of the 2007 Ethiopian Population and Housing Census (Minnesota Population Center, 2020). We assign each respondent to the same ethnic groups we use for banks, managers, and cities, and compute population shares for each of Ethiopia's 714 woredas, each a third-level administrative unit. Each city takes the shares of the woreda containing

[6] The Ethiopia Peace Observatory is a special project run by ACLED. Appendix Table G1 reports the complete actor-to-ethnicity mapping.

[7] We use the ACLED Ethiopia extract downloaded on 15 May 2024 (and the Ethiopia Peace Observatory actor–ethnicity classifications accessed on 5 March 2025); we archive the extract used for analysis.

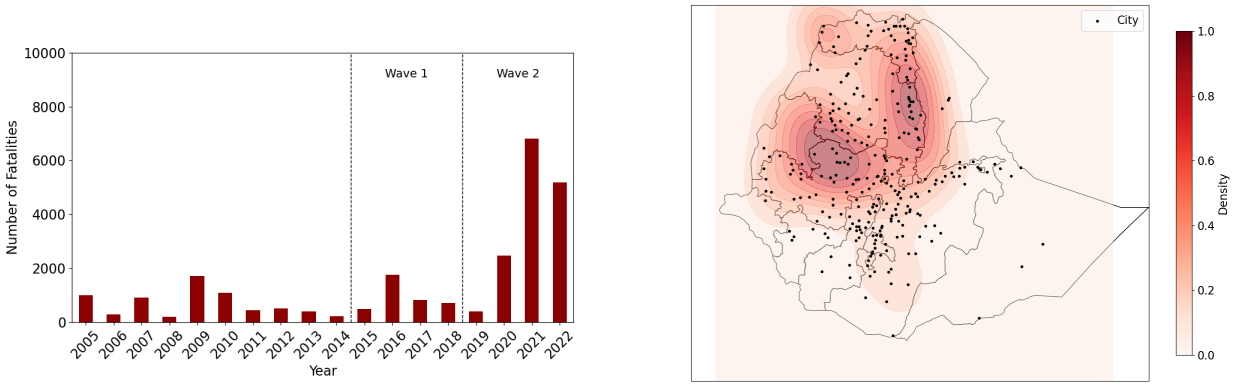
[8] We treat Harari as Oromo because the vast majority of Harari's population is Oromo. See Appendix E for details. We also aggregate ethnolinguistically distinct groups from Ethiopia's former SNNP region into a single category because they are individually too small in our sample to support separate classifications, and because they shared a common regional administrative structure. The results are robust to excluding this category.

Table 1: Summary statistics of analysis variables

	Panel A: Manager characteristics				
	N	Mean	Std. Dev.	Min	Max
Bank coethnic manager	1,957	0.65	0.48	0	1
City coethnic manager	1,957	0.54	0.50	0	1
Manager born in region	1,439	0.42	0.49	0	1
Tenure in bank (years)	1,954	7.71	4.44	0	36
Tenure in branch (years)	1,953	2.67	2.62	0	35
Age	1,896	34	5.67	16	60
University degree	1,956	0.99	0.07	0	1
Male manager	1,956	0.83	0.38	0	1
	Panel B: Branch characteristics				
	N	Mean	Std. Dev.	Min	Max
Share local employees	1,920	0.57	0.25	0.10	1.00
Branch employees	1,951	17.57	10.04	3	110
	Panel C: Lending outcomes				
	N	Mean	Std. Dev.	Min	Max
Operational distance (km)	1,700	6.80	4.85	0.05	50.00
Log number of loans	1,510	2.43	1.34	0.00	8.52
Log average loan size	1,505	6.30	3.13	-4.61	10.95
Average lending rate	1,637	0.15	0.02	0.10	0.20
Collateral (share of loan)	1,448	0.95	0.19	0.50	1.50
Share loan default	1,577	0.07	0.14	0.00	1.00

Notes: This table reports summary statistics for the main analysis variables based on the branch survey, organized into three panels. Panel A: Manager Characteristics. Bank-coethnic manager and city-coethnic manager indicate whether the manager shares the ethnicity of the bank or city, respectively. Manager born in region indicates whether the manager was born in the same region as the branch. Tenure in bank and branch are measured in years. University degree and male manager are dummy indicators. Panel B: Branch Characteristics. Share local employees is the share of branch employees from the local area. Branch employees is the number of employees in the branch. Panel C: Lending. Operational distance is the maximum distance (in km) at which a branch services customers. Log number of loans and log average loan size are in natural logarithms, with loan size expressed in ETB 1,000. Average lending rate is the mean rate on the past 10 loans. Collateral is the typical collateral as a share of total loan size. Share loan default is the share of defaulting loans in the past year.

Figure 1: Ethnic conflict over time and space



(a) Conflict over time

(b) Conflict over space

Notes: Panel A displays the number of fatalities from ethnic conflict in Ethiopia over time. The y-axis includes all fatalities from conflict involving at least one ethnic group in the ACLED database; this panel uses all events in ACLED. Panel B displays the lethality-weighted spatial intensity of ethnic conflict in Ethiopia from January 1, 2019 through December 31, 2022. Shaded areas are a kernel-density estimate of events weighted by fatalities and scaled to the colorbar. Black lines denote regional boundaries; black dots mark major cities.

it; Addis Ababa, administered as ten sub-city woredas, takes the population-weighted average of all ten.

3.2 Defining network-level exposure to conflict

We construct our main measure of exposure to ethnic conflict for each branch using ACLED. We define a branch's *network exposure* as the average exposure of the bank's branches outside the branch's own city to violence involving the bank's ethnic group. This measure captures ethnic conflict elsewhere in the bank's branch network while excluding exposure in the branch's own city.

Let $\mathcal{E}_t$ denote the set of ACLED conflict events in period t, and let f_e denote the number of fatalities in event $e \in \mathcal{E}_t$. For bank b, let $G_{be} \equiv \mathbf{1}\{e \text{ involves bank } b\text{'s ethnic group}\}$.[9]

Next, let $\mathcal{C}_b$ denote the set of cities in which bank b operated at least one branch in 2018 (its pre-conflict network). For each $c \in \mathcal{C}_b$, let n_{bc} denote the number of bank b's branches in city c, so that $N_b \equiv \sum_{c \in \mathcal{C}_b} n_{bc}$ is the total number of branches in its pre-conflict network. Let $c(i)$ denote the city in which branch i is located, and let $d(c, e)$ denote the distance, in kilometers, between city c and event e.

[9] That is, the ethnic group is mentioned as an actor in the conflict.

For branch i of bank b in period t, we define:

$$\text{NetworkExposure}_{ibt} = \frac{1}{N_b - n_{b,c(i)}}$$

$$\sum_{c \in \mathcal{C}_b} \underbrace{n_{bc}}_{\substack{\text{Branches of} \\ \text{bank } b \text{ in city } c}} \sum_{e \in \mathcal{E}_t} \underbrace{G_{be} f_e}_{\substack{\text{Fatalities from} \\ \text{conflict involving} \\ b\text{'s ethnic group}}} \times \underbrace{\mathbf{1}\{d(c,e) \leq 20\}}_{\substack{\text{Event } e \text{ occurs within} \\ 20 \text{ km of city } c}} \times \underbrace{\mathbf{1}\{d(c(i),e) > 20\}}_{\substack{\text{Event } e \text{ is not also within} \\ 20 \text{ km of the branch's} \\ \text{own city } c(i)}} \tag{13}$$

Intuitively, the measure captures the average number of fatalities from conflict events involving bank b's ethnic group that occur within 20 km of the cities in which the bank operates branches. We weight each city by the number of the bank's branches located there, exclude branch i's own city, and normalize by the number of branches the bank operates outside that city, $N_b - n_{b,c(i)}$. To match our two-period panel, we assign ACLED events occurring from 2015 through 2018 to period 1 and events occurring from 2019 through 2022 to period 2.[10]

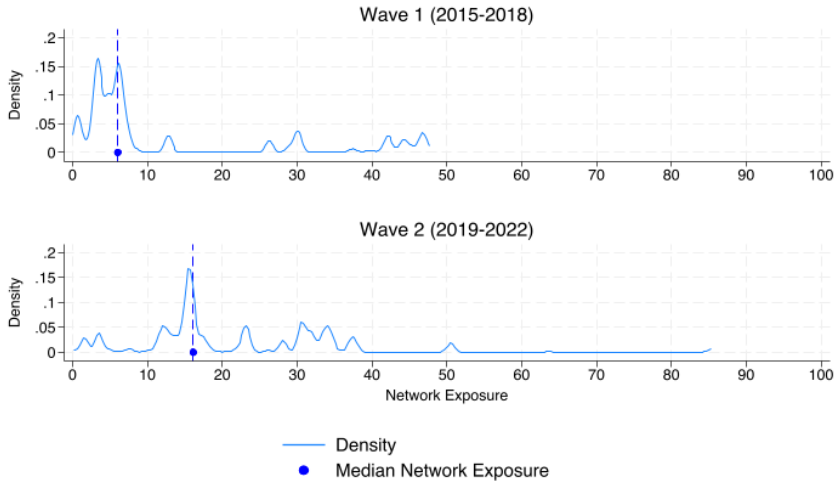
Figure 2 shows the distribution of branches' network exposure in the two periods covered by our panel: 2015–2018, leading up to the first survey, and 2019–2022, between the first and second surveys. Median exposure increased from 6.03 conflict-related fatalities per branch in 2015–2018 to 16.14 in 2019–2022. The upper tail also expanded substantially: the maximum rose from 47.7 fatalities per branch in the first period to more than 85 in the second. This highlights the sharp increase in banks' exposure to ethnic conflict between the first and second waves of our panel.

We interpret $\text{NetworkExposure}_{ibt}$ as the empirical counterpart of the conflict-salience parameter γ in Section 2: a shock to the ethnic identification and inter-group trust of bank b's employees and senior management, not to conditions in branch i's local market. The measure assumes that violence near a bank's branches, and so near its staff, is more salient to employees than violence far from the bank's branches. We therefore weight each city by the bank's branch presence there, so that $\text{NetworkExposure}_{ibt}$ is the average exposure to own-group violence across the bank's branches outside branch i's city; excluding i's own city keeps the measure from mechanically picking up violence in that local market. This measure thus captures how violence involving bank b's own ethnic group elsewhere in its network shifts ethnic identification and general trust among its personnel.

We use this network measure rather than a local one for two reasons. First, local conflict changes local economic conditions, and hence lending and investment, which can prompt branch reorganization for reasons unrelated to how information moves within the bank. Second, local conflict *involving a particular ethnic group* can work through three channels: it can (i) raise the salience of ethnicity for the manager, (ii) raise it for customers, or (iii) change the perceived safety

[10] In Appendix C.2, we examine robustness to the distance cutoff, alternative measures of conflict intensity—fatality counts and the number of fatal events—and the use of the 2022 rather than the 2018 branch network.

Figure 2: Distribution of network exposure over time



Notes: This figure displays the distribution of the strict-exclusion `NetworkExposure` measure from Equation 13 for two periods: 2015–2018 (top panel) and 2019–2022 (bottom panel). Each panel shows a kernel density (Gaussian, bandwidth 0.5) across our sample of branches and marks the period median. The median increases from 6.03 in 2015–2018 to 16.14 in 2019–2022.

of employees from that group. The network measure helps isolate the effect of ethnic conflict on the bank's personnel from its effects on customers and on local safety. It also builds on evidence that conflict disrupts inter-group economic exchange well beyond the areas where fighting occurs (Korovkin and Makarin, 2023).

To capture local conflict for branch i in city c, we define:

$$\text{LocalExposure}_{it} = \sum_{e \in \mathcal{E}_t} \underbrace{f_e}_{\text{Fatalities in event } e} \times \underbrace{\mathbf{1}\{d(c(i), e) < 20\}}_{\substack{\text{Event } e \text{ occurs within 20 km} \\ \text{of branch } i\text{'s city}}} . \tag{14}$$

We include this measure to more directly capture any potential direct local effects of conflict on the demand for loans.

3.3 Quasi-experimental variation in conflict

Much of the Amhara-Tigray conflict captured by our network exposure measures is concentrated along a stretch of the regional border between these regions, whose disputed status reflects a specific historical episode. The Beta Israel, commonly known as Ethiopian Jews, experienced significant migration to Israel during the 1980s and early 1990s. This movement was marked by notable operations such as Operation Moses in 1984 and Operation Solomon in 1991, during which tens of thousands were airlifted to Israel. This sudden shock plausibly resulted in contentious borders

drawn in 1992, providing a separate source of conflict in the 2020 civil war. We use cities associated with this migration to construct an instrument for network-level exposure to conflict in subsection 4.5; here we outline the data and its link to modern-day conflict.

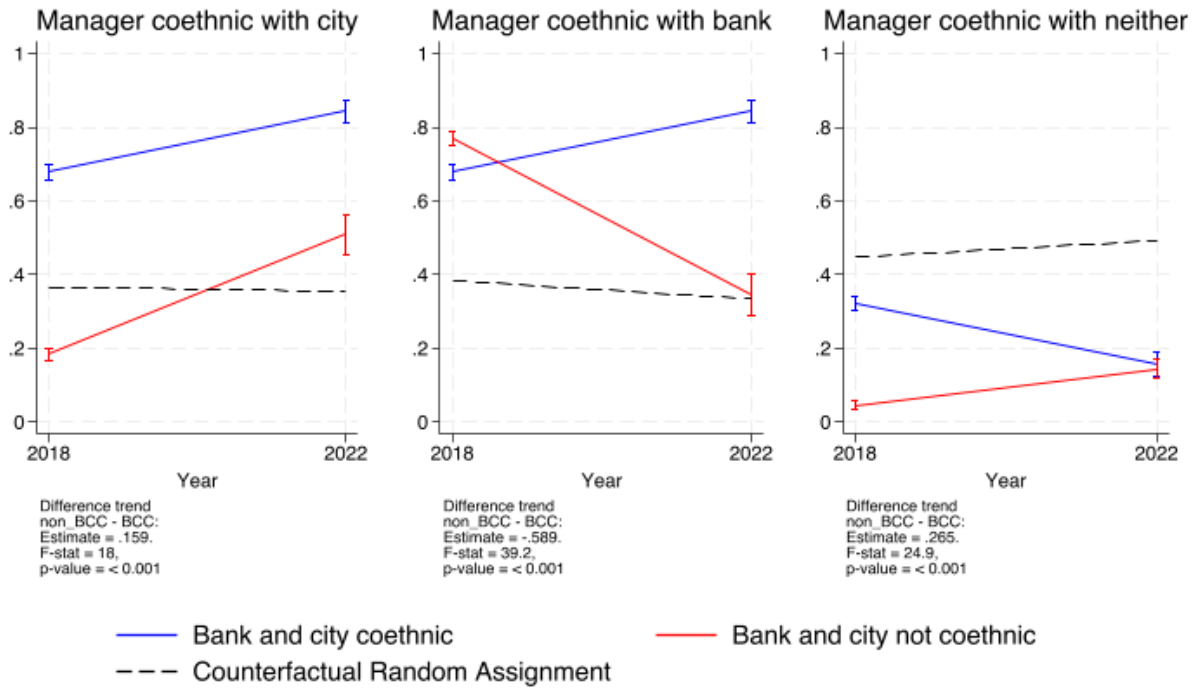
The most recent shifts of the Amhara-Tigray border prior to the 2020 conflict took place in 1992, when Ethiopia's ethnographic regional boundaries were drawn following the fall of the military regime. During these negotiations, dominated by the Tigray People's Liberation Front (TPLF), the border was drawn relatively far south toward Amhara, encompassing part of the area recently vacated by 40,000 Beta Israel (Nyssen and Demissie, 2023). In recent years, these disputed borders have continued to fuel tensions. The exclusion of the TPLF from Ethiopia's governing coalition in 2019 brought these long-standing grievances to the surface. The contested borders played a key role in the Amhara regional army's involvement in the Tigray conflict. The borders also fueled the continuing civil war, involving Amhara militias, who feared that territory they had gained might be returned to Tigray as part of a peace agreement (Nyssen and Demissie, 2023). These 1992 borders thus left disputed territories concentrated around the former Beta Israel settlements, which later became focal points of interethnic conflict. To study these cities, we extract data on the location of the main cities from which the Beta Israel departed (Kaplan, 1992). We then match these locations to banks and branches based on branch cities. We detail the exact empirical approach in Subsection 4.5.

3.4 Descriptive results

We begin by documenting how manager ethnicity changed from 2018 to 2022, separately for bank-coethnic and non-bank-coethnic cities. Using the branch-level panel observed in 2018 and 2022, we compare changes over time between branches located in cities that are coethnic with the bank and branches in cities that are not. Concretely, we estimate a fully interacted two-by-two specification with indicators for (i) the 2022 wave, (ii) whether the branch is in a non-bank-coethnic city, and (iii) their interaction; we report the implied group-by-year means in Figure 3. We run this analysis separately for two outcomes: (a) whether the manager is coethnic with the city and (b) whether the manager is coethnic with the bank.

Figure 3 shows that banks shifted from hiring bank-coethnic managers toward city-coethnic managers between 2018 and 2022. This shift is particularly pronounced in cities that are not coethnic with the bank. One interpretation, consistent with our framework, is that matching managers to local customers became more valuable relative to matching them to the bank; however, these descriptive patterns alone cannot distinguish that mechanism from alternative explanations. The empirical analysis that follows therefore focuses on identifying the causal effect of exposure to ethnic conflict on branch-level organization.

Figure 3: Changes in organizational structure over time



Notes: This figure presents the changes in organizational structure over time for two main outcome variables: an indicator for the manager and the bank being coethnic and an indicator for the manager and city being coethnic. This figure presents the changes in unconditional means for these outcomes, separately for branches operating in cities coethnic with the bank (bank-coethnic cities) and for branches operating in cities not coethnic with the bank (non-bank-coethnic cities). Finally, for the coethnicity variables we report the expected share of coethnic managers if the same sample of managers in terms of ethnic composition were to be randomly assigned to bank branches. We conduct this exercise 1,000 times and report the average of these simulations.

4 Empirical model and results

Our model makes two main predictions. First, ethnic conflict changes whether banks assign managers coethnic with the bank or with the city, but only in non-bank-coethnic cities—where the bank's ethnicity differs from the local population's. Cities that share the bank's ethnic group thus serve as a placebo. Second, ethnic conflict reduces the authority given to a manager when she shares the ethnicity of local customers. We therefore expect conflict to reduce authority most for managers who share the ethnicity of a larger share of local customers.

We first show that conflict exposure shifts branches in non-bank-coethnic cities from bank-coethnic managers to city-coethnic managers. We then examine two complementary organizational adjustments: reducing managers' lending authority and reassigning experienced insiders. Next, we show that branches in non-bank-coethnic cities make relatively limited adjustments to lending. We use a synthetic bank CEO to investigate the underlying mechanisms. Finally, we validate the main results using banks' proximity to Beta Israel cities as an instrument.

In our main specification, we estimate a two-way fixed-effects model to examine how within-branch changes in exposure to ethnic conflict through the bank's branch network affect branch-level outcomes.[11] We observe periods $t \in \{1, 2\}$ for branches $i \in \{1, \ldots, N\}$. These branches are in cities $c \in \{1, \ldots, C\}$, and part of banks $b \in \{1, \ldots, B\}$. We estimate the following regression specification:

$$Y_{ibtc} = \beta_1 \log(\text{NetworkExposure}_{ibt}) + \phi_i + \lambda_t + \varepsilon_{ibtc}, \tag{15}$$

where Y_{ibtc} is a branch-level outcome such as manager ethnicity or delegation. We include branch (ϕ_i) and time (λ_t) fixed effects and cluster standard errors at the branch level.[12]

This specification identifies the causal effect of network exposure to ethnic conflict under two conditions. First, changes in a branch's network exposure are plausibly exogenous if the spatial intensity of conflict was not predictable in 2018 and banks did not locate branches in anticipation of future conflict. We construct the bank's branch network using all branches interviewed in 2018, so post-2018 branch closures do not mechanically affect measured exposure. To further test this assumption, we implement an alternative design that uses the proximity of banks' pre-2018 branch networks to Beta Israel cities as a source of quasi-exogenous variation in exposure that was difficult

[11] Because we have two periods, this is equivalent to a first-difference specification, avoiding concerns about negative weights in staggered-adoption settings (Callaway and Sant'Anna, 2021).

[12] We add 0.01 to NetworkExposure because the measure is zero for a single branch; dropping that branch has virtually no effect on the estimates. We have also implemented wild-bootstrap inference (Cameron, Gelbach and Miller, 2008) at the bank level for the analyses in this section, reported in Appendix D. Under this more conservative approach the manager ethnicity results and the effect on the number of loans remain significant at the 5% level, while delegation and the manager reallocation and tenure effects are significant only at the 10% level.

to foresee in 2018. Second, Equation 15 identifies β_1 if no other time-varying factors jointly drive network exposure and branch organization. Branch fixed effects absorb time-invariant differences across branches, so identification requires that remaining shocks are common across branches (captured by time fixed effects) or otherwise orthogonal to changes in network exposure. A key threat is differential local trends or shocks in the cities where highly exposed branches operate. To address this, we re-estimate our main specification with city×time fixed effects and with direct controls for local conflict exposure.

To test formally whether bank-level exposure to conflict affects branches in bank-coethnic and non-bank-coethnic cities differently, we pool both groups and estimate the following interaction specification:

$$\begin{aligned} Y_{itbc} = {} & \beta_1 \ \log(\texttt{NetworkExposure})_{itb} + \\ & \beta_2 \ \log(\texttt{NetworkExposure})_{itb} \cdot \texttt{I[non_bank_city_coethnic]}_{bc} + \\ & \phi_i \ + \ \lambda_{t,BankCityCoethnic} \ + \ \varepsilon_{itbc}, \end{aligned} \tag{16}$$

The bank-coethnic × time fixed effects ($\lambda_{t,BankCityCoethnic}$) allow separate time shocks for branches in bank-coethnic and non-bank-coethnic cities, so β_1 captures the effect of conflict in bank-coethnic cities alone. Throughout the results section, we report the p-value for $\beta_2 = 0$: the null that conflict exposure affects branches in bank-coethnic and non-bank-coethnic cities equally.

4.1 Ethnic Conflict and Manager Ethnicity

Figure 3 showed that between 2018 and 2022, banks shifted from hiring managers coethnic with the bank to hiring managers coethnic with the city. To test whether this shift is driven by exposure to violent ethnic conflict through the bank's branch network, we estimate equation 15 using indicators for whether the manager is coethnic with the bank or with the city as outcomes.

We find that network-level exposure to ethnic conflict shifts banks toward hiring city- rather than bank-coethnic managers, but *only* when the bank's and city's dominant ethnicities differ. As shown in Table 2, branches in cities not coethnic with the bank become 6.7 percentage points (p.p.) more likely to hire a city-coethnic manager, a 36.3% increase over the 2018 mean of 18.5%, in response to a one-standard-deviation increase in ethnic conflict exposure through the bank's branch network. Correspondingly, these branches become 13.0 p.p. less likely to hire a bank-coethnic manager, a 16.9% drop from the 2018 mean of 77.0%. The additional specifications in Table 2 show that this result is robust to either adding city-time fixed effects or controlling for local conflict intensity.[13]

[13] In Panel A, the bank- and city-coethnic outcomes coincide because the bank and city share an ethnicity.

Table 2: Branch manager ethnicity

	Panel A: Branches in Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.005	0.070	-0.006	-0.005	0.070	-0.006
	(0.026)	(0.055)	(0.026)	(0.026)	(0.055)	(0.026)
Local Exposure			0.014*			0.014*
			(0.008)			(0.008)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.679	0.679	0.679	0.679	0.679	0.679
N (Branches)	448	371	448	448	371	448
	Panel B: Branches in Non-Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
Network Exposure	0.050***	0.047***	0.051***	-0.097***	-0.096***	-0.099***
	(0.016)	(0.017)	(0.016)	(0.015)	(0.017)	(0.015)
Local Exposure			-0.014			0.031***
			(0.009)			(0.010)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.185	0.185	0.185	0.770	0.770	0.770
p-value	0.075	0.697	0.065	0.003	0.004	0.002
N (Branches)	531	464	531	531	464	531

Notes: The dependent variable is an indicator that equals 1 when a branch's manager is coethnic with the ethnic group associated with the city (columns 1–3) or with the ethnic group associated with the branch's bank (columns 4–6). Network exposure is the log of network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in equation 13. Local exposure is the log of conflict intensity near the city as defined in equation 14. The mean (SD) of the within-branch change in log network exposure from 2018 to 2022 is 0.953 (1.343). Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the test that the slope on network exposure is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

In contrast, for branches in bank-coethnic cities, the estimated effect of network exposure on the probability of employing a city-coethnic manager is statistically indistinguishable from zero. In the baseline specification, this estimate differs significantly from the corresponding estimate for branches in non-bank-coethnic cities. This difference is not robust to including city-by-time fixed effects: under that specification, the estimated effect in bank-coethnic cities is positive but statistically insignificant, and the difference between the two groups is also statistically insignificant. One possible interpretation is that this positive estimate captures the other side of the same bank-wide reassignment: bank-coethnic managers moved out of non-bank-coethnic cities may be reassigned to cities where their ethnicity matches both the bank and the local population. However, the evidence on reallocation in Table 4 is not consistent with this narrative as there is no increase in managers reallocated to these branches in bank-coethnic cities.

Finally, Appendix Table K1, Panel C, shows that network exposure to conflict also increases the share of branches whose manager is coethnic with neither the bank nor the city (+0.047, s.e. 0.012). With only 24 such branches in 2018 and 77 in 2022, our power to study this group is limited. Nonetheless, the same table provides suggestive evidence that these managers are appointed where the local population contains a large group outside both the bank's and the city's ethnic groups—i.e., where the information–incentive trade-off in our framework makes a manager from a third group a natural appointment. In branches with a neither-coethnic manager, the largest such group accounts for 28 percent of the city population – and the manager's own group for 26 percent – against 14–19 percent in other branches, while the city's group makes up only 50 percent of the population, against 57–65 percent elsewhere (Panel A). Consistent with this reading, redefining each city's ethnic group as the largest group in the 2007 census rather than the Murdock assignment shifts part of the neither-coethnic response into the city-coethnic response (Panel B), and the neither-coethnic response is concentrated in cities where such an outside group exceeds 30 percent of the population (0.115 against 0.033 elsewhere), where the city-coethnic response is correspondingly absent (Panel C). The rise in managers coethnic with neither the bank nor the city thus appears to be driven by cities with a large third group, from which these managers are largely drawn.

We make several assumptions to construct our measure of conflict. Appendix Figures C1 and C2 show that the results are robust to fixing the branch network at its 2018 or 2022 composition, using the number of fatal events instead of fatalities to weight conflict, varying the conflict-matching radius (15 or 25 km), excluding the state-owned banks (CBE and CBB), excluding Addis Ababa branches, and dropping branches of banks affiliated with the Tigray ethnic group. We implement this last restriction because the conflict may have affected Tigray-affiliated banks differently given the Tigray ethnic group's distinctive role in it.

4.2 Organizational adjustments to manager ethnicity

Banks thus shift toward appointing city-coethnic branch managers in response to ethnic conflict. In the model, this implies that conflict raises the organizational loss under a bank-coethnic manager relative to a city-coethnic manager: a bank-coethnic manager's ability to acquire information about borrowers falls, or her reservation wage rises, faster than the incentive costs of appointing a city-coethnic manager grow. If this information–incentive trade-off drives our results, banks should make two further adjustments. First, they should reduce the lending autonomy they grant these managers. Second—beyond the model—we expect banks to fill the posts by reassigning out-group managers with whom they already have a long institutional relationship, since tenure inside the organization can ease the interethnic communication frictions that conflict creates (Ghosh, 2025).

Our theoretical model implies that managers coethnic with the city they work in receive less autonomy over lending decisions, and that this autonomy falls with the share of local customers who share the manager's ethnicity, π_i. We measure delegation in our survey as the largest loan a branch manager can approve without authorization from headquarters. We test this hypothesis in two steps. First, we estimate Equation (15) with delegation as the dependent variable. Table 3 reports the results. Panel A shows that in non-bank-coethnic cities, greater exposure to ethnic conflict reduces delegation. In bank-coethnic cities the estimated effect is similar in sign but statistically insignificant. This pattern could, however, reflect a general reduction in the autonomy banks grant their managers in response to conflict near the branch network, rather than the targeted response our model predicts.

To distinguish these explanations, we ask whether delegation differs systematically for managers who are coethnic with the city, and in particular for managers who share the ethnicity of a larger share of local customers. We regress delegation on indicators for whether the manager is coethnic with the city and coethnic with neither the bank nor the city, and on the share of the local population coethnic with the manager, which proxies for π_i. We include branch and time fixed effects. Were the reduction in lending authority a general response to uncertainty, it would not concentrate among these managers. Panel B of Table 3 shows that banks give less autonomy to city-coethnic managers, consistent with banks limiting the incentive costs of employing them, and also to managers coethnic with neither the city nor the bank, though this second estimate is not significant. The result is driven mainly by branches where a larger share of the local population shares the manager's ethnicity, and it appears in bank-coethnic and non-bank-coethnic cities alike—as the model implies, since a manager's incentive to favor local borrowers depends on how many of them share her ethnicity, not on whether the city matches the bank. The reduction in delegation is therefore concentrated among the managers most exposed to the bias our model describes, rather than spread evenly across a bank's managers. In Appendix Table J1, we additionally show this effect

Table 3: Delegation

	Panel A: Ethnic conflict and delegation					
	Bank and city not coethnic			Bank and city coethnic		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-633.1**	-666.1**	-627.0**	-111.9	-1178.3	-115.6
	(282.0)	(330.3)	(281.5)	(381.9)	(839.1)	(384.5)
Local Exposure			-60.7			-422.3**
			(135.6)			(172.1)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	1684.8	1721.8	1684.8	1852.8	1993.8	1852.8
p-value	0.272	0.568	0.283	0.272	0.568	0.283
N (Branches)	322	266	322	231	160	231

	Panel B: Manager ethnicity and delegation					
	Bank and city not coethnic			Bank and city coethnic		
City coethnic manager	-1893.0**	-108.0		-3196.2***	-794.9	
	(815.3)	(1088.1)		(1007.0)	(1524.2)	
Coethnic with neither	-1556.2	-1367.5				
	(1242.3)	(1270.2)				
Share local population		-4363.1***	-4223.3***		-4529.2**	-5428.3***
coethnic with manager		(1453.9)	(1088.9)		(2045.9)	(1340.0)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	1684.8	1684.8	1684.8	1843.5	1843.5	1843.5
N (Branches)	322	322	322	230	230	230

Notes: The dependent variable in both panels is the largest loan a branch manager can approve without authorization from headquarters, measured in thousands of 2018 Ethiopian birr (ETB). Values reported in 2022 are deflated to 2018 prices using annual CPI inflation from the World Bank's World Development Indicators (indicator FP.CPI.TOTL.ZG). The dependent variable is winsorized at the 95th percentile within survey-period $\times$ bank-city-coethnicity cells. Panel A estimates equation 15 separately for branches in cities that are not coethnic with the bank (columns 1–3) and branches in bank-coethnic cities (columns 4–6). Columns 1 and 4 report the baseline specification, columns 2 and 5 replace time fixed effects with city-by-time fixed effects, and columns 3 and 6 add Local Exposure to the baseline specification. Network Exposure is defined in equation 13; Local Exposure is defined in equation 14. Panel B uses the full 2018–2022 branch panel and includes branch and time fixed effects throughout. Columns 1–3 restrict the sample to branches in cities that are not coethnic with the bank; columns 4–6 restrict it to branches in bank-coethnic cities. Columns 1 and 4 include manager-ethnicity indicators, columns 2 and 5 additionally include the share of the local population coethnic with the manager, and columns 3 and 6 include only this population share. City-coethnic manager equals one when the manager shares the city's ethnicity; coethnic with neither equals one when the manager shares neither the bank's nor the city's ethnicity. In columns 1 and 2, bank-coethnic managers are the omitted category. In columns 4 and 5, the bank's and city's ethnicities coincide, so the omitted category is managers coethnic with neither. Standard errors, clustered at the branch level, are reported in parentheses. The p-values reported in Panel A test equality of the Network Exposure coefficients across the two subsamples using equation 16. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

is more pronounced in the second period, when conflict intensity is higher, suggesting that banks tighten delegation as the incentive issue gets larger in line with the theoretical model.

An alternative explanation of this result is that city-coethnic managers simply always have less autonomy, and that the average fall in autonomy of managers due to network exposure to conflict is due to the switch from bank- to city-coethnic managers. As a purely descriptive test, we restrict the sample to 124 branches in cities not coethnic with the bank where the manager type does not change from 2018 to 2022. Appendix Table B2 shows that manager autonomy also fell in response to ethnic conflict in this subsample. The estimated reduction in delegation is slightly larger (-811.1), though less precisely estimated ($p = 0.136$). The manager-type comparisons use 120 branches after excluding four branches with a stable neither-coethnic manager. Across these branches, the authority given to city-coethnic managers rose by less than half as much as that given to bank-coethnic managers. Similarly, replacing the type indicator with the local population share coethnic with the manager shows that limits increased less for managers whose ethnic group accounts for a larger share of the local population. This suggests that changes in autonomy in response to ethnic conflict are not purely an artifact of changes in the composition of managers at these branches.

Our baseline network-exposure measure excludes conflict near the focal branch and therefore varies across branches within a bank and period. To include bank-time fixed effects, we instead use exposure over the bank's complete branch network, which is constant within bank-time cells, and identify its differential effect on non-bank-coethnic versus bank-coethnic cities; the exposure main effect is absorbed by the bank-time fixed effect. Appendix Table B1 shows that, relative to branches in bank-coethnic cities, network exposure to conflict causes banks in non-bank-coethnic cities to shift toward city-coethnic managers with less autonomy.

The second organizational response concerns the type of managers banks select. Specifically, we ask whether they are reallocated within the bank or hired since the outbreak of the conflict, and how their experience compares with other managers. Because conflict induces branches to appoint city-coethnic managers, understanding whether these managers are redeployed insiders or external hires speaks directly to whether the relevant mechanism behind these changes in managers' ethnicity relates primarily to the alignment of incentives or to safety concerns.

To study the source of new managers, we use the 2022 cross-section of our survey. We define four outcome variables from two underlying indicators: *(i)* a dummy indicating whether the manager joined the bank after the outbreak of conflict (in 2021 or 2022); *(ii)* a dummy for whether the manager joined the branch after the outbreak of the conflict (in 2021 or 2022); *(iii)* a *reallocated manager* indicator equal to one if the manager joined the branch after but the bank before the outbreak of the conflict; and *(iv)* a *new manager* indicator equal to one if the manager

joined the bank, and thus the branch, after the outbreak of the conflict.[14] We then estimate the following cross-sectional model:

$$Y_{ibc} = \alpha + \beta_1 \log(\texttt{NetworkExposure}_{ib}) + \varepsilon_{ibc}. \tag{17}$$

We cluster standard errors at the branch level. We find that, in cities not coethnic with the bank, a one-SD increase in log network exposure is associated with an increase of about 10.1 percentage points in the probability of employing a reallocated manager, i.e., a manager who was in a different branch of the bank before 2021 (Table 4). In bank-coethnic cities, network exposure is instead correlated with a slightly higher probability of having a manager who is entirely new to the bank. This pattern is consistent with a strategy in which banks limit potential lending bias by assigning non-bank-coethnic managers with whom they have a pre-existing institutional relationship.

This result suggests that the bank-coethnic managers previously managing the branches in cities not coethnic with the bank are not being reallocated to manage branches in cities coethnic with the bank. This is inconsistent with the alternative reading of our appointment results: that managers are being withdrawn because of concerns about their (perceived) safety. Under that account, these managers would have to show up elsewhere in the branch network, which they do not: branches in bank-coethnic cities take on managers who are new to the bank rather than redeployed insiders.

Finally, we examine the characteristics of these managers. We construct a short manager profile including their tenure at the bank, tenure at the branch, age, education, and gender. Using our panel, we re-estimate Equation 15 for each characteristic separately for bank-coethnic and non-bank-coethnic cities. Table 5 shows that, in non-bank-coethnic cities, a one-standard-deviation increase in network exposure is associated with appointing managers who have 0.67 years more tenure at the bank and around 3.6 months more tenure at the branch, and who are on average 0.72 years older. We find an extremely small (0.3 p.p.), marginally significant negative effect of conflict on the probability that the appointed manager holds a university degree – presumably because 98.7% of managers hold university degrees – and a small, insignificant change in gender composition. Together, longer tenure and greater age describe a redeployed insider rather than an external hire, consistent with the reallocation results in Table 4.

Taken together, these results show that banks whose branches are exposed to conflict through the branch network appoint city-coethnic managers, but take two steps to address the associated incentive costs: they reduce the lending authority delegated to these managers, and they fill the posts by reassigning long-tenured insiders rather than hiring externally. These adjustments move together, and in the direction the model predicts: banks accept a manager whose local information

[14] We cannot identify promotion timing directly, since we only observe employment duration at the branch and bank, not the year of managerial appointment.

Table 4: Manager reallocation

	Panel A: Bank and city coethnic			
	New manager bank	New manager branch	Reallocated employee	New hire
	(1)	(2)	(3)	(4)
Network Exposure	0.016*	-0.015	-0.027	0.011
	(0.009)	(0.032)	(0.031)	(0.008)
Mean dep. var	0.034	0.397	0.370	0.027
N (Branches)	447	446	446	446
	Panel B: Bank and city not coethnic			
	New manager bank	New manager branch	Reallocated employee	New hire
	(1)	(2)	(3)	(4)
Network Exposure	-0.010	0.065***	0.075***	-0.010
	(0.008)	(0.024)	(0.024)	(0.008)
Mean dep. var	0.017	0.360	0.345	0.015
p-value	0.023	0.230	0.013	0.059
N (Branches)	528	528	528	528

Notes: This table uses only data collected in 2022. The four outcome variables indicate whether the manager (1) joined the bank in 2021 or 2022 (after the outbreak of conflict in November 2020), (2) joined the branch in 2021 or 2022, and, conditional on joining the branch in 2021 or 2022, (3) was reallocated from a different branch of the same bank or (4) joined the bank as a new employee and did not change branches. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in equation 13. Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table 5: Manager characteristics

	Panel A: Bank and city coethnic				
	Tenure in bank	Tenure in branch	Age of manager	University degree	Male manager
	(1)	(2)	(3)	(4)	(5)
Network Exposure	0.029	-0.265**	-0.026	-0.002	0.008
	(0.230)	(0.126)	(0.354)	(0.002)	(0.028)
Branch FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	6.859	2.384	33.888	0.993	0.868
N	448	448	448	448	448
	Panel B: Bank and city not coethnic				
	Tenure in bank	Tenure in branch	Age of manager	University degree	Male manager
Network Exposure	0.498***	0.221**	0.538***	-0.002*	0.008
	(0.154)	(0.098)	(0.202)	(0.001)	(0.014)
Branch FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	6.839	2.362	33.542	0.987	0.864
p-value	0.214	0.009	0.019	0.579	0.438
N	531	531	531	531	531

Notes: This table focuses on five outcome variables: (1) the manager's tenure at the bank in years, (2) the manager's tenure at the branch in years, (3) the age of the manager in years, (4) whether the manager has a university degree (BA or MA), and (5) whether the manager is male. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in equation 13. Local exposure is the log of conflict intensity near the city as defined in equation 14. The mean (SD) of the within-branch change in log bank conflict intensity from 2018 to 2022 is 0.953 (1.343). Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the t-test that the parameter estimates for branches in bank-coethnic cities (Panel A) and in non-bank-coethnic cities are the same. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

is valuable, then contain the bias that appointment introduces by reducing her autonomy and by choosing someone with a long relationship with the bank. A pure labor-supply account, in which managers avoid postings they consider unsafe, would not produce these adjustments—nor would it explain why bank-coethnic cities take on managers who are new to the bank rather than those displaced from elsewhere in the network. The results therefore highlight how banks actively manage the information–incentive trade-off our model predicts.

4.3 Branch-level lending activities

We next examine how network-level exposure to ethnic conflict affects branch-level lending and operations. Table 6 reports estimates from specification 15 for a range of outcomes related to credit supply and branch activities.

We begin with branches' operational radius, defined as the geographic area from which they attract customers. Branches in bank-coethnic cities experience a contraction in this radius, whereas there is no effect on branches in non-bank-coethnic cities. One interpretation, consistent with classic work on soft versus hard information in lending (Petersen and Rajan, 2002; Agarwal and Hauswald, 2010), is that conflict exposure pushes branches in bank-coethnic cities toward more relationship-based screening within local networks, concentrating activity among nearby borrowers. By contrast, this result suggests that in non-bank-coethnic cities, where branches increasingly appoint city-coethnic managers, the negative effect of conflict on soft information acquisition and the positive effect of a city-coethnic manager result in no total effect.

Turning to credit supply, branches in non-bank-coethnic cities issue fewer loans in response to conflict exposure, although average loan size does not change. This pattern is consistent with credit being concentrated among a smaller set of safer or better-known borrowers. In these branches, we do not detect meaningful changes in lending rates, collateral or default rates. In contrast, branches in bank-coethnic cities expand the average loan size without changing the number of loans or loan terms.

These lending patterns complement the organizational adjustments documented above. In non-bank-coethnic cities, the shift toward city-coethnic managers appears to ease customer-facing inter-ethnic information frictions, but not completely: branches still reduce lending on the extensive margin. In bank-coethnic cities, where customer-facing inter-ethnic frictions are less central, we interpret these bank-wide adjustments as responses to a more volatile environment, rather than changes driven by the ethnicity of local customers.

Table 6: Branch-level lending

	Panel A: Bank and city coethnic					
	Operational distance	Log number of loans	Log average loan size	Average lending rate	Collateral percentage	Share loan default
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-1.658**	0.049	0.395**	0.001	0.015	-0.026
	(0.681)	(0.117)	(0.158)	(0.001)	(0.013)	(0.017)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.739	2.184	6.063	0.146	1.010	0.050
N	308	224	222	292	202	273
	Panel B: Bank and city not coethnic					
	Operational distance	Log number of loans	Log average loan size	Average lending rate	Collateral percentage	Share loan default
Network Exposure	-0.084	-0.233***	0.123	-0.000	-0.006	-0.007
	(0.157)	(0.051)	(0.133)	(0.001)	(0.008)	(0.007)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.518	1.929	6.042	0.148	0.998	0.046
p-value	0.000	0.013	0.308	0.906	0.057	0.179
N	413	307	304	366	267	325

Notes: The dependent variables are the branch's operational distance, i.e., how far from the branch its customers are located, the log of the number of loans the branch has outstanding, the log of the average size of outstanding loans, the lending rate on a typical loan, the percentage of collateral on a typical loan and the share of loans that default. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in equation 13. The mean (SD) of the within-branch change in log bank conflict intensity from 2018 to 2022 is 0.953 (1.343). Panel A restricts the sample to branches in bank-coethnic cities, while Panel B focuses on branches in non-bank-coethnic cities. The regressions include branch and time fixed effects. Standard errors, clustered at the branch level, are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

4.4 Exploring the mechanisms with Synthetic CEOs

Our model implies that the information-incentive trade-off, especially through delegation, is the central mechanism linking conflict to organizational adjustment. The reduced-form evidence is consistent with this, but cannot decompose the trade-off into its constituent channels. To do so, we run a vignette experiment with LLM-generated synthetic bank CEOs, varying (i) the ethnicity of the hypothetical branch manager and (ii) network-level conflict exposure. We use LLMs as synthetic economic agents (Horton, Filippas and Manning, 2023) to address two limitations of standard approaches. The mechanisms of interest, information acquisition and transmission, alignment with headquarters, and ethnic favoritism, are difficult to observe and measure directly. Relatedly, direct surveys of bank executives are poorly suited to eliciting sensitive beliefs about ethnicity. As Ludwig, Mullainathan and Rambachan (2025) note, LLMs can therefore be useful for structured mechanism exploration.[15]

Figure 4 summarizes the design; Appendix L provides full details. We construct vignettes from observed branch-year cells, each combining the bank's and city's ethnic affiliations, conflict exposure, and a GPT-5-generated summary of the bank's annual report (Bybee, 2025; Fernández-Fuertes, 2025). For each observed branch-year cell in 2018 and 2022, we compare a city-coethnic and a bank-coethnic manager under low and high network conflict (10th and 90th percentiles). We elicit the synthetic CEO's assessment of each manager along four dimensions: information acquisition, information transmission, coethnic favoritism, and safety concerns.[16] We then ask about their preferred organizational design (delegation, wages) and expected lending outcomes. We estimate LLM-implied conditional average treatment effects using the saturated specification:

$$y_{itv} = \beta_1 \,\text{CityCoethnic}_{itv} + \beta_2 \,\text{HighConflict}_{itv} + \beta_3 \big(\text{CityCoethnic}_{itv} \times \text{HighConflict}_{itv}\big) + \phi_i + \lambda_t + \varepsilon_{itv}, \tag{18}$$

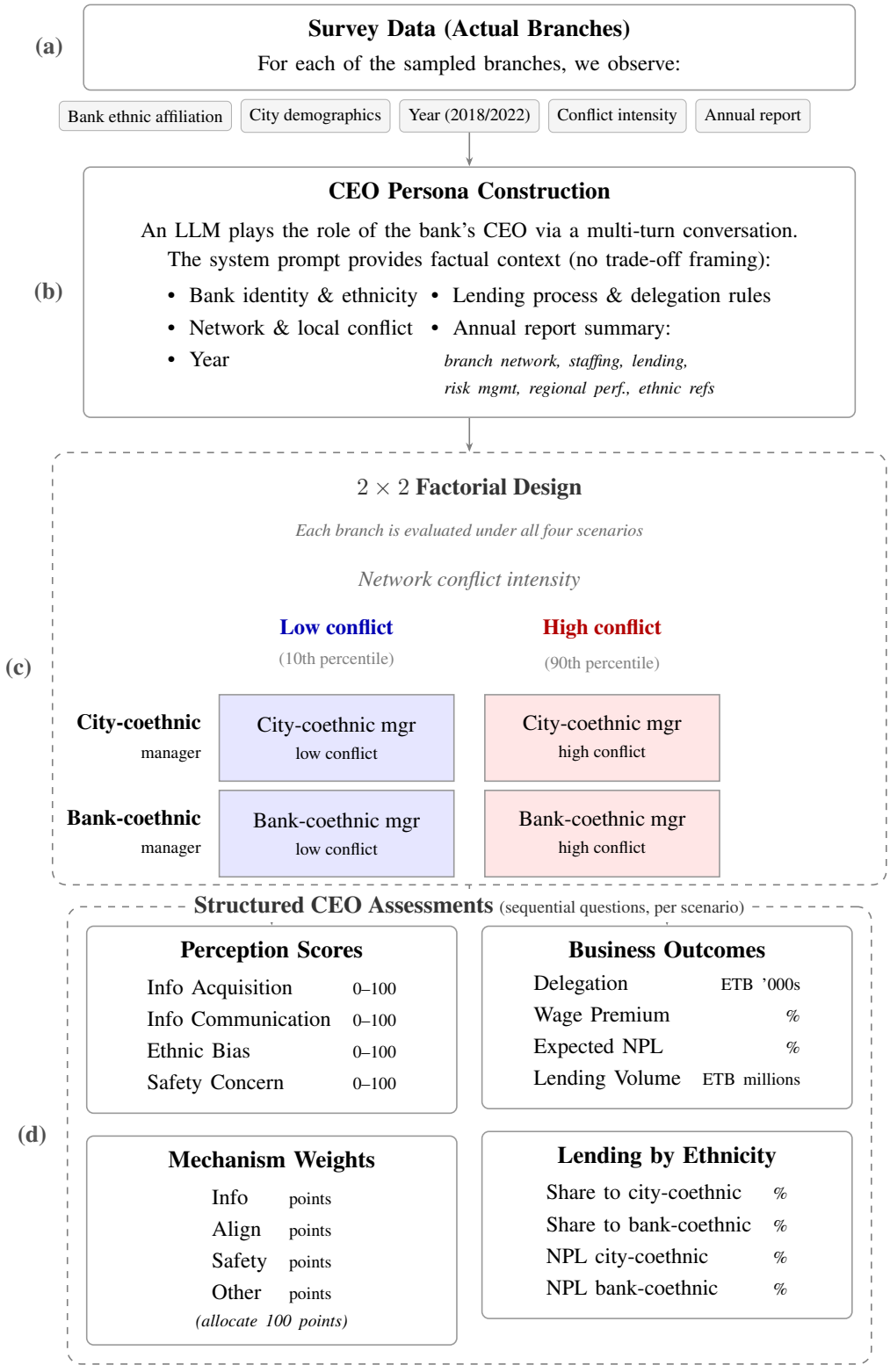
where i indexes branches, t indexes years, and v indexes vignette evaluations. CityCoethnic is an indicator for the manager and city being coethnic and $\text{HighConflict}_{itv}$ is the high-conflict treatment indicator minus its sample mean. Consequently, β_1 is the city-coethnic versus bank-coethnic contrast averaged across the two conflict conditions, β_2 is the high-minus-low effect for bank-coethnic managers, and β_3 is the differential high-minus-low effect for city-coethnic managers.

Table 7 reports the results. City-coethnic managers are perceived as better at acquiring local

[15] Importantly, the version of GPT-5 used in this exercise has a training cutoff that predates the first public circulation of this paper, so the model's responses cannot reflect exposure to our specific framework, hypotheses, or results.

[16] On the latter, we specifically ask about safety concerns, since a manager who is not coethnic with the local population may require a higher wage to induce them to live and work in that city when ethnic conflict intensifies, raising the bank's cost of assigning them there.

Figure 4: AI survey experiment design.



Notes: We generate a synthetic bank CEO and ask it to evaluate hypothetical managers under a 2×2 factorial design varying manager ethnicity (city-coethnic vs. bank-coethnic) and conflict intensity (10th vs. 90th percentile). For each scenario, the CEO provides structured assessments across eight outcome dimensions (panel d, top), mechanism weights, and expected lending patterns by customer ethnicity (panel d, bottom).

information but worse at transmitting it to headquarters, more prone to coethnic favoritism, and as having fewer safety concerns. These assessments translate into organizational choices: city-coethnic managers receive less delegation and lower wage premia, and are expected to generate higher lending volumes but worse loan quality. Higher conflict exposure weakens information acquisition for bank-coethnic managers and information transmission for city-coethnic managers, while increasing favoritism and safety concerns for both. Conflict reduces delegation and lending for both manager types, with a larger lending decline for city-coethnic managers. The vignette evidence thus decomposes the model's central trade-off into specific channels and mirrors the main reduced-form patterns in the data.

4.5 Robustness using exposure to Beta Israel Cities

To validate our baseline results, we exploit predetermined variation in banks' exposure to historically significant Beta Israel cities, which became disproportionately prone to ethnic conflict after the decline of Tigrayan influence in the federal government (Section 3). We define Z_{bt} as the share of bank b's 2018 branch network located within 100 km of a Beta Israel city, normalized to the $[0, 1]$ interval and interacted with an indicator for 2022. The estimates therefore compare the 2018–2022 change for branches of the banks with the greatest and least exposure; the interquartile range among non-bank-coethnic cities is 0.426. Because the measure is fixed by pre-conflict branch geography and tied to a historically specific component of the later Amhara–Tigray border dispute, it is unlikely to reflect endogenous branch relocation or other contemporaneous bank responses. Appendix Figure C3 maps the Beta Israel cities and the exposure measure.[17]

Table 8 presents the results for managers' ethnicity, delegation and other manager characteristics. Consistent with our baseline estimates, we find no significant effects in bank-coethnic cities, except a decrease in managers' branch tenure. In contrast, in non-bank-coethnic cities, variation in the share of branches near Beta Israel cities leads to a marked differential decline in the probability of appointing a bank-coethnic manager and a corresponding rise in the probability of appointing a city-coethnic manager. These results reinforce our main finding that banks increasingly rely on locally coethnic managers when exposed to higher conflict risk. Similarly, the estimates of the relative reduction in delegation are qualitatively similar, as are those for managers' bank tenure, across cities that are and are not coethnic with the bank.

Appendix Table C5 reports the corresponding results for branch-level lending.

[17] Appendix Table C6 shows that the results are robust to using a 50 km radius. We obtain similar results using only branches located in Beta Israel cities.

Table 7: Synthetic CEO Expectations of Effects of Conflict

Panel A: The effect of conflict on mechanisms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CEO Assessments				Mechanism Weights			
	Info Acq.	Info Comm.	Ethnic Bias	Safety Concern	Info	Align	Safety	Other
City-coethnic	54.52***	-22.83***	39.88***	-27.80***	12.47***	-7.01***	-9.19***	3.73***
	(0.35)	(0.47)	(0.68)	(0.81)	(0.31)	(0.33)	(0.30)	(0.24)
High conflict	-4.61***	-1.34***	5.63***	30.68***	-4.52***	-3.18***	9.11***	-1.41***
	(0.43)	(0.39)	(1.04)	(0.93)	(0.44)	(0.44)	(0.49)	(0.28)
High conflict	3.91***	-2.75***	-3.50***	-8.45***	1.37**	3.26***	-3.51***	-1.12***
× City-coeth	(0.54)	(0.87)	(1.08)	(1.47)	(0.63)	(0.58)	(0.57)	(0.42)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	58.04	69.28	51.49	44.49	34.77	37.43	18.45	9.35
Observations	742	742	742	742	742	742	742	742
R^2	0.985	0.823	0.884	0.822	0.748	0.525	0.721	0.389

Panel B: The effect of conflict on outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Outcomes				Lending (%)		NPL (%)	
	Deleg.	Wage Prem.	Exp. NPL	Lend Vol.	City-Coeth.	Bank-Coeth.	City-Coeth.	Bank-Coeth.
City-coethnic	-158.3***	-25.73***	0.77***	44.30***	1.26***	-5.12***	1.91***	-2.69***
	(30.28)	(0.50)	(0.12)	(1.83)	(0.46)	(0.42)	(0.16)	(0.25)
High conflict	-174.2***	9.50***	2.05***	-11.76***	-2.37***	1.97***	1.70***	3.74***
	(40.25)	(0.37)	(0.16)	(1.37)	(0.61)	(0.54)	(0.16)	(0.39)
High conflict	-2.03	-2.40***	0.39*	-14.67***	3.25***	-2.45***	1.19***	-2.63***
× City-coeth	(48.78)	(0.88)	(0.21)	(2.93)	(0.76)	(0.62)	(0.28)	(0.40)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	704.85	9.73	7.77	94.08	65.88	17.80	8.38	6.83
Observations	742	742	742	742	742	742	742	742
R^2	0.443	0.856	0.583	0.751	0.510	0.511	0.568	0.439

Notes: This table reports OLS estimates from an AI survey experiment in which a large language model (LLM) plays the role of a bank CEO evaluating hypothetical branch managers described in standardized vignettes. Each vignette varies (i) whether the manager is city-coethnic or bank-coethnic and (ii) whether the branch is assigned high or low conflict intensity. The specification includes indicators for City-coethnic, High conflict, and their interaction. City-coethnic equals one if the hypothetical manager's ethnicity matches the branch city's dominant ethnic group; bank-coethnic managers (ethnicity matching the bank headquarters' dominant ethnic group) are the omitted category. High conflict equals 0.5 for branches assigned conflict at the 90th percentile of the distribution of fatalities; it is -0.5 for low conflict (10th percentile), the omitted category. Panel A (Mechanisms). Columns (1)–(4) report LLM-elicited expectations on a 0–100 scale: Info Acq (ability to gather soft information about local borrowers), Info Comm (alignment of loan recommendations with headquarters' objectives), Ethnic Bias (likelihood of ethnic favoritism in lending), and Safety Concern (physical security risk). Columns (5)–(8) report the LLM's stated mechanism weights (shares in percentage points) assigned to Info, Align, Safety, and Other. Panel B (Outcomes). Columns (1)–(4) report Deleg. (maximum loan size approvable without headquarters authorization; ETB thousands), Wage Prem. (percent), Exp. NPL (percent), and Lend Vol. (ETB millions). Columns (5)–(6) report expected lending to city-coethnic and bank-coethnic borrowers (percent). Columns (7)–(8) report expected NPLs for city-coethnic and bank-coethnic borrowers (percent). The sample is restricted to branches where the bank headquarters' dominant ethnicity differs from the branch city's dominant ethnicity. All specifications include branch fixed effects and year fixed effects (as reported in the table). Standard errors clustered at the branch level are in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table 8: Beta Israel variation and branch managers

	Panel A: Bank-City Coethnic					
	(1) City coethnic manager	(2) Bank coethnic manager	(3) Coethnic with neither	(4) Delegation	(5) Tenure in bank	(6) Tenure in branch
Beta Israel Exposure	0.050	0.050	-0.050	-1234	-1.455*	-1.253***
	(0.094)	(0.094)	(0.094)	(1978)	(0.814)	(0.416)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.680	0.680	0.320	1852.8	6.859	2.390
N	447	447	447	231	447	446
	Panel B: Not Bank-City Coethnic					
	City coethnic manager	Bank coethnic manager	Coethnic with neither	Delegation	Tenure in bank	Tenure in branch
Beta Israel Exposure	0.364***	-0.547***	0.183**	-6711***	1.007	0.408
	(0.112)	(0.122)	(0.075)	(1922)	(0.958)	(0.658)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.185	0.770	0.045	1684.8	6.837	2.366
p-value	0.032	0.000	0.053	0.047	0.050	0.033
N	531	531	531	322	528	528

Notes: The dependent variables are indicators that equal 1 when a branch's manager is coethnic with the ethnic group associated with the city (column 1), with the ethnic group associated with the branch's bank (column 2), or with neither group (column 3); the largest loan a branch manager can approve without headquarters' agreement (column 4), measured in thousands of 2018 ETB and winsorized at the 95th percentile within period $\times$ bank-city-coethnicity cells; and the manager's tenure in the bank (column 5) and branch (column 6), in years. In non-bank-coethnic cities, the three ethnicity categories in columns 1–3 are mutually exclusive and exhaustive, so their coefficients sum to zero by construction. Beta Israel Exposure is the normalized share of the bank's 2018 branch network located within 100 km of a historic Beta Israel city, interacted with a post-2018 indicator. Panel A restricts the sample to branches in bank-coethnic cities, while Panel B focuses on branches in non-bank-coethnic cities. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value tests whether the coefficient is identical across panels. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

5 Mechanism tests

In interpreting our empirical results, we have so far focused on the branch manager's role in the loan application process. However, branch managers perform multiple functions within the organization: they also supervise employees and attract customers to the branch. Moreover, ethnic conflict may directly affect a manager's preferences and reservation wage for living in cities with a different predominant ethnicity. We examine these three alternative channels in turn: (i) managers' own location preferences, (ii) customers' preferences for banks and managers that share their ethnicity, and (iii) frictions with local employees.

Managers' willingness to live in cities whose predominant ethnicity differs from their own could plausibly be affected by the intensity of ethnic conflict, whether due to local insecurity or a desire to return to one's hometown. If so, the changes in managerial composition we document would reflect individual relocation decisions rather than bank-level optimization. Ethiopian banks are highly hierarchical, and personnel assignments – including branch manager postings – are typically decided at headquarters with limited scope for voluntary transfers, making this interpretation less likely *a priori*. On the other hand, our measure of network-level exposure to conflict, though constructed to abstract from local conflict intensity, is positively correlated with it, making safety concerns a plausible alternative explanation.

We run three tests against this alternative. First, our main estimates (Table 2) are robust to city×time fixed effects and to direct controls for local conflict intensity. If fear of local conflict were the primary driver, these controls should substantially attenuate the coefficients; instead, they hardly move them. Under these fixed effects, the comparison is between two branches in the same city, both non-coethnic with the local population, that differ only in their exposure to conflict involving their own ethnic group elsewhere in the network. Second, city-level controls cannot absorb threats directed at managers of the bank's ethnicity in particular. We therefore control directly for local conflict involving the bank's own ethnic group (Appendix Table J2). Our results are unchanged; if anything, higher local conflict involving the bank's ethnic group slightly raises the probability of appointing a bank-coethnic manager—the opposite sign from what personal security concerns would predict. Third, network-level conflict might heighten managers' perceived risk of being targeted even absent local threats. We therefore redefine exposure to include only events involving both the bank's and the city's ethnic groups (Appendix Figure J1). The estimated relationship attenuates: the city-coethnic coefficient is 0.039 against 0.049 in the main specification, and the bank-coethnic coefficient is not significant.

A second concern is that conflict erodes customers' trust in managers who do not share their ethnicity, leading them to take their business to a coethnic bank and banks to adjust staffing in response. If customers switch, the effect should be strongest where they have a ready alternative:

a branch of a bank coethnic with the local population. We test this by interacting conflict exposure with the presence of a city-coethnic competitor. Table J3 shows an interaction of 0.020 (s.e. 0.044), too small to account for more than 40% of the main effect. Results are similar when we measure competition by the number of branches in the city or by managers' perceived number of competitors in 2018.

Finally, branch managers not only communicate with headquarters but also supervise local employees. Conflict may therefore affect not only upward communication but also the manager's ability to motivate and coordinate subordinates. Li et al. (2025) formalize a version of this idea: in a three-layer hierarchy, a middle manager must be trusted by both the principal above and the agents below. A manager too aligned with the top does not motivate workers to exert effort; one too aligned with workers is discounted by headquarters. When conflict sharpens ethnic loyalties, a bank-coethnic manager may become too closely identified with headquarters, and a city-coethnic manager too closely identified with local staff. A manager coethnic with neither side may then be better positioned to sustain cooperation in both directions. If this channel were important, conflict should increase the probability that branches are run by managers coethnic with neither the bank nor the city, especially where the share of local employees is high.

We find support for the first part of this prediction. Appendix Table K1, Panel C, shows that a one-standard-deviation increase in conflict exposure raises the probability of appointing a neither-coethnic manager by 6.3 p.p., significant at the 1 percent level. Both accounts predict this shift, so the appointment result alone does not separate them. They differ on the delegation margin: the reduction in lending authority depends on borrowers' ethnic composition rather than staff composition. The second part of the prediction finds little support. The appointment effect is only slightly larger in branches with a higher baseline share of local employees, and the difference is not significant (Appendix Table J5). This implies that although this channel may be present, it cannot by itself generate our main results. The same panel shows that the rise in neither-coethnic managers is concentrated in cities with a large group coethnic with neither the bank nor the atlas-assigned city group, consistent with conflict reallocating appointments toward locally rooted groups rather than with a distinct supervision channel.

6 Discussion

This paper shows that ethnic conflict changes not only market outcomes but also the internal organization of firms. Using new branch-level data from Ethiopian banks, we find that greater conflict exposure leads branches in non-bank-coethnic cities to appoint managers who are coethnic with the city's predominant group rather than coethnic with the bank, reduce the authority delegated to those managers, and rely more on experienced insiders. The key implication is that firms are not

passive in their response to shocks that intensify social divisions; they actively reorganize in order to keep operating across group lines.

Our results speak to a central question in organizational economics: how firms trade off local knowledge against incentive alignment (Aghion and Tirole, 1997; Dessein, 2002; Alonso, Dessein and Matouschek, 2008). In our setting, conflict raises the value of managers who can acquire soft information from local borrowers, but also sharpens the risk of biased lending and distorted communication with headquarters. Banks respond on both margins at once. They do not choose between local adaptation and central oversight; rather, they appoint managers better able to acquire local information while simultaneously tightening the control exercised by headquarters. This joint adjustment is difficult to reconcile with explanations in which managers relocate voluntarily or customers drive the change, since banks would then have little reason to simultaneously tighten delegation and reassign insiders.

More broadly, the findings suggest that identity divisions can reshape the production of information inside organizations. A growing literature studies how ethnicity, culture, or political affiliation affect lending and other economic interactions (Hjort, 2014; Fisman et al., 2020; Frame et al., 2025; D'Acunto, Ghosh and Rossi, 2026; Eichengreen and Saka, 2026). Our evidence highlights a distinct mechanism: social divisions affect who can acquire information, how credibly that information can be transmitted, and how authority should be allocated between headquarters and the branch. In that sense, firms not only passively suffer the effects of conflict, for example due to discrimination, but also actively manage those effects through their internal organization.

The Ethiopian banking sector provides a particularly sharp environment in which to study this mechanism, but the logic extends beyond this context. Many firms operate across salient identity boundaries, whether ethnic, linguistic, religious, or political. Whenever customer-facing information is locally embedded but organizations remain centrally governed, shocks that intensify identity salience can make local matching more valuable and delegation more costly. Our results therefore suggest a broader principle: firms may respond to polarization not by retreating from diverse markets, but by redesigning authority, monitoring, and personnel assignment to continue operating across group lines.

At the same time, our findings point to an important limit of adaptation. Our results suggest that the organizational changes we document help sustain lending performance: there is no evidence for deterioration in observed loan performance. This, however, does not mean they are costless. Tighter control can slow decision-making, reduce initiative (Aghion and Tirole, 1997), and require greater reliance on internal labor markets. More generally, the need to offset social frictions with additional oversight implies that polarization is costly even when firms successfully adjust. Understanding those longer-run costs, and whether similar responses arise in other sectors and political settings, is an important direction for future work.

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Banking under Conflict: Managers and Organizational Design

Appendix

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A Model details and full derivations

A.1 Environment, timing, and interpretation

The framework combines standard information–control models (Philippe Aghion and Jean Tirole, 1997; Ricardo Alonso, Wouter Dessein and Niko Matouschek, 2008; Wouter Dessein, 2002) with work on hierarchy and soft information in banking (Jose M. Liberti and Atif R. Mian, 2009; Jeremy C. Stein, 2002). The action y is the residual underwriting stance—for example, how soft evidence is translated into pricing, collateral, monitoring, or other terms—after verifiable rules have been imposed, and L affects only the stakes of that decision. The benchmark assumes that borrower ethnicity g is independent of L and s, and that residual uncertainty and conditional signal quality do not vary with L, producing a single size-based approval cutoff. HQ maximizes bank value, so managers of any ethnicity may favor their own group. The main-text comparison uses the bank-coethnic type B and city-coethnic type C, but the same expressions apply to any candidate i, including a third-group manager N. For conflict comparative statics, (π_i, F, κ) are fixed; for composition comparative statics, the conditional information and preference primitives are fixed. Information acquisition is match-dependent. Shared language, networks, and cultural codes make it easier to elicit and interpret a coethnic borrower's information (Raymond Fisman, Daniel Paravisini and Vikrant Vig, 2017), while an out-group interaction can still generate recordable evidence. Only an own-group match generates the additional tacit assessment used in the communication problem, and the same match can generate favoritism (Raymond Fisman, Arkodipta Sarkar, Janis Skrastins and Vikrant Vig, 2020). Once elicited, recordable information enters the loan file and survives either authority regime; tacit information is privately observed by the manager. Conflict γ is a reduced-form salience index, empirically proxied by network exposure rather than necessarily local casualties. It can strengthen identity and disrupt trust, disclosure, and the interpretation of evidence across ethnic boundaries. The key asymmetry is therefore generated by a common match-level technology: cross-group recordable information deteriorates more rapidly than in-group recordable information, and the bank-coethnic manager faces the cross-group technology on a larger borrower share.

HQ appoints a manager and commits before loan information is realized to a coarse authority schedule based on manager type and verifiable loan size, but not borrower ethnicity or realized information. This restriction is load-bearing: if authority could depend on ethnicity, HQ could review only own-group loans and π_i would drop out of the cutoff. Under review, HQ observes the recordable assessment on every loan, receives a report about the tacit assessment on an own-group loan, chooses y, and incurs the fixed cost κ; because the benefit of review scales with L while its cost does not, authority takes a loan-size cutoff form. Formal approval rights are contractible, but y and the report are not, so HQ cannot commit to a report-contingent action. We use pure-strategy perfect Bayesian equilibria in the monotone-partition class of Vincent P. Crawford and Joel Sobel (1982); Section A.4 proves that equilibrium selection does not affect the authority rule.

A.2 A feasible match-dependent information structure

The benchmark takes the conditional residual-state distribution and signal experiments, given the manager–borrower match, to be invariant across loan sizes. For feasibility, let $V_x, V_t \geq 0$ and $V_\varepsilon > 0$, with

$V = V_x + V_t + V_\varepsilon$, and suppose

$$0 \le \chi^O(\gamma) \le \chi^I(\gamma) \le V_x, \qquad 0 \le q(\gamma) \le \sqrt{3V_t} \tag{a1}$$

for every relevant conflict level.
Let the state decompose as

$$s = r + \tau + \varepsilon, \tag{a2}$$

where r, τ, and ε are mutually independent, have mean zero, and satisfy

$$\mathrm{Var}(r) = V_x, \qquad \mathrm{Var}(\tau) = V_t, \qquad \mathrm{Var}(\varepsilon) = V_\varepsilon > 0. \tag{a3}$$

For concreteness, let $r \sim U[-\sqrt{3V_x}, \sqrt{3V_x}]$ and $\tau \sim U[-\sqrt{3V_t}, \sqrt{3V_t}]$, with the natural degenerate interpretation when a component has zero variance. The component r represents information that can be elicited and recorded in a loan file; τ represents tacit information whose posterior assessment must be communicated.
For match status $m \in \{I, O\}$, where I denotes an own-group borrower and O an out-group borrower, the recordable experiment produces

$$x_i^m = \mathbb{E}[r \mid \mathcal{R}_i^m], \qquad x_i^m \sim U[-p^m, p^m], \qquad p^m \equiv \sqrt{3\chi^m}. \tag{a4}$$

The assessment x_i^m is verifiable once elicited and observed by HQ. On an own-group loan, a second experiment produces

$$t_i = \mathbb{E}[\tau \mid \mathcal{T}_i], \qquad t_i \sim U[-q, q], \tag{a5}$$

which is privately observed by the manager. An out-group loan generates no incremental tacit assessment.

Lemma 1 (Bayesian feasibility)**.** *For every (χ^I, χ^O, q) satisfying (a1), signal experiments satisfying (a4)–(a5) exist. Their posterior means satisfy*

$$\mathbb{E}[s \mid x_i^I, t_i, g = i] = x_i^I + t_i, \qquad \mathbb{E}[s \mid x_i^O, g \ne i] = x_i^O. \tag{a6}$$

The state remains non-invertible because $V_\varepsilon > 0$.

Proof. Let $Z \sim U[-1, 1]$. For $0 \le a \le A$, write $a = \lambda A$ with $\lambda \in [0, 1]$. For every convex function φ,

$$\varphi(aZ) = \varphi(\lambda AZ + (1 - \lambda)0) \le \lambda\varphi(AZ) + (1 - \lambda)\varphi(0).$$

Taking expectations and applying Jensen's inequality gives $\mathbb{E}[\varphi(aZ)] \le \mathbb{E}[\varphi(AZ)]$. Thus $U[-a, a]$ is dominated by $U[-A, A]$ in convex order. By the martingale-coupling theorem of Volker Strassen (1965), there is a signal experiment whose posterior mean has distribution $U[-a, a]$. Apply this result to r with $(a, A) = (p^m, \sqrt{3V_x})$ for each $m \in \{I, O\}$ and to τ with $(a, A) = (q, \sqrt{3V_t})$. Independence of the components and experiments yields (a6); ε retains positive variance. □

Calibration and orthogonality imply residual loss

$$\mathbb{E}[(s - x_i^I - t_i)^2 \mid g = i] = V - \chi^I - \frac{q^2}{3}, \tag{a7}$$

$$\mathbb{E}[(s - x_i^O)^2 \mid g \ne i] = V - \chi^O. \tag{a8}$$

Define portfolio-average recordable information

$$\bar{\chi}_i = (1-\pi_i)\chi^O + \pi_i\chi^I = \chi^O + \pi_i\Delta_\chi. \tag{a9}$$

Averaging the residual losses gives

$$I_i = V - \bar{\chi}_i - \pi_i\frac{q^2}{3}, \tag{a10}$$

which proves (3). The city-coethnic manager's recordable-information advantage follows without type-specific signal technologies:

$$\bar{\chi}_C - \bar{\chi}_B = (\pi_C - \pi_B)\Delta_\chi \geq 0. \tag{a11}$$

Total information is likewise better under C whenever $\pi_C > \pi_B$ and $\Delta_\chi + q^2/3 > 0$.

A.3 Delegated decisions

On an own-group loan, manager i observes (x_i^I, t_i) and minimizes

$$\mathbb{E}\left[(y-s-b)^2 \mid x_i^I, t_i, g=i\right].$$

By (a6), her delegated action is

$$y_i^{\text{del}} = x_i^I + t_i + b. \tag{a12}$$

HQ's expected loss is $V - \chi^I - q^2/3 + b^2$. On an out-group loan, the manager is aligned and chooses $y = x_i^O$, generating loss $V - \chi^O$. Averaging across borrower groups yields

$$\begin{aligned}\ell_i^{\text{del}}(L) &= \left[(1-\pi_i)(V-\chi^O) + \pi_i\left(V - \chi^I - \frac{q^2}{3} + b^2\right)\right]L \\ &= \left(I_i + \pi_i b^2\right)L,\end{aligned} \tag{a13}$$

which proves (5).

A.4 Biased communication of tacit in-group information

Consider an own-group borrower under manager i. The recordable assessment x_i^I is observed by HQ. Conditional on x_i^I, HQ's ideal residual action is t_i, while the manager's ideal residual action is $t_i + b$. The communication problem therefore depends only on the privately observed tacit component $t_i \sim U[-q, q]$. If $q = 0$, this component is degenerate, no informative communication is possible, and the review loss below follows directly. For the partition derivation, take $q > 0$.

We characterize the standard pure-strategy monotone partition equilibria. Let

$$-q = z_0 < z_1 < \cdots < z_K = q$$

be the boundaries of a K-bin equilibrium and let $d_k = z_k - z_{k-1}$. Since t_i is uniform, HQ chooses the midpoint

$$m_k = \frac{z_{k-1} + z_k}{2}$$

following a report corresponding to bin k. At an interior boundary z_k, sender indifference requires

$$[m_k - (z_k + b)]^2 = [m_{k+1} - (z_k + b)]^2,$$

which is equivalent to

$$d_{k+1} = d_k + 4b. \tag{a14}$$

Using $\sum_{k=1}^{K} d_k = 2q$ gives

$$d_k = \frac{2q}{K} + 2b(2k - K - 1). \tag{a15}$$

The smallest bin is d_1, so a genuine K-bin equilibrium exists if and only if

$$bK(K-1) < q. \tag{a16}$$

The one-bin uninformative equilibrium always exists.
Conditional on a bin of length d_k, HQ's mean-squared error in predicting t_i is $d_k^2/12$. The ex ante communication loss is

$$\begin{aligned} C_K(b,q) &= \sum_{k=1}^{K} \frac{d_k}{2q} \frac{d_k^2}{12} \\ &= \frac{q^2}{3K^2} + \frac{b^2}{3}(K^2 - 1). \end{aligned} \tag{a17}$$

For every informative monotone partition equilibrium, $K \geq 2$. By (a16),

$$\begin{aligned} \frac{C_K}{b^2} &> \frac{(K-1)^2 + K^2 - 1}{3} \\ &= \frac{2K(K-1)}{3} > 1. \end{aligned} \tag{a18}$$

Thus every informative equilibrium in this class creates a larger decision distortion than delegation, even before the review cost is paid, and is never chosen by HQ.
For $K = 1$, HQ learns nothing about t_i, so

$$C_1 = \mathrm{Var}(t_i) = \frac{q^2}{3}.$$

If uninformative review is preferred to delegation for any loan, then necessarily

$$b^2 > \frac{q^2}{3},$$

which implies $b > q/\sqrt{3} > q/2$. A two-bin equilibrium requires $2b < q$, and equilibria with more bins require still smaller bias. Hence, whenever review can be optimal, no informative monotone partition equilibrium exists.
Under uninformative review, HQ retains x_i^I but not t_i. Expected loss on an own-group loan is therefore

$$V - \chi^I, \tag{a19}$$

which exceeds the full-information residual by $q^2/3$. On an out-group loan, x_i^O is recordable and no strategic report is required, so loss is $V - \chi^O$. Averaging over borrower groups and adding κ gives

$$\begin{aligned}\ell_i^{\mathrm{hq}}(L) &= \left[(1-\pi_i)(V-\chi^O) + \pi_i(V-\chi^I)\right] L + \kappa \\ &= \left(I_i + \pi_i \frac{q^2}{3}\right) L + \kappa, \end{aligned} \tag{a20}$$

which proves (6).

Lemma 2 (Selection robustness)**.** *Within pure-strategy monotone-partition perfect Bayesian equilibria, the optimal authority rule is invariant to equilibrium selection. If an informative partition equilibrium exists, delegation strictly dominates review for HQ; if review is optimal, no informative partition equilibrium exists and the relevant review outcome is uninformative.*

Proof. For any $K \geq 2$, (a18) gives $C_K > b^2$ before the review cost is paid. If uninformative review is weakly preferred for some loan, then $b^2 > q^2/3$, which implies $2b > q$ and violates (a16) for every $K \geq 2$. □

A.5 The authority rule and comparative statics

Subtracting (6) from (5) shows that delegation is weakly preferred precisely when

$$\pi_i \left(b^2 - \frac{q^2}{3}\right) L \leq \kappa. \tag{a21}$$

This proves the authority rule and (8). To nest the full-delegation corner, define

$$c_i(\gamma) = \begin{cases} +\infty, & h_i(\gamma) \leq 0, \\ \widehat{L}_i^*(\gamma), & h_i(\gamma) > 0. \end{cases} \tag{a22}$$

Then $D_i(L,\gamma) = \mathbf{1}\{L \leq c_i(\gamma)\}$. Portfolio-average recordable information $\bar{\chi}_i$ cancels because it remains available under both authority regimes.

The authority conclusions require only that the net control wedge per own-group match increases, $d'(\gamma) > 0$. The primitive conditions in (4) are sufficient because

$$d'(\gamma) = 2bb' - \frac{2}{3} qq' > 0. \tag{a23}$$

For any manager with $\pi_i > 0$,

$$h_i'(\gamma) = \pi_i d'(\gamma) > 0. \tag{a24}$$

Therefore $D_i(L,\gamma)$ is weakly decreasing in conflict for every L, including changes that enter or leave a corner. Whenever $h_i > 0$,

$$\frac{\mathrm{d}\widehat{L}_i^*}{\mathrm{d}\gamma} = -\frac{\widehat{L}_i^*}{h_i} h_i' = -\widehat{L}_i^* \frac{d'}{d} < 0. \tag{a25}$$

Extend F by zero below $\underline{L}$, one above $\bar{L}$, and set $F(+\infty) = 1$. Then $A_i(\gamma) = F(c_i(\gamma))$. For $\gamma_2 > \gamma_1$,

$$A_i(\gamma_2) - A_i(\gamma_1) = F(c_i(\gamma_2)) - F(c_i(\gamma_1)) \leq 0. \tag{a26}$$

The inequality is strict if and only if

$$\mathbb{P}(c_i(\gamma_2) < L \leq c_i(\gamma_1)) > 0. \tag{a27}$$

Continuity of F is not needed for this monotonicity or strictness statement.

For the composition comparative static, hold b and q fixed and hence hold d fixed. If $d \leq 0$, then $h_i = \pi_i d \leq 0$ for every π_i, so every loan is delegated and authority is constant in π_i. If $d > 0$, h_i increases linearly in π_i and, for $\pi_i > 0$,

$$\frac{\partial \widehat{L}_i^*}{\partial \pi_i} = -\frac{\widehat{L}_i^*}{\pi_i} < 0, \qquad \frac{\partial \widehat{L}_i^*}{\partial \kappa} = \frac{\widehat{L}_i^*}{\kappa} > 0. \tag{a28}$$

Thus, whenever $d > 0$, the cutoff $c_i = \widehat{L}_i^*$ strictly decreases in π_i for every $\pi_i > 0$. The pointwise delegation rule is weakly decreasing, and aggregate autonomy decreases strictly only if a positive mass of loans crosses the cutoff.

A.6 Appointment and the cross-group information restriction

For the bank–city comparison, suppose the groups differ, so $\pi_C > \pi_B$, and define $\Phi(\gamma) \equiv \Lambda_B(\gamma) - \Lambda_C(\gamma)$. For each loan size, HQ selects the smaller of the additional delegated loss $\pi_i b^2 L$ and the reviewed loss $\pi_i q^2 L/3 + \kappa$, on top of the residual information loss $I_i L$. Hence

$$\Lambda_i(\gamma) = I_i(\gamma)\mu + \mathbb{E}\left[\min\left\{\pi_i b(\gamma)^2 L, \pi_i \frac{q(\gamma)^2}{3} L + \kappa\right\}\right]. \tag{a29}$$

Factoring out the tacit-information term gives (9). The exact appointment decomposition is

$$\begin{aligned}\Phi(\gamma) &= (\bar{\chi}_C - \bar{\chi}_B)\mu + \mathbb{E}\left[\min\{h_B L, \kappa\} - \min\{h_C L, \kappa\}\right] \\ &= (\pi_C - \pi_B)\Delta_\chi \mu + \mathbb{E}\left[\min\{h_B L, \kappa\} - \min\{h_C L, \kappa\}\right].\end{aligned} \tag{a30}$$

The first term is C's recordable-information advantage: she uses the more resilient in-group technology on a larger borrower share. The second compares the managers' minimized control costs after HQ optimizes review.

Because F is continuous, the equality event $h_i L = \kappa$ has probability zero. Wherever the primitives are differentiable, the envelope theorem gives

$$\Lambda_i' = -\bar{\chi}_i' \mu + h_i' M_{D,i}. \tag{a31}$$

Since $\bar{\chi}_i' = \chi^{O\prime} + \pi_i \Delta_\chi'$, the common deterioration in recordable information cancels from the appointment comparison, leaving

$$\Phi' = \mu(\pi_C - \pi_B)\Delta_\chi' + h_B' M_{D,B} - h_C' M_{D,C}. \tag{a32}$$

Thus conflict shifts appointment toward C if and only if

$$\mu(\pi_C - \pi_B)\Delta'_\chi > h'_C M_{D,C} - h'_B M_{D,B}. \tag{a33}$$

The left side is C's relative information advantage as cross-group borrower communication deteriorates: because $\pi_C > \pi_B$, she relies on the less resilient out-group technology for a smaller portfolio share. The right side is the relative growth of her optimized control cost. Here cross-group communication means borrower–manager information acquisition, not manager–HQ cheap talk. Unlike a direct assumption on χ'_B and χ'_C, the asymmetry is generated by one common match-level technology and the observed difference $\pi_C > \pi_B$.

A primitive dominance condition: Under the maintained common own-group bias and tacit-information technologies, $d = b^2 - q^2/3$, $h'_i = \pi_i d'$, and

$$\Phi' = \mu(\pi_C - \pi_B)\Delta'_\chi - d' \left[\pi_C M_{D,C} - \pi_B M_{D,B}\right]. \tag{a34}$$

For every loan size,

$$\pi_C L D_C - \pi_B L D_B \leq (\pi_C - \pi_B)L. \tag{a35}$$

If $d \leq 0$, both types delegate and the inequality holds with equality. If $d > 0$, $D_C \leq D_B$: the only additional case has $D_B = 1$ and $D_C = 0$, making the left side negative. Taking expectations in (a35) yields

$$\Phi' \geq \mu(\pi_C - \pi_B)(\Delta'_\chi - d'). \tag{a36}$$

Consequently,

$$\Delta'_\chi > d' \tag{a37}$$

is sufficient for conflict to favor C under any optimal authority allocation. If all loans are delegated, (a36) holds with equality, so (a37) is also necessary. The comparison poses the model's empirical appointment question: does conflict widen the in-group recordable-information premium faster than it raises the net own-group control wedge? When $q' = 0$, it reduces to $\Delta'_\chi > 2bb'$; allowing $q' \leq 0$ replaces $2bb'$ with $d' = 2bb' - 2qq'/3$ and leaves the authority result unchanged.

Corollary (multi-type appointment ordering): Let j and k be any candidate manager ethnicities with $\pi_j > \pi_k$. Repeating the pairwise argument above gives

$$\begin{aligned}\Lambda'_j - \Lambda'_k &= -\mu(\pi_j - \pi_k)\Delta'_\chi + d' \left[\pi_j M_{D,j} - \pi_k M_{D,k}\right] \\ &\leq -\mu(\pi_j - \pi_k)(\Delta'_\chi - d').\end{aligned} \tag{a38}$$

Hence (a37) makes every higher-π candidate relatively more attractive as conflict rises, absent differential assignment-cost responses. In particular, any third-group manager N with $\pi_N > \pi_B$ becomes more attractive relative to B; if $\pi_C > \pi_N > \pi_B$, the operating-loss responses satisfy $\Lambda'_C < \Lambda'_N < \Lambda'_B$. The result does not sign the aggregate share of N, because N can gain appointments from B while losing them to candidates with still larger π_i.

A.7 Managerial assignment costs

Let $w_i(\gamma)$ be a differentiable reduced-form cost of assigning manager i, measured in the same branch-level units as Λ_i and encompassing relocation, retention, or safety premia. Define $\Psi(\gamma) \equiv \Phi(\gamma)+w_B(\gamma)-w_C(\gamma)$. HQ appoints C if and only if $\Psi \geq 0$, and conflict shifts appointment toward C if and only if

$$\mu(\pi_C - \pi_B)\Delta'_\chi + (w'_B - w'_C) > h'_C M_{D,C} - h'_B M_{D,B}. \tag{a39}$$

Thus a rise in the relative relocation, retention, or safety cost of assigning B makes reallocation toward C more likely. A conflict-induced customer preference for a city-coethnic manager enters identically as a reduction in w_C. Appointment alone identifies only the composite condition (a39); it does not disentangle information dominance from assignment-cost responses. Auxiliary tests based on reassigned insiders, authority changes holding manager type fixed, and managers' local origins would bear more directly on the cross-group information interpretation.

Conditional on the appointed manager, w_i cancels from the authority comparison $h_i L \leq \kappa$, leaving Parts 2 and 3 of Proposition 1 unaffected. Assignment costs can nevertheless change observed branch-level authority by changing the appointed type. Holding manager type fixed removes this selection channel and provides the cleanest empirical analogue of the direct information–incentive response.

A.8 Appointment and restricted authority can coexist

The recordable information premium allows HQ to appoint an informed local manager while reviewing some of her decisions. Review preserves the recordable assessment even when strategic communication eliminates the value of the tacit component.

Lemma 3 (Nonempty coexistence region)**.** *A sufficient condition for C to be preferred to B is*

$$\left[\bar{\chi}_C - \bar{\chi}_B - \pi_B \frac{q^2}{3}\right] \mu > \kappa. \tag{a40}$$

Under the common match-level technology, the bracket equals $(\pi_C - \pi_B)\Delta_\chi - \pi_B q^2/3$. A sufficient condition for HQ to review a positive mass of decisions under C is

$$h_C > 0 \quad \textit{and} \quad \mathbb{P}\left(L > \frac{\kappa}{h_C}\right) > 0. \tag{a41}$$

These conditions hold jointly for a nonempty parameter region.

Proof. The minimized agency and review term in Λ_B is nonnegative, so

$$\Lambda_B \geq I_B \mu = \left(V - \bar{\chi}_B - \pi_B \frac{q^2}{3}\right) \mu.$$

Under C, reviewing every loan is feasible. Hence

$$\Lambda_C \leq (V - \bar{\chi}_C)\, \mu + \kappa.$$

Condition (a40) therefore implies $\Lambda_C < \Lambda_B$. Condition (a41) places positive loan mass above C's approval cutoff. Joint feasibility follows by taking the recordable match premium Δ_χ sufficiently large, κ sufficiently small, and b sufficiently large. HQ can then appoint C for recordable information obtained from local borrowers while limiting the problems created by her tacit information and bias through review. □

A positive recordable match premium separates the informational value of appointment from the informational cost of review. If $\Delta_\chi = 0$ and all of C's relative information advantage is tacit, reviewing own-group loans destroys that advantage and the earlier appointment–centralization incompatibility can reappear.

B Inference and bank-time comparisons

B.1 Manager ethnicity and delegation with bank-time fixed effects

Table B1 compares branches in bank-coethnic and non-bank-coethnic cities within the same bank and period. For this exercise, Network Exposure is deliberately measured over the bank's complete branch network, including conflict near the focal branch. It therefore varies only at the bank-time level and its uninteracted main effect is absorbed by bank-time fixed effects. Panel A reports coefficients on the interaction between this exposure and an indicator for a non-bank-coethnic city. The four outcomes are the three manager types and delegation. All specifications include branch and bank-time fixed effects and allow non-bank-coethnic branches to follow a separate time trend. The city-coethnic manager estimate is 0.128 (s.e. 0.030), while the delegation estimate is $-2{,}543$ thousand 2018 ETB (s.e. 934). Panel B relates delegation to manager ethnicity and the local population share belonging to the manager's ethnic group separately in bank-city non-coethnic and coethnic locations.

Table B1: Manager ethnicity and delegation with bank-time fixed effects

Panel A: Manager ethnicity and delegation

	(1) City-coethnic manager	(2) Bank-coethnic manager	(3) Neither-coethnic manager	(4) Delegation
Network Exposure × Non-coethnic city	0.128***	-0.074	-0.012	-2543**
	(0.030)	(0.060)	(0.036)	(934)
Branch FE	Yes	Yes	Yes	Yes
Bank-time FE	Yes	Yes	Yes	Yes
Non-bank-coethnic-time FE	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.411	0.729	0.171	1755
N (Branches)	978	978	978	553
Banks	16	16	16	16

Panel B: Delegation, manager type and local population share

	Bank and city not coethnic			Bank and city coethnic		
	(1) Manager type	(2) + population share	(3) Population share	(4) Manager type	(5) + population share	(6) Population share
City-coethnic manager	-473.3	1211.0		-2423.9**	-767.6	
	(1012.2)	(1544.9)		(1041.8)	(1494.4)	
Neither-coethnic manager	736.6	944.2				
	(1404.2)	(1502.2)				
Manager-group population share		-4147.1**	-3200.4***		-3182.1	-4067.5**
		(1894.3)	(1051.9)		(1901.5)	(1480.1)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank-time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	1688.5	1688.5	1688.5	1849.3	1849.3	1849.3
N (Branches)	321	321	321	229	229	229
Banks	15	15	15	13	13	13

Notes: Panel A uses the whole-network measure of conflict exposure. This measure includes conflict near the focal branch and is constant within bank-time cells, so its main effect is absorbed. The reported coefficients are on the interaction between Network Exposure and an indicator for a branch in a city whose ethnicity differs from the bank's. The first three outcomes are indicators; delegation in column 4 is measured in thousands of 2018 ETB. Panel A includes non-bank-coethnic-time fixed effects to allow the two groups to follow different time trends. Panel B regresses delegation on manager type and the local population share belonging to the manager's ethnic group. Columns 1–3 report results for the non-bank-coethnic sample, and columns 4–6 report results for the bank-city-coethnic sample. Within each group, the columns include manager-type indicators, manager type plus the population share, and the population share alone. City-coethnic manager and Neither-coethnic manager are indicators. In columns 1–2, bank-coethnic managers are the omitted category. In columns 4–5, the bank's and city's ethnicities coincide, so managers coethnic with neither are the omitted category. Delegation is the largest loan a manager can approve without headquarters' approval, measured in thousands of 2018 ETB and winsorized at the 95th percentile within cells defined by time and bank-city coethnicity. All specifications include branch and bank-time fixed effects. Standard errors are clustered by bank and reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

B.2 Delegation results for branches with no change in manager

Table B2: Delegation among branches with an unchanged manager type

	(1) All stable types	(2) Bank or city coethnic	(3) Bank or city coethnic	(4) Bank or city coethnic
Panel A: Conflict exposure				
Network Exposure	-811.1	-749.7	-328.8	-442.1
	(539.9)	(567.8)	(1088.2)	(1075.6)
Network Exposure × City-coethnic			-691.6	
			(1100.3)	
Network Exposure × Population share				-614.6
				(1321.4)
2018 mean dep. var.	1709.7	1700.0	1700.0	1700.0
Branch-years	248	240	240	240
Branches	124	120	120	120
Panel B: 2018–2022 difference				
2022	6565.1***	6781.4***	8868.0***	10307.2***
	(838.6)	(859.3)	(1236.8)	(1417.5)
2022 × City-coethnic			-5007.7***	
			(1582.9)	
2022 × Population share				-8628.1***
				(1932.0)
2018 mean dep. var.	1709.7	1700.0	1700.0	1700.0
Branch-years	248	240	240	240
Branches	124	120	120	120

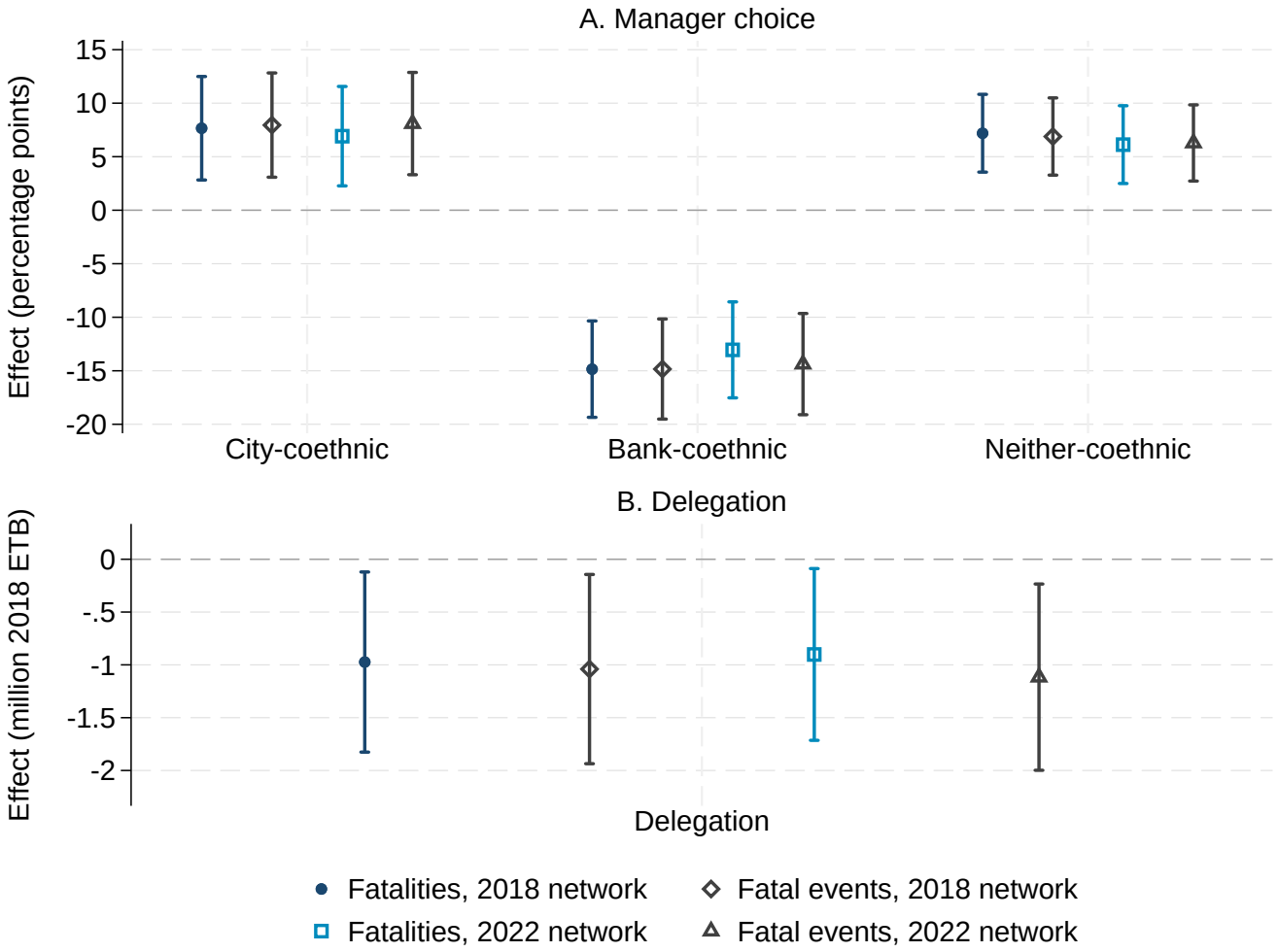
Notes: The sample is branch-years in cities not coethnic with the bank, restricted to branches whose manager type is unchanged between 2018 and 2022. The dependent variable in both panels is the largest loan a branch manager can approve without headquarters' approval, measured in thousands of 2018 ETB and winsorized as in main-text Table 3. *Panel A* reports the effect of network conflict exposure, the log intensity of branch-weighted exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest. *Panel B* reports the difference between the two waves and uses no conflict measure; it asks whether the two groups of branches diverged at all, rather than whether they diverged in proportion to realized exposure. Column 1 includes all stable manager types and reproduces the estimate quoted in the main text. Columns 2–4 restrict to branches whose manager is stably coethnic with either the bank or the city, excluding the four branches whose manager is coethnic with neither. Column 3 interacts the regressor with an indicator for a city-coethnic manager. Column 4 interacts it with the 2007 census population share of the manager's own ethnic group, the empirical counterpart of π_i; these are population shares rather than customer shares, since the survey records no customer ethnicity. Because manager type and the population share are time-invariant within branch in this sample, their levels are collinear with the branch fixed effects and are not estimable here; only the interactions reported are identified. All columns include branch fixed effects, and Panel A additionally includes wave fixed effects. Standard errors clustered at the branch level are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

C Robustness Tests

C.1 Alternative conflict intensity and branch-network definitions

Figure C1 implements the two alternative definitions described in the main text for both manager choice and delegation. We replace reported fatalities with the number of distinct fatal ACLED events and, separately, replace the fixed 2018 branch network with the fixed network of branches observed in 2022. The fourth series changes both choices at once. To compare estimates across differently scaled exposures, the figure reports effects of a one-standard-deviation within-branch change in each log exposure. The appointment results are stable across all four definitions: network conflict raises the probability of a city-coethnic or neither-coethnic manager and lowers the probability of a bank-coethnic manager. Delegation also falls under all four definitions.

Figure C1: Manager choice and delegation under alternative conflict and network definitions

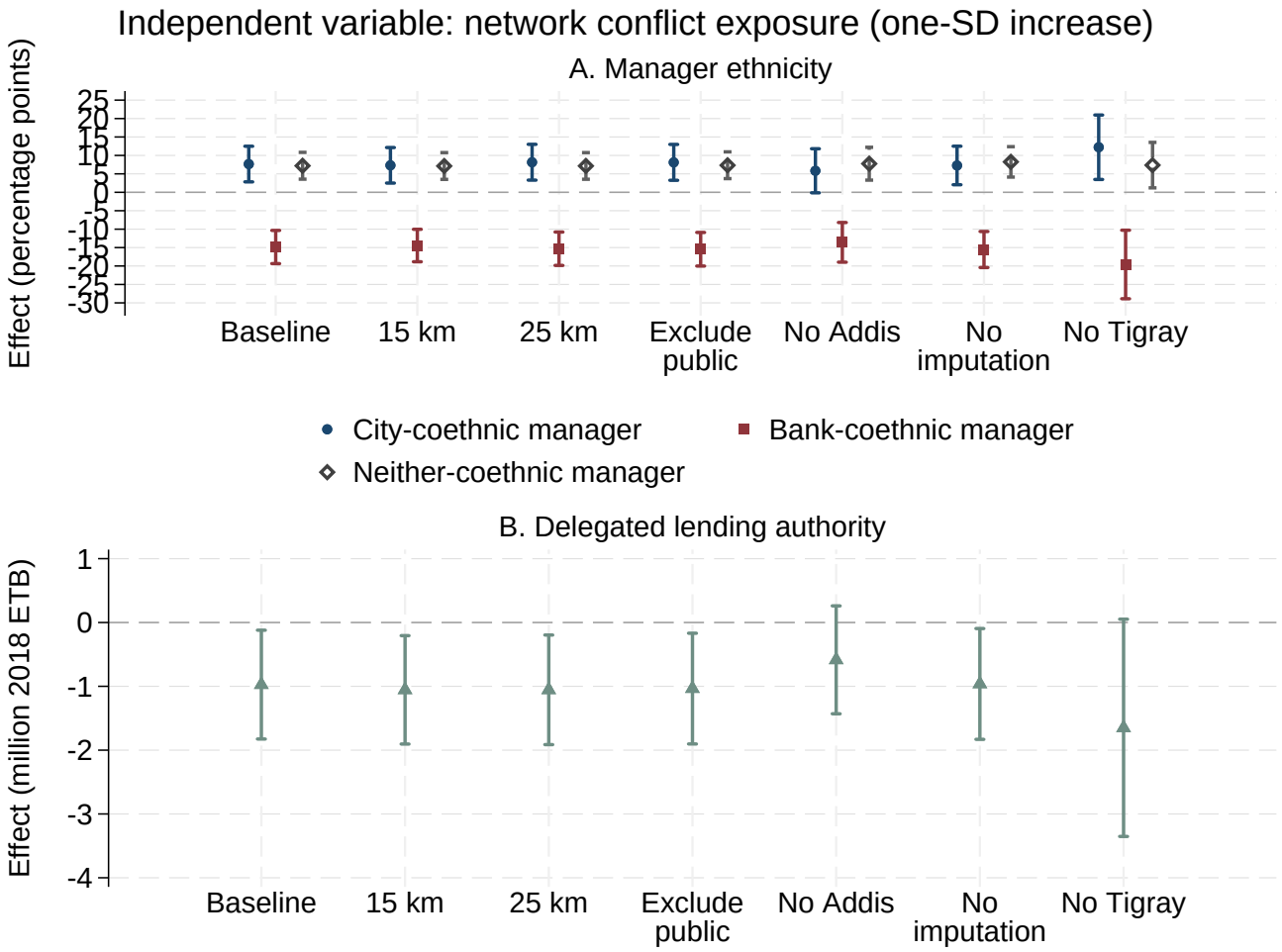


Notes: Panel A reports separate regressions for the three mutually exclusive manager-ethnicity outcomes among branches in non-bank-coethnic cities. Panel B reports delegation in millions of 2018 ETB. The four series form a 2×2 comparison of conflict intensity (reported fatalities or the number of distinct ACLED events with at least one reported fatality) and network vintage (the fixed 2018 or fixed 2022 survey branch network). The network for each vintage is held fixed across both conflict periods; the 2022 variant therefore changes the network footprint and branch weights, not the network contemporaneously with conflict. All definitions use the same actor–ethnicity mapping, 20 km event-to-city match, branch-count weights, 2015–2018 and 2019–2022 windows, denominator equal to the number of bank branches outside the focal city, and strict exclusion of every event within 20 km of the focal city. Exposure is transformed as $\ln(x + 0.01)$; no inverse-hyperbolic-sine transformation is used. Each regression includes branch and wave fixed effects. Standard errors are clustered by branch. Markers and 95% confidence intervals are scaled by the definition-specific standard deviation of the within-branch exposure change, calculated in the common manager-choice sample. Panel A contains 1,062 branch-wave observations from 531 branches; Panel B contains 644 observations from 322 balanced branches. The explicit fixed-2018 construction reproduces the stored headline exposure exactly.

C.2 Manager-ethnicity and delegated-lending-authority robustness

Figure C2 collects the robustness of the manager-appointment and delegation results to the sample and measurement choices described in the main text. Moving across the horizontal axis, we vary the set $\mathcal{E}_{bt}$ in equation 13 by matching conflict within 15 and then 25 kilometers of a branch of bank b rather than 20; we exclude the state-owned banks, CBE and CBB ("Exclude public"); we exclude branches in Addis Ababa ("No Addis"); we drop branches whose manager ethnicity is imputed rather than observed ("No imputation", see Section I); and we drop branches in Tigray ("No Tigray"). Panel A reports the three manager-ethnicity outcomes and Panel B the delegated lending authority. The estimates are stable across every variant, both quantitatively and qualitatively: none of these choices drives the results. Table C1 reports the remaining check, dropping the branches of banks of each ethnic group one at a time, which does not fit the common scale of the figure.

Figure C2: Manager ethnicity and delegated lending authority: selected robustness checks



Notes: The independent variable is log bank-network conflict exposure involving the bank's ethnic group and excluding conflict near the focal branch; markers give effects of a one-standard-deviation increase. Regressions include branch and period fixed effects in non-bank-coethnic cities; whiskers are 95% confidence intervals using branch-clustered standard errors. Panel A reports manager-ethnicity outcomes in percentage points (531 baseline branches). Panel B reports the maximum loan a manager may approve without headquarters' approval, in millions of 2018 ETB (322 balanced baseline branches). "Exclude public" drops CBE and CBB; "No Tigray" drops branches, not Tigray-related events. The Addis and non-Addis delegation slopes are not statistically distinguishable with group-specific period effects ($p = 0.80$).

Table C1: Robustness: dropping individual ethnic groups

	Panel A: Branches in Bank-Coethnic Cities							
	City coethnic manager				Bank coethnic manager			
	Drop Oromo	Drop Tigray	Drop Amhara	Drop SNNP	Drop Oromo	Drop Tigray	Drop Amhara	Drop SNNP
Network Exposure	0.010	-0.005	-0.087	0.023	0.010	-0.005	-0.087	0.023
	(0.034)	(0.026)	(0.053)	(0.031)	(0.034)	(0.026)	(0.053)	(0.031)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.669	0.679	0.698	0.681	0.669	0.679	0.698	0.681
N (Branches)	347	448	129	420	347	448	129	420
	Panel B: Branches in Non-Bank-Coethnic Cities							
	City coethnic manager				Bank coethnic manager			
	Drop Oromo	Drop Tigray	Drop Amhara	Drop SNNP	Drop Oromo	Drop Tigray	Drop Amhara	Drop SNNP
Network Exposure	0.030*	0.079***	0.048***	0.055***	-0.062***	-0.127***	-0.097***	-0.112***
	(0.018)	(0.029)	(0.016)	(0.018)	(0.016)	(0.031)	(0.015)	(0.017)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.178	0.197	0.222	0.156	0.775	0.755	0.735	0.803
p-value	0.605	0.031	0.014	0.377	0.056	0.003	0.857	0.000
N (Branches)	404	458	275	456	404	458	275	456

Notes: The dependent variable is an indicator that equals 1 when a branch's manager is coethnic with the ethnic group associated with the city (columns 1–4) or with the ethnic group associated with the branch's bank (columns 5–8). Each column drops all branches belonging to banks of the indicated ethnic group. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the test that the slope on Network Exposure is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

C.3 The effect of conflict on employees being local

Table C2: Bank-level exposure to ethnic conflict and local staff

	Panel A: Branches in Bank-Coethnic Cities					
	Manager born in region			Share local employees		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.037	-0.107	-0.037	-0.027*	0.013	-0.027**
	(0.030)	(0.094)	(0.030)	(0.014)	(0.051)	(0.014)
Local Exposure			0.008			0.012**
			(0.012)			(0.005)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.421	0.421	0.421	0.556	0.556	0.556
N (Branches)	214	214	214	448	448	448
	Panel B: Branches in Non-Bank-Coethnic Cities					
	Manager born in region			Share local employees		
Network Exposure	-0.025	-0.026	-0.024	-0.008	-0.018*	-0.009
	(0.027)	(0.028)	(0.027)	(0.010)	(0.010)	(0.010)
Local Exposure			-0.006			0.020***
			(0.018)			(0.005)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.448	0.448	0.448	0.584	0.584	0.584
p-value	0.762	0.413	0.741	0.265	0.551	0.279
N (Branches)	250	250	250	531	531	531

Notes: This table shows the results of a regression on two measures of whether staff comes from the same region as the branch. Share local employees is the share of employees who were born in the same city as the branch, local manager is a dummy for whether the manager was born in the same region as the branch. Note that this question was added to the survey after around 500 branches were interviewed in 2018 resulting in a small sample size. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Local exposure is the log intensity of conflict within 20 km of the branch's city, defined in Equation 14. The mean (SD) of the within-branch change in log Network Exposure from 2018 to 2022 is 0.955 (1.340). Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the test that the slope on Network Exposure is identical in bank-coethnic and non bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

C.4 Alternative transformation of the conflict variables

In this section, we report the results from the specification in equation 15 using an asinh transformation ($\text{asinh}(x) = \ln\left(x + \sqrt{x^2+1}\right)$) of the network exposure variable

Table C3: IHS Robustness: Branch Managers

	(1) City coethnic manager	(2) Bank coethnic manager	(3) Delegation	(4) Tenure in bank	(5) Tenure in branch	(6) Age
Panel A: Bank-City Coethnic						
IHS Network Exposure	-0.009	-0.009	-120.900	0.051	-0.340**	-0.033
	(0.027)	(0.027)	(474.728)	(0.249)	(0.140)	(0.386)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.680	0.680	1852.814	6.859	2.390	33.825
N	447	447	231	447	446	417
Panel B: Not Bank-City Coethnic						
	City coethnic manager	Bank coethnic manager	Delegation	Tenure in bank	Tenure in branch	Age
IHS Network Exposure	0.055***	-0.105***	-689.922**	0.538***	0.231**	0.586***
	(0.017)	(0.016)	(312.323)	(0.167)	(0.103)	(0.220)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.185	0.770	1684.783	6.837	2.366	33.700
p-value	0.050	0.003	0.317	0.105	0.001	0.164
N	531	531	322	528	528	500

Notes: Each column reports a separate regression using the inverse hyperbolic sine transformation of Network Exposure in place of the log transformation used in the main text. The delegation outcome is the largest loan a branch manager can approve without headquarters' approval, expressed in 2018 prices and winsorized at the 95th percentile within period-by-bank-city-coethnicity cells. Panel A restricts the sample to branches in coethnic cities, while Panel B focuses on branches in non-coethnic cities. All specifications include branch and time fixed effects. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the t-test that the parameter estimates for branches in bank-coethnic cities (Panel A) and in non bank-coethnic cities (Panel B) are the same. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

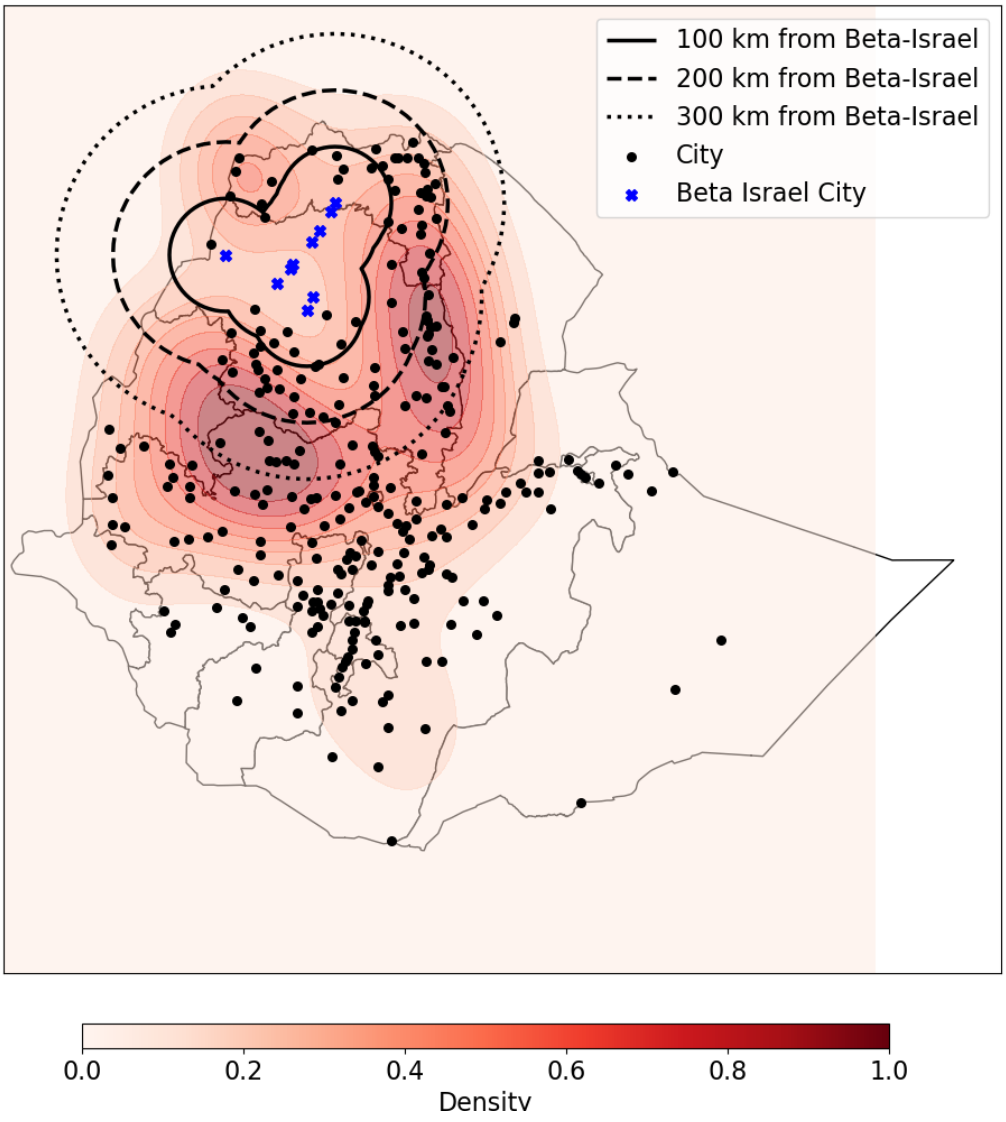
Table C4: IHS Robustness: Lending Activities

	Panel A: Bank-City Coethnic					
	(1) Oper. distance	(2) Num. loans	(3) Loan size	(4) Lending rate	(5) Collateral	(6) Default
IHS Network Exposure	-2.016***	0.074	0.527***	0.002	0.016	-0.027
	(0.610)	(0.120)	(0.159)	(0.001)	(0.014)	(0.020)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.818	2.181	6.041	0.147	0.986	0.052
N	308	224	222	292	202	273
	Panel B: Not Bank-City Coethnic					
	Oper. distance	Num. loans	Loan size	Lending rate	Collateral	Default
IHS Network Exposure	-0.073	-0.248***	0.151	-0.000	-0.006	-0.008
	(0.168)	(0.056)	(0.144)	(0.001)	(0.009)	(0.008)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.542	1.928	6.255	0.148	0.995	0.045
p-value	0.002	0.015	0.080	0.337	0.196	0.359
N	413	307	304	366	267	325

Notes: Each column reports a separate regression using the inverse hyperbolic sine transformation of Network Exposure in place of the log transformation used in the main text. The dependent variables are the operational distance of the branch, the log of the number of loans outstanding, the log of the average loan size (deflated to 2018 prices), the lending rate on a typical loan, the percentage of collateral on a typical loan, and the share of loans that default. Panel A restricts the sample to branches in coethnic cities, while Panel B focuses on branches in non-coethnic cities. All specifications include branch and time fixed effects. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the t-test that the parameter estimates for branches in bank-coethnic cities (Panel A) and in non bank-coethnic cities (Panel B) are the same. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

C.5 Beta Israel cities and conflict geography

Figure C3: Beta Israel cities and conflict contours



Notes: Blue crosses mark cities historically associated with Beta Israel communities, and black dots mark other cities. The solid, dashed, and dotted black contours indicate locations within 100, 200, and 300 km, respectively, of the nearest historical Beta Israel city. The red shading displays the density of fatalities from ethnic conflict between 2015 and 2022, with darker areas indicating greater density.

C.6 Beta-Israel exposure and lending

Table C5 reports the lending results using the preferred 100 km Beta-Israel exposure measure. The pattern is similar to that in the baseline specification, although it highlights greater adjustment to loan terms in bank-coethnic cities. In bank-coethnic cities, exposure to Beta-Israel cities is associated with larger average loan sizes, higher collateral requirements, and lower default rates, consistent with a shift toward safer, collateral-backed lending. In non-bank-coethnic cities, banks expand their operational radius and provide fewer, larger loans. The estimates suggest that banks can continue lending effectively outside cities where the majority of customers share the bank's ethnicity.

Table C5: Bank-level exposure to Beta-Israel cities and lending (100 km)

	Panel A: Bank and city coethnic					
	(1) Oper. distance	(2) Num. loans	(3) Loan size	(4) Lending rate	(5) Collateral	(6) Default
Beta Israel Exposure	-4.642***	0.040	1.512***	0.000	0.232***	-0.128***
	(1.501)	(0.289)	(0.531)	(0.004)	(0.047)	(0.048)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.818	2.181	6.041	0.147	0.986	0.052
N	308	224	222	292	202	273
	Panel B: Bank and city not coethnic					
	Oper. distance	Num. loans	Loan size	Lending rate	Collateral	Default
Beta Israel Exposure	7.116***	-0.768**	3.053***	0.002	-0.084	0.056
	(1.284)	(0.364)	(0.772)	(0.006)	(0.052)	(0.059)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.542	1.928	6.255	0.148	0.995	0.045
p-value	0.000	0.083	0.101	0.749	0.000	0.016
N	413	307	304	366	267	325

Notes: The dependent variables are the operational distance of the branch, the log number of outstanding loans, the log average loan size, the lending rate on a typical loan, the percentage of collateral on a typical loan, and the share of loans in default. Beta Israel Exposure is the share of each bank's 2018 branches within 100 km of a historic Beta-Israel city, normalized to lie in $[0, 1]$ and interacted with a post-2018 indicator. Panel A restricts the sample to branches in bank-coethnic cities; Panel B focuses on branches in non-bank-coethnic cities. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value tests whether the coefficient is identical across panels. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

C.7 Robustness: 50 km Beta-Israel exposure window

Section 4.5 measures bank-level Beta-Israel exposure as the share of a bank's branches within 100 km of a historic Beta-Israel city. We use 100 km because the contested 1992 borders that link the Beta-Israel migration to subsequent ethnic conflict extend that far from the cities themselves. To check whether the radius drives our results, we re-estimate Table 8 and Table C5 using a tighter 50 km window. We construct $\texttt{share_branch_beta_50}_b$ analogously and apply the same normalization.

Table C6 reports the manager results. The patterns mirror the 100 km benchmark. In non bank-coethnic cities, exposure raises the share of city-coethnic managers and lowers the share of bank-coethnic managers; these effects, together with the reduction in delegation, all remain significant at the 1% level. The point estimates are 75–80% of the 100 km magnitudes, since the tighter radius sets many branches' exposure to zero and so removes variation. The p-value for test of a different effect in bank coethnic cities for the city-coethnic outcome rises from 0.029 to 0.052, while the bank-coethnic interaction stays highly significant ($p = 0.003$).

Table C7 reports the lending results. Bank-coethnic and non bank-coethnic markets again diverge: in coethnic cities, exposure shifts lending toward larger, more collateralized, lower-default loans; in non-coethnic cities, branches serve customers over a wider area and grant larger loans. Every coefficient retains its sign, and all but two retain their significance level. We keep 100 km as the preferred specification because it more closely matches the geographic span of the contested 1992 borders.

Table C8 tightens the window further, reporting the in-city definition – the share of a bank's 2018 branches located in a historic Beta Israel city – alongside the 50 km definition for the same set of outcomes. No other sampled city lies within 20 km of a Beta Israel city, so the in-city measure is also the 20 km measure in this sample. The manager-appointment and delegation results survive at the tightest definition available.

Table C6: Bank-level exposure to Beta-Israel cities and branch managers (50 km)

	Panel A: Bank-City Coethnic					
	(1) City coethnic manager	(2) Bank coethnic manager	(3) Coethnic with neither	(4) Delegation	(5) Tenure in bank	(6) Tenure in branch
Beta Israel Exposure	0.020	0.020	-0.020	-1498	-1.781*	-1.319***
	(0.090)	(0.090)	(0.090)	(1944)	(0.998)	(0.448)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.680	0.680	0.320	1852.8	6.859	2.390
N	447	447	447	231	447	446
	Panel B: Not Bank-City Coethnic					
	City coethnic manager	Bank coethnic manager	Coethnic with neither	Delegation	Tenure in bank	Tenure in branch
Beta Israel Exposure	0.287***	-0.403***	0.116*	-5301***	0.121	-0.149
	(0.089)	(0.092)	(0.061)	(1460)	(0.872)	(0.683)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.185	0.770	0.045	1684.8	6.837	2.366
p-value	0.035	0.001	0.213	0.118	0.152	0.152
N	531	531	531	322	528	528

Notes: Replication of Table 8 using a 50 km radius around historic Beta-Israel cities. The dependent variables are indicators for a city-coethnic manager (column 1), a bank-coethnic manager (column 2), and a manager coethnic with neither group (column 3); the largest loan the manager can approve without headquarters' agreement (column 4), measured in thousands of 2018 ETB and winsorized at the 95th percentile within period $\times$ bank-city-coethnicity cells; and tenure in the bank (column 5) and branch (column 6), in years. In non-bank-coethnic cities, the three ethnicity categories in columns 1–3 are mutually exclusive and exhaustive, so their coefficients sum to zero by construction. Beta Israel Exposure is the normalized share of each bank's 2018 branch network located within 50 km of a historic Beta-Israel city, interacted with a post-2018 indicator. Panel A restricts the sample to branches in bank-coethnic cities; Panel B focuses on branches in non-bank-coethnic cities. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value tests whether the coefficient is identical across panels. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table C7: Bank-level exposure to Beta-Israel cities and lending (50 km)

	Panel A: Bank-City Coethnic					
	(1) Oper. distance	(2) Num. loans	(3) Loan size	(4) Lending rate	(5) Collateral	(6) Default
Beta Israel Exposure	-3.428**	0.128	3.525***	0.005	0.194***	-0.118***
	(1.488)	(0.319)	(0.845)	(0.005)	(0.054)	(0.043)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.818	2.181	6.041	0.147	0.986	0.052
N	308	224	222	292	202	273
	Panel B: Not Bank-City Coethnic					
	Oper. distance	Num. loans	Loan size	Lending rate	Collateral	Default
Beta Israel Exposure	8.100***	-0.292	3.931***	0.006	-0.091**	0.034
	(1.254)	(0.325)	(0.886)	(0.005)	(0.043)	(0.045)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.542	1.928	6.255	0.148	0.995	0.045
p-value	0.000	0.357	0.741	0.862	0.000	0.015
N	413	307	304	366	267	325

Notes: Replication of Table C5 using a 50 km radius around historic Beta-Israel cities to construct the bank-level exposure measure. The dependent variables are the operational distance of the branch, the log number of outstanding loans, the log average loan size, the lending rate on a typical loan, the percentage of collateral on a typical loan, and the share of loans in default. Beta Israel Exposure is the share of each bank's branches within 50 km of a historic Beta-Israel city, normalized to lie in $[0, 1]$ and interacted with a post-2018 dummy. Panel A restricts the sample to branches in coethnic cities; Panel B focuses on branches in non-coethnic cities. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the t-test that the coefficient is identical across panels. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table C8: Bank-level exposure to Beta-Israel cities and branch managers (in-city and 50 km)

	Bank and city non-coethnic		Bank and city coethnic	
Outcome	In-city	50 km	In-city	50 km
City-coethnic manager	0.297***	0.287***	0.020	0.020
	(0.100)	(0.089)	(0.106)	(0.090)
Bank-coethnic manager	-0.425***	-0.403***	0.020	0.020
	(0.102)	(0.092)	(0.106)	(0.090)
Neither-coethnic manager	0.129*	0.116*	-0.020	-0.020
	(0.072)	(0.061)	(0.106)	(0.090)
Delegation	-6005***	-5301***	-2174	-1498
	(1610)	(1460)	(2277)	(1944)
Tenure in bank	0.901	0.121	-0.736	-1.781*
	(1.018)	(0.872)	(1.239)	(0.998)
Tenure in branch	-0.209	-0.149	-1.325**	-1.319***
	(0.751)	(0.683)	(0.514)	(0.448)

Notes: In-city exposure is the share of a bank's 2018 branches located in a historical Beta Israel city; 50 km exposure is the share of branches in or within 50 km of one. No other sampled city lies within 20 km, so the in-city measure is also the 20 km measure in this sample. Each period-2 share is divided by its own range, and period-1 exposure is set to zero. Regressions are estimated separately by bank–city coethnicity and include branch and time fixed effects. Parentheses contain branch-clustered standard errors. Delegation is in thousands of 2018 ETB. Stars denote 10, 5, and 1 percent significance.

D Wild Cluster Bootstrap Inference

Our main specifications cluster standard errors at the branch level, reflecting the panel structure of the data. However, network exposure — the key independent variable — varies at the bank level, with only 16 banks in the sample. If bank-level shocks induce residual correlation across branches of the same bank, branch-level clustering may overstate statistical precision. Standard asymptotic corrections for cluster-robust standard errors perform poorly with so few clusters (A Colin Cameron, Jonah B Gelbach and Douglas L Miller, 2008).

To address this concern, we re-estimate all specifications using wild cluster bootstrap inference at the bank level. We use the `boottest` package (David Roodman, Morten Ørregaard Nielsen, James G MacKinnon and Matthew D Webb, 2019) with Webb weights and 9,999 bootstrap replications. Each table below presents two panels: Panel A reports results for branches in bank-coethnic cities (BCC), and Panel B for branches in non-bank-coethnic cities (NBCC). Both panels report the original point estimates and branch-clustered standard errors in parentheses, with bank-level bootstrap p-values in square brackets. In Panel B, the last row additionally reports the bootstrap p-value for the test that the effect of conflict differs between the two subsamples (i.e., the interaction test from equation 16). The paper's central prediction concerns Panel B; Panel A serves as a comparison.

Table D1 reports results for the manager ethnicity regressions. All six network-exposure coefficients in non-bank-coethnic cities remain significant at the 5% level under bank-level clustering, with bootstrap p-values between 0.014 and 0.027. The differential effect between the two subsamples is significant at the 5% level or better for three of the six specifications.

Table D2 reports results for delegation. The point estimates are negative and significant within non-bank-coethnic branches using the original branch-clustered standard errors. Under bank-level wild-bootstrap inference, the corresponding p-values are 0.088, 0.168, and 0.091: the baseline and local-conflict estimates are marginally significant at 10 percent, while the city-by-time estimate is not. The bootstrap p-values for the differential relative to bank-coethnic branches are 0.459, 0.713, and 0.464.

Tables D3–D4 report results for manager reallocation and characteristics. All four reallocation outcomes are marginally significant at the 10% level. Manager tenure in the branch remains significant and tenure in the bank is marginally significant, while manager age is not. The differential effect on tenure in the branch remains significant; that on tenure in the bank does not.

Table D5 reports results for lending outcomes. Most lending outcomes lose significance, with the exception of the log number of loans ($p = 0.017$), which remains significant at the 5% level. This reflects the limited statistical power of 16 bank-level clusters for detecting effects on outcomes that are plausibly noisier than the manager ethnicity outcome. The point estimates and branch-clustered standard errors are unchanged; the loss of significance reflects the more conservative inference, not a change in the estimated effects.

In summary, bank-level bootstrap inference preserves the manager-selection result and the effect on the number of loans. Delegation is marginally significant in the baseline and local-conflict specifications, imprecise with city-by-time effects, and not statistically different across the two city groups.

Table D1: Wild cluster bootstrap inference: manager ethnicity

	Panel A: Branches in Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.005	0.070	-0.006	-0.005	0.070	-0.006
	(0.026)	(0.055)	(0.026)	(0.026)	(0.055)	(0.026)
	[0.886]	[0.323]	[0.863]	[0.886]	[0.323]	[0.863]
Local Exposure			0.014			0.014
			(0.008)			(0.008)
			[.]			[.]
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.680	0.695	0.680	0.680	0.695	0.680
N (Branches)	447	371	447	447	371	447

	Panel B: Branches in Non-Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	0.050	0.047	0.051	-0.097	-0.096	-0.099
	(0.016)	(0.017)	(0.016)	(0.015)	(0.017)	(0.015)
	[0.025]	[0.019]	[0.027]	[0.014]	[0.021]	[0.015]
Local Exposure			-0.014			0.031
			(0.009)			(0.010)
			[.]			[.]
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.185	0.181	0.185	0.770	0.769	0.770
p-value diff vs BCC (bootstrap)	0.258	0.834	0.252	0.006	0.050	0.001
N (Branches)	531	464	531	531	464	531

Notes: This table replicates Table 2. Panel A restricts the sample to branches in cities coethnic with the bank (BCC); Panel B focuses on branches in cities that are not (NBCC). Point estimates and branch-clustered standard errors (in parentheses) are identical to the main table. Bank-level wild cluster bootstrap p-values for Network Exposure are reported in square brackets, computed using Webb weights with 9,999 replications and clustering at the bank level (16 banks); the bootstrap p-value for the local-exposure control is not reported. The last row of Panel B reports the bootstrap p-value for the null that the effect of network exposure is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table D2: Wild cluster bootstrap inference: delegation

	Panel A: Branches in Bank-Coethnic Cities		
	(1)	(2)	(3)
Network Exposure	-111.9	-1178.3	-115.6
	(381.9)	(839.1)	(384.5)
	[0.861]	[0.406]	[0.855]
Local Exposure			-422.3
			(172.1)
			[.]
Branch FE	Yes	Yes	Yes
Time FE	Yes	No	Yes
City-Time FE	No	Yes	No
2018 Mean dep. var	1852.8	1993.8	1852.8
N (Branches)	231	160	231

	Panel B: Branches in Non-Bank-Coethnic Cities		
	(1)	(2)	(3)
Network Exposure	-633.1	-666.1	-627.0
	(282.0)	(330.3)	(281.5)
	[0.088]	[0.168]	[0.091]
Local Exposure			-60.7
			(135.6)
			[.]
Branch FE	Yes	Yes	Yes
Time FE	Yes	No	Yes
City-Time FE	No	Yes	No
2018 Mean dep. var	1684.8	1721.8	1684.8
p-value diff vs BCC (bootstrap)	0.459	0.713	0.464
N (Branches)	322	266	322

Notes: This table replicates Table 3. The dependent variable is the largest loan a branch manager can approve without headquarters' agreement, measured in thousands of 2018 ETB and winsorized at the 95th percentile. Panel A restricts the sample to branches in cities coethnic with the bank (BCC); Panel B focuses on branches in cities that are not (NBCC). Point estimates and branch-clustered standard errors (in parentheses) are identical to the main table. Bank-level wild cluster bootstrap p-values for Network Exposure are reported in square brackets; the bootstrap p-value for the local-exposure control is not reported. The last row of Panel B reports the bootstrap p-value for the null that the effect is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table D3: Wild cluster bootstrap inference: manager reallocation

	Panel A: Branches in Bank-Coethnic Cities			
	New manager bank	New manager branch	Reallocated	New hire
	(1)	(2)	(3)	(4)
Network Exposure	0.016	-0.015	-0.027	0.011
	(0.009)	(0.032)	(0.031)	(0.008)
	[0.234]	[0.618]	[0.278]	[0.307]
Mean dep. var	0.034	0.397	0.370	0.027
N (Branches)	447	446	446	446
	Panel B: Branches in Non-Bank-Coethnic Cities			
	New manager bank	New manager branch	Reallocated	New hire
	(1)	(2)	(3)	(4)
Network Exposure	-0.010	0.065	0.075	-0.010
	(0.008)	(0.024)	(0.024)	(0.008)
	[0.059]	[0.083]	[0.084]	[0.059]
Mean dep. var	0.017	0.360	0.345	0.015
p-value diff vs BCC (bootstrap)	0.141	0.387	0.094	0.151
N (Branches)	528	528	528	528

Notes: This table replicates Table 4. The sample is restricted to the 2022 cross-section. The four outcomes are whether the manager joined the bank (column 1) or branch (column 2) after the onset of conflict, and conditional on joining the branch, whether they were reallocated (column 3) or a new hire (column 4). Panel A restricts the sample to branches in cities coethnic with the bank (BCC); Panel B focuses on branches in cities that are not (NBCC). Point estimates and branch-clustered standard errors (in parentheses) are identical to the main table. Bank-level wild cluster bootstrap p-values are reported in square brackets. The last row of Panel B reports the bootstrap p-value for the null that the effect is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table D4: Wild cluster bootstrap inference: manager characteristics

	Panel A: Branches in Bank-Coethnic Cities				
	Tenure in bank	Tenure in branch	Age	University degree	Male manager
	(1)	(2)	(3)	(4)	(5)
Network Exposure	0.029	-0.265	-0.026	-0.002	0.008
	(0.230)	(0.126)	(0.354)	(0.002)	(0.028)
	[0.907]	[0.019]	[0.957]	[0.444]	[0.897]
Branch FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	6.859	2.390	33.825	0.993	0.868
N (Branches)	447	446	417	448	448
	Panel B: Branches in Non-Bank-Coethnic Cities				
	Tenure in bank	Tenure in branch	Age	University degree	Male manager
	(1)	(2)	(3)	(4)	(5)
Network Exposure	0.498	0.221	0.538	-0.002	0.008
	(0.154)	(0.098)	(0.202)	(0.001)	(0.014)
	[0.074]	[0.018]	[0.116]	[0.497]	[0.560]
Branch FE	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	6.837	2.366	33.700	0.989	0.866
p-value diff vs BCC (bootstrap)	0.116	0.004	0.257	0.952	0.998
N (Branches)	528	528	500	529	529

Notes: This table replicates Table 5. The dependent variables are the manager's tenure in the bank, tenure in the current branch, age, whether they hold a university degree, and gender. Panel A restricts the sample to branches in cities coethnic with the bank (BCC); Panel B focuses on branches in cities that are not (NBCC). Point estimates and branch-clustered standard errors (in parentheses) are identical to the main table. Bank-level wild cluster bootstrap p-values are reported in square brackets. The last row of Panel B reports the bootstrap p-value for the null that the effect is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table D5: Wild cluster bootstrap inference: lending outcomes

	Panel A: Branches in Bank-Coethnic Cities					
	Operational distance	Log number of loans	Log average loan size	Average lending rate	Collateral percentage	Share loan default
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-1.658	0.049	0.395	0.001	0.015	-0.026
	(0.681)	(0.117)	(0.158)	(0.001)	(0.013)	(0.017)
	[0.006]	[0.591]	[0.244]	[0.528]	[0.663]	[0.136]
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.818	2.181	6.041	0.147	0.986	0.052
N (Branches)	308	224	222	292	202	273
	Panel B: Branches in Non-Bank-Coethnic Cities					
	Operational distance	Log number of loans	Log average loan size	Average lending rate	Collateral percentage	Share loan default
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.084	-0.233	0.123	-0.000	-0.006	-0.007
	(0.157)	(0.051)	(0.133)	(0.001)	(0.008)	(0.007)
	[0.832]	[0.017]	[0.584]	[0.958]	[0.526]	[0.444]
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	7.542	1.928	6.255	0.148	0.995	0.045
p-value diff vs BCC (bootstrap)	0.018	0.001	0.488	0.638	0.512	0.152
N (Branches)	413	307	304	366	267	325

Notes: This table replicates Table 6. The dependent variables are the operational distance, log number of loans, log average loan size, average lending rate, collateral percentage, and share of loans in default. Panel A restricts the sample to branches in cities coethnic with the bank (BCC); Panel B focuses on branches in cities that are not (NBCC). Point estimates and branch-clustered standard errors (in parentheses) are identical to the main table. Bank-level wild cluster bootstrap p-values are reported in square brackets. The last row of Panel B reports the bootstrap p-value for the null that the effect is identical in bank-coethnic and non-bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

E Ethnicity of banks, cities and managers

E.1 Comments on specific choices made in the analysis

Bank ethnicity. We classify each of the 16 commercial banks in our sample into a single dominant ethnicity using information from the 2018 annual reports. For each bank, we collect the names of all members of the board of directors and identify each director's ethnic group from their name, following the conventional correspondence between Ethiopian naming conventions and ethnic affiliation. A bank is assigned the plurality ethnicity of its board. The two state-owned banks, the Commercial Bank of Ethiopia and the Construction and Business Bank, are classified as Amhara; the latter was effectively absorbed into the former during our sample period. This procedure yields 9 Amhara-dominated banks, 3 Oromo, 2 SNNP, and 2 Tigray.

City ethnicity. We assign each city its historical ethnic homeland using the digitized ethnic-boundary shapefile from Nathan Nunn (2008), which encodes the ethnic territories of George Peter Murdock (1959). We spatially match each branch's geographic coordinates to a Murdock polygon using the `geoinpoly` routine. Murdock's tribe labels are pre-modern ethnographic categories (e.g., "Galla," "Somal"); we map these to the contemporary ethnic categories used in our analysis (Oromo, Amhara, Tigray, Somali, SNNP, Beta Israel, Other) using a correspondence table constructed from Wikipedia entries for each Murdock tribe. The full mapping is available in the replication package (`1rawData/13EthnicGroups/tribeEthnicityMapping.xlsx`). Addis Ababa, which lies on the boundary between Oromo and Amhara territories in Murdock's classification, is assigned to the Amhara category, reflecting the dominant ethnic composition of the city's banking sector and civil service during our sample period.

Treatment of the Harari. The Harari are a small ethnic group (approximately 0.2% of the Ethiopian population in the 2007 census) whose traditional homeland is the walled city of Harar and its immediate surroundings, located within predominantly Oromo territory. No manager in our survey sample self-identifies as Harari, so Harari does not appear as a category in the manager-ethnicity classification. For the city-ethnicity assignment based on the Nunn (2008) digitization of the Murdock Atlas, Harar and its surrounding cities fall within the Oromo polygon and are therefore assigned to the Oromo category. This coding has no material effect on our results: only 7 branches in our panel are located in cities of the historic Harari homeland.

Aggregation of SNNP groups. The Southern Nations, Nationalities, and Peoples (SNNP) region of Ethiopia is home to more than 50 officially recognized ethnic groups, eight of which appear in our sample: Sidama, Gurage, Gamo, Wolayta, Hadiya, Kambaata, Kafa, and Silte. Because bank and city ethnicity in our main specifications are defined at a coarser level (the bank's dominant ethnicity and the city's Murdock-Atlas classification), we aggregate these eight groups into a single "SNNP" category for the coethnicity indicators. This follows standard practice in the Ethiopian ethnic-politics literature and is also consistent with the self-identification reported by several managers in our data.

E.2 List of banks and bank-ethnicities

Table E1: Distribution of banks by ethnic affiliation

Bank name	Bank ethnicity	Count	Share (%)
Abay	Amhara	80	8.2
Addis	Amhara	5	0.5
Awash	Oromo	100	10.2
BOA	Amhara	37	3.8
Berhan	Amhara	72	7.4
Bunna International	Amhara	46	4.7
CBB	Amhara	19	1.9
CBE	Amhara	210	21.5
CBO	Oromo	53	5.4
Dashen	Amhara	55	5.6
Debub	SNNP	17	1.7
Lion	Tigray	14	1.4
NIB International	SNNP	86	8.8
OIB	Oromo	75	7.7
United	Amhara	51	5.2
Wegagen	Tigray	59	6.0

Notes: This table reports the ethnic affiliation of each bank in the sample, the number of surveyed branches, and the corresponding share of the total sample. Bank ethnicity is the dominant ethnic affiliation of the bank's leadership.

E.3 Number of cities by ethnic group

Table E2: Distribution of cities by ethnic group

City ethnicity	Count	Share (%)
Afar	4	0.4
Amhara	522	53.3
Anuak	4	0.4
Benishangul-Gumuz	2	0.2
Oromo	260	26.6
SNNP	160	16.3
Somali	17	1.7
Tigray	10	1.0

Notes: This table reports the distribution of branch locations by ethnic group. City ethnicity is determined using the Murdock Ethnographic Atlas. Count and share refer to the number and percentage of branches located in cities of each ethnic group.

E.4 Number of managers by ethnic group by period

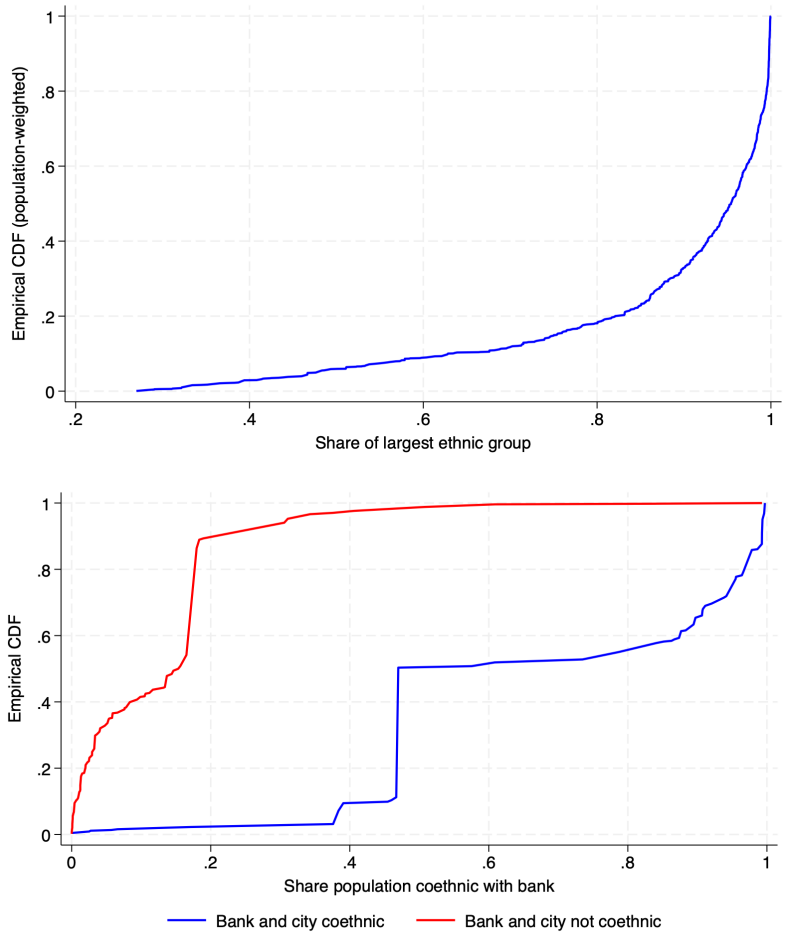
Table E3: Distribution of branch managers' ethnicity by period

Manager ethnicity	First Wave (2018)		Second Wave (2022)	
	Count	Share (%)	Count	Share (%)
Afar	1	0.1	5	0.5
Agew	0	0.0	8	0.8
Amhara	495	50.6	433	44.2
Benishangul-Gumuz	2	0.2	1	0.1
Oromo	289	29.5	380	38.8
SNNP	109	11.1	112	11.4
Somali	2	0.2	19	1.9
Tigray	81	8.3	20	2.0

Notes: This table reports the distribution of branch managers' ethnicity across survey waves. Manager ethnicity is identified using multiple indicators including region of birth, accent, spoken languages, and name, determined jointly by two interviewers.

E.5 Ethnic diversity at the local level

Figure E1: Ethnic diversity in Ethiopia



Notes: This figure shows, in the top panel, the empirical CDF for the share of the population that belongs to largest ethnic group in each woreda – the smallest administrative unit – in Ethiopia. It shows that in over 80% of woredas over 80% of people belong to a single ethnicity. The bottom panel instead shows that share of the population in each zone (region in the case of Addis Ababa) in which a branch is located that belongs to the same ethnic group of the bank. The differences in administrative units used in this figure is based on how (im)precisely we observe the location of bank branches. This is based on 2007 IPUMS data and corresponding administrative boundaries.

F Management Practices Survey and Methodology

F.1 Scoring Management Performances

The concept of "good management practice" is often relative and contingent to a specific market or sector. However, international best practices in the banking sector have been widely studied, allowing the literature to reach a consensus on what constitutes a "good" practice. We evaluate and score management practices by defining the concept of "good" and "bad" practice and codifying it from 1 (worst practice) to 5 (best practice) across eight key dimensions. These practices are grouped into four areas: lean management, performance management, target management, and people management.[1]

The lean management section evaluates the efficiency of day-to-day operations (e.g., organization of the workflow, management of slack time, method of staff assignment to specific tasks, etc.) and assesses whether the branch has adopted recognized best practices. The performance management part measures how performance is tracked and reviewed (e.g., what KPIs are used, who oversees the performance review, how frequently the performance measures are revised, etc.). The target management section reviews the nature and scope of a branch's targets (e.g., the relative importance of financial targets compared to non-financial ones, how these targets are linked to performance measures, etc.) and assesses whether they align with the bank's objectives. Finally, the people management part tests whether good performance is appropriately rewarded and whether bad performance is sanctioned (e.g., adoption of an articulated appraisal system, use of a reward plan, presence of sanctions for underperformers, etc.).

An overview of these four sections is presented in Table F1. After the completion of the survey, we combine these scores to obtain a unique index of management practices. Since the scaling may vary across practices in the econometric estimation, we normalize the final scores to z-scores (i.e., mean zero and standard deviation one). To build our final management index, we take the unweighted average across all z-scores as

[1] Note, this section is taken directly from a previously circulated working paper (Nicola Gennaioli, Nicola Limodio and Francesco Strobbe, 2019)

our primary measure of overall management practice.

Table F1: Survey Indicators

(1) Indicator	(2) Objective	(3) Measure
	1 Lean Management	
1.1	Introduction of new management techniques	Tests whether operational efficiencies have been introduced and why
1.2	Good use of human resources	Tests whether incoming demand is segmented appropriately and the efficiency at matching supply and demand of skills
	2 Performance Management	
2.1	Performance tracking	Tests whether performance is tracked using meaningful metrics and with appropriate regularity
2.2	Review of performance	Tests whether performance is reviewed with appropriate frequency and communicated with staff
	3 Target Management	
3.1	Target balance	Tests whether targets cover a sufficiently broad set of metrics
3.2	Target interconnections	Tests whether targets are tied to company objectives and how well they cascade down the organization
	4 People Management	
4.1	Building a high performance culture	Tests whether good performance is rewarded proportionately
4.2	Making room for talent	Tests whether the branch is able to deal with underperformers

Notes: This table illustrates our survey's section on management performance. To measure good managerial practices, we evaluate them along four main categories, i.e., lean management, performance management, target management, and people management. Each category is scored on two dimensions on a scale from 1 (bad practice) to 5 (good practice). Our final management performance index is calculated by standardizing each of the eight resulting scores and by taking their unweighted average. Each of the sub-indices is calculated in the same way using a combination of two metrics (respectively, the lean, performance, target and people management practices).

F.2 Responses Collection

The information content and precision of our management performance index crucially depend on the quality of the responses collected through our survey. For this reason, we structured our questions to allow respondents to provide accurate and unbiased answers. As pointed out by (Marianne Bertrand and Sendhil Mullainathan, 2001), responses are typically biased by the presence of a scoring scale, which may prompt respondents to provide the interviewer's expected answer. Additionally, interviewers may have preconceptions toward the interviewed managers. Apart from these issues, many background factors correlated with management behavior may systematically bias survey data.

To counter these potential negative effects, we adopt a combination of strategies tested in the existing literature. First, we ensure accurate responses by conducting telephone surveys without informing managers that their answers will be evaluated against a scoring grid, allowing us to gather information about actual management practices. Second, we ask a series of open-ended questions (e.g., "What types of targets are set for the bank in general? What are the goals for your branch?") and record responses until an accurate assessment of management practices is possible. Third, to correct any inconsistent interpretation of responses, we ensure interviewers conduct a minimum number of training interviews during a pilot survey phase. Furthermore, since almost all our interviewers conducted over 40 interviews (with an average of 200 interviews per interviewer), we are able to control for interviewer fixed effects in a robustness section. Fourth, we adopt a double-scoring technique, where another interviewer silently listens and scores the responses provided during the interview. Finally, we collect information on a large set of manager characteristics (e.g., age, education, ethnicity, etc.) to control for potential confounders.

F.3 Manager Participation

The average duration of an interview was approximately 27 minutes. Interviews were conducted between January 2015 and February 2018 by locally recruited research assistants (RAs). The initial survey phase consisted of a pilot involving 265 branches, which allowed us to refine the survey and train interviewers. After this stage, we surveyed the universe of Ethiopian bank branches (3,232 in total). We achieved a relatively high response rate (59%, 1,910 branches) through specific strategies. First, the survey was introduced as a neutral exercise, avoiding discussion of the bank's financial position or individual branch accounts. This ensured that interviewers were blind to financial data and helped maximize participation. Second, questions focused on evident practices within the branch, enabling branch managers to provide reliable answers. Finally, endorsement and support from the World Bank and the National Bank of Ethiopia encouraged participation by emphasizing the initiative's importance and official backing.

F.4 Additional Data Collected

In addition to management practices, our survey collected extensive data on respondent and branch characteristics. The introductory section gathered baseline information about the branch (e.g., name, geographic location, number of employees, opening date) and the manager (e.g., age, gender, education, previous employment).

A second set of questions addressed the organizational nature of the branch (e.g., management structure, autonomy from headquarters) and operations (e.g., average loan size, collateral requirements, share of

defaulted loans).

F.5 Summary statistics by wave

Tables F2 and F3 report summary statistics on the main analysis variables by survey wave for respectively organizational characteristics and characteristics related to lending activities.

Table F2: Summary statistics of organizational variables by wave

	N	Mean	Std. Dev.	Min	Max
Panel A: Manager Characteristics					
Bank coethnic manager	1,957	0.65	0.48	0	1
First Wave (2018)	979	0.73	0.45	0	1
Second Wave (2022)	978	0.57	0.49	0	1
City coethnic manager	1,957	0.54	0.50	0	1
First Wave (2018)	979	0.41	0.49	0	1
Second Wave (2022)	978	0.66	0.47	0	1
Manager born in region	1,439	0.42	0.49	0	1
First Wave (2018)	464	0.44	0.50	0	1
Second Wave (2022)	975	0.42	0.49	0	1
Tenure in bank (years)	1,954	7.71	4.44	0	36
First Wave (2018)	979	6.85	4.27	0	35
Second Wave (2022)	975	8.57	4.45	0	36
Tenure in branch (years)	1,953	2.67	2.62	0	35
First Wave (2018)	979	2.37	2.33	1	35
Second Wave (2022)	974	2.98	2.85	0	23
Age	1,896	34.00	5.67	16	60
First Wave (2018)	979	33.70	6.02	16	60
Second Wave (2022)	917	34.32	5.25	23	56
University degree	1,956	0.99	0.07	0	1
First Wave (2018)	979	0.99	0.10	0	1
Second Wave (2022)	977	1.00	0.00	1	1
Male manager	1,956	0.83	0.38	0	1
First Wave (2018)	979	0.87	0.34	0	1
Second Wave (2022)	977	0.79	0.40	0	1
Panel B: Branch Characteristics					
	N	Mean	Std. Dev.	Min	Max
Share local employees	1,920	0.57	0.25	0.10	1.00
First Wave (2018)	979	0.57	0.24	0.10	1.00
Second Wave (2022)	941	0.57	0.25	0.10	1.00
Branch employees	1,951	17.57	10.04	3	110
First Wave (2018)	979	14.77	10.32	3	110
Second Wave (2022)	972	20.40	8.90	5	78
Max loan w/o HQ	1,532	3,854.91	6,079.66	0.00	29,823.23
First Wave (2018)	979	1,681.82	1,614.30	0.00	5,500.00
Second Wave (2022)	553	7,702.04	8,642.75	149.12	29,823.23

Notes: This table reports summary statistics of organisational analysis variables by survey wave, organised into two panels. Panel A reports manager characteristics: bank and city coethnic manager indicate whether the manager shares the ethnicity of the bank or city, respectively; manager born in region indicates whether the manager was born in the same region as the branch; tenure in bank and branch are measured in years; university degree and male manager are dummy indicators. Panel B reports branch characteristics: share local employees is the share of branch employees from the local area; branch employees is the headcount; max loan w/o HQ is the largest loan a branch manager can approve without headquarters' agreement, in ETB 1,000, deflated to 2018 prices using annual CPI inflation rates (World Bank WDI, FP.CPI.TOTL.ZG) and winsorized at the 95th percentile within period $\times$ bank-city coethnicity cells.

Table F3: Summary statistics of lending variables by wave

	N	Mean	Std. Dev.	Min	Max
Operational distance (km)	1,700	6.80	4.85	0.05	50.00
First Wave (2018)	979	7.62	2.62	3.00	30.00
Second Wave (2022)	721	5.70	6.64	0.05	50.00
Log number of loans	1,510	2.43	1.34	0.00	8.52
First Wave (2018)	979	2.05	1.27	0.00	6.01
Second Wave (2022)	531	3.13	1.18	0.00	8.52
Log average loan size	1,505	6.30	3.13	-4.61	10.95
First Wave (2018)	979	6.05	3.83	-4.61	10.95
Second Wave (2022)	526	6.77	0.65	5.70	8.51
Average lending rate	1,637	0.15	0.02	0.10	0.20
First Wave (2018)	979	0.15	0.02	0.10	0.20
Second Wave (2022)	658	0.15	0.02	0.10	0.20
Collateral (share of loan)	1,448	0.95	0.19	0.50	1.50
First Wave (2018)	979	1.00	0.20	0.50	1.50
Second Wave (2022)	469	0.83	0.13	0.50	1.00
Share loan default	1,577	0.07	0.14	0.00	1.00
First Wave (2018)	979	0.05	0.09	0.00	1.00
Second Wave (2022)	598	0.09	0.20	0.00	1.00

Notes: This table reports summary statistics of lending analysis variables by survey wave. Operational distance is the maximum distance (in km) at which a branch services customers. Log number of loans and log average loan size are in natural logarithms, with loan size expressed in ETB 1,000. Average lending rate is the mean rate on the past 10 loans. Collateral is the typical collateral as a share of total loan size. Share loan default is the share of defaulting loans in the past year.

G Ethnic conflict over time and space

Figure G1: Regions of Ethiopia



Notes: This figure displays the twelve regions in Ethiopia and two administrative councils, Addis Ababa and Dire Dawa. To ensure regions stay the same over time in our analysis, we combine Central Ethiopia, South West Ethiopia, South Ethiopia and Sidama into the Southern Nations, Nationalities and Peoples' Region (SNNPR). This region was split into four between 2020 and 2023, and remains one of the most ethnically diverse regions of the country.

G.1 Mapping ACLED actors to ethnic groups

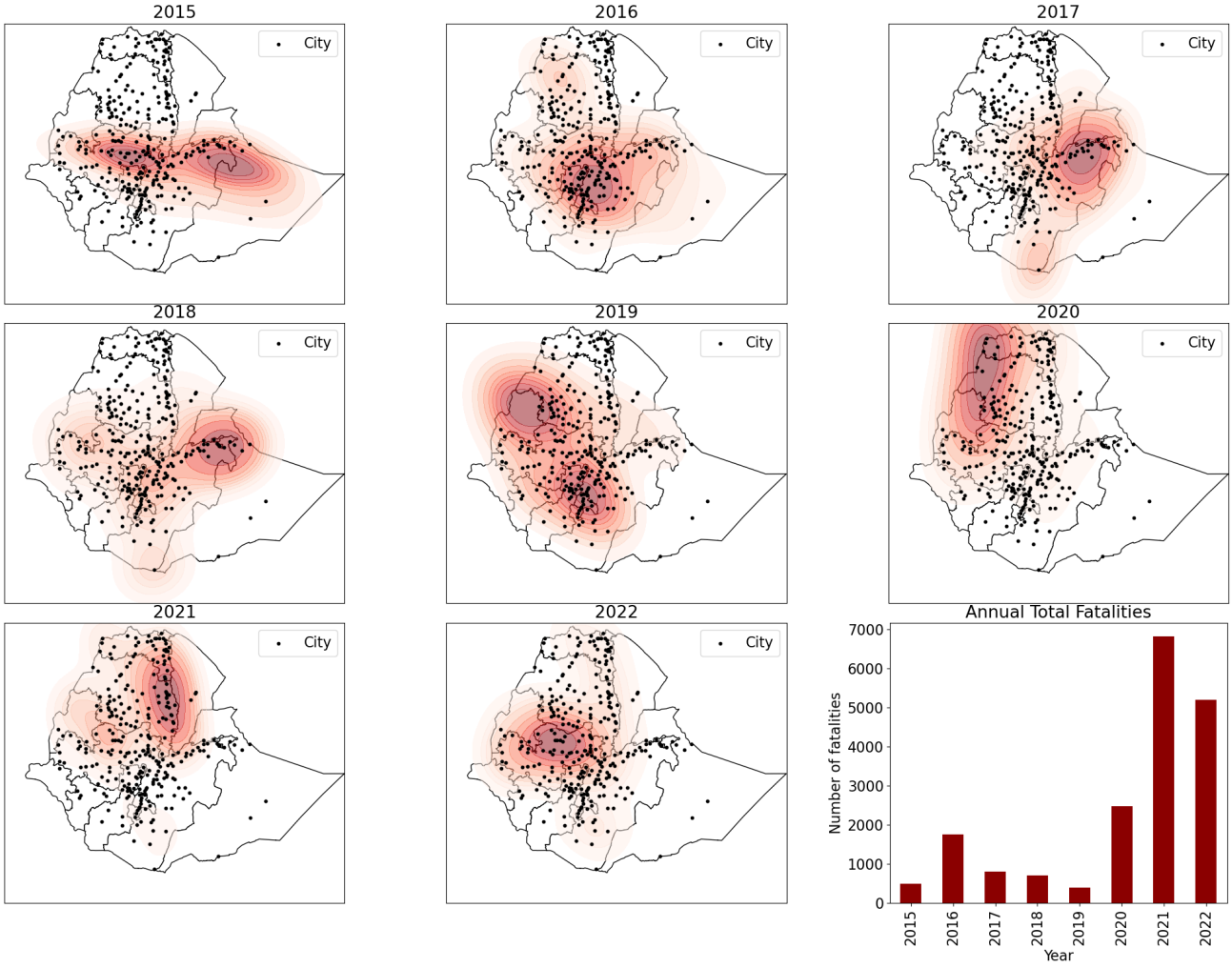
We identify the ethnic groups involved in each ACLED event from the names in the two primary actor fields and all associated-actor fields. The crosswalk combines literal ethnic identifiers in ACLED's actor labels with classifications from the Ethiopia Peace Observatory and the regional concordance used throughout the analysis. Table G1 reports every substring used in the crosswalk and the corresponding assigned group. The group indicators are non-exclusive because the exposure measure records whether an event involves a bank's ethnic group. If an event involves multiple groups, its fatalities enter the exposure measure once for each involved group, and never more than once within the same group.

Table G1: ACLED actor-to-ethnicity crosswalk

Assigned group	Exact case-sensitive actor-name substrings	Classification basis	Fatal events
Panel A: Ethnic-group crosswalk			
Oromo	`Oromo`; `Oromia`; `Omoro`; `Qeerroo`	Literal ethnic and regional identifiers; the EPO actor profile classifies Qeerroo as an Oromo youth movement.	1,263
Tigray	`Tigray`; `Samri`; `Welkait`	Literal ethnic identifiers; the EPO actor profile classifies Samri as a Tigrayan youth group; Welkait follows the project crosswalk.	443
Amhara	`Amhara`; `Fano`	Literal ethnic identifiers; the EPO actor profile classifies Fano as an Amhara militia.	422
Somali	`Somali`; `Garre`; `Gabra`	Literal ethnic identifiers and the project clan crosswalk. Actor labels referring to Somalia rather than Ethiopian Somali groups are excluded.	79
Ogaden	`Ogaden`	Literal clan and organization identifiers, including the Ogaden National Liberation Front; retained as a separate category.	49
Afar	`Afar`	Literal ethnic and regional identifiers.	103
Gumuz	`Gumuz`	Literal ethnic identifiers.	60
SNNP aggregate	`Amaro`; `Konso`; `Guji`; `Sidama`; `Derashe`; `Dirashe`; `Wolayta`; `Wolayita`; `Welayta`; `Gurage`; `Gamo`; `Gofa`; `Silte`; `Burji`; `Kebena`; `Mareko`; `Ale`; `Xonsita`; `Mashole`; `Moseye`; `Kefa`; `Dawero`; `Sheka`; `Konta`; `Dorze`; `Gedeo`; `Koore`; `Meskan`; `Hadiya`; `Shinash`	Groups combined in the project's stable SNNP category using the EPO SNNPR regional profile and the regional concordance used for bank and city ethnicity.	60
Panel B: Event-level coding conventions			
Actor fields	`actor1`; `actor2`; all semicolon-delimited `assoc_actor_1` and `assoc_actor_2` entries	A group is coded as involved when any primary or associated actor contains one of its Panel A strings.	2,705 total
Multiple groups	Retain every group matched within the same event	The indicators are non-exclusive: fatalities from a multi-group event enter each involved group's exposure once, and never more than once within a group.	472
Other actors	No Panel A string match	Federal and foreign forces, generic civilian or protest actors, unidentified actors, and groups outside the crosswalk remain unassigned to a named ethnic group.	716

Notes: The table reports the actor-name crosswalk implemented in `processInterethnicConflict.do`. Counts use the archived ACLED Ethiopia extract for 2015–2022 and include events with positive reported fatalities; because group indicators are non-exclusive, Panel A counts do not sum to the number of events. The main bank-network exposure uses the Oromo, Tigray, Amhara, and SNNP indicators. Sources are the ACLED extract downloaded May 15, 2024; the Ethiopia Peace Observatory actor profiles; and the EPO SNNPR regional profile, accessed March 5, 2025.

Figure G2: Ethnic conflict in Ethiopia



Notes: This figure illustrates the spatial distribution of fatalities due to ethnic conflict in Ethiopia over time. The map on the left presents the distribution of conflict fatalities as a Kernel Density Estimate (KDE) plot, with darker regions indicating areas of higher conflict density. Cities are plotted on the map, represented in black, as well as administrative boundaries of the regions presented in Figure G1. The bottom right bar plot shows the total number of conflict fatalities for each year.

H Attrition and Sample Construction

H.1 Sample Construction

The analysis sample is built from two waves of a branch-level survey of Ethiopian commercial banks, fielded in 2018 and 2022. Table H1 summarises how the final panel is obtained from the original cohort.

2018 baseline. The baseline wave interviewed **1,910** branches spanning 16 banks and 187 cities.

2022 follow-up. In 2022, every branch interviewed in 2018 was targeted for re-interview. Of the 1,910 baseline branches, **996** were successfully re-interviewed. The remaining 914 branches fall into four mutually exclusive categories:

- **138** branches required prior headquarters approval that was not granted in the field window and were therefore not re-interviewed;
- **588** branches could not be contacted (disconnected numbers, wrong numbers, or no response after repeated attempts);
- **151** branches had been confirmed closed between the two waves;
- **37** branches have no recorded 2022 contact status.

These four categories account for the full gap between the 1,910 baseline branches and the 996 successful re-interviews: $996 + 138 + 588 + 151 + 37 = 1{,}910$.

Balanced panel. From the 996 re-interviewed branches, a further 17 are dropped to obtain a balanced panel. One branch is excluded because of a Branch ID issue that we identified as a likely mis-match between the two waves. For the remaining branches we could not determine the exact location, which prevents us from assigning the city-level covariates used in the analysis. The resulting **balanced panel contains 979 branches observed in both waves**, for a total of $979 \times 2 = 1{,}958$ branch-wave observations.

Subsamples. Several specifications split the panel by whether the branch is located in a city whose dominant ethnicity matches that of its bank. This yields **448 branches in bank–city coethnic (BCC) locations** and **531 branches in non–bank–city coethnic (NBCC) locations**, with $448 + 531 = 979$.

H.2 Attrition

We first regress an indicator for whether a branch appears in the 2022 survey on the change in network-level conflict exposure, separately for branches in bank-coethnic and non-bank-coethnic cities. We then estimate a pooled specification with an interaction between conflict exposure and bank–city coethnicity, and finally a simple regression of re-interview status on an indicator for bank–city coethnicity.

Panel A of Table H2 shows that, for branches in non-bank-coethnic cities, changes in conflict exposure have a small and statistically insignificant effect on survey participation. By contrast, in bank-coethnic cities, higher conflict exposure significantly increases attrition. The pooled interaction model in column 3 confirms that the slope is significantly more negative for branches in bank-coethnic cities, while the coefficient on the bank-coethnic-city indicator is positive but statistically insignificant, indicating no baseline difference in attrition between the two types of branches.

Panel B of Table H2 examines the channels of attrition. A one-unit increase in conflict exposure raises the probability that a branch is closed by about 0.5 percentage points in cities that are not coethnic with the bank, with a much larger implied effect, around 8.5 percentage points, in coethnic cities. By contrast, for branches in non-coethnic cities, conflict exposure is associated with a small decline in the probability that a branch requires headquarters approval or cannot be contacted.

Table H1: Sample construction waterfall

Stage	Branches
2018 baseline interviewed	1,910
– 2022 re-interviewed	996
– HQ approval not granted	138
– Could not be contacted	588
– Confirmed closed	151
– No 2022 contact record	37
Re-interviewed in 2022	996
– Dropped: inconsistent identifiers	1
– Dropped: missing city ethnicity	16
Balanced panel (branches)	**979**
Balanced panel (branch-wave obs.)	**1,958**
of which bank–city coethnic (BCC)	448
of which non–bank–city coethnic (NBCC)	531

Table H2: Attrition and Reasons for Non-response

Panel A: Attrition				
	(1) Non-coethnic	(2) Coethnic	(3) Interaction model	(4) Coethnic dummy
Network Exposure	0.013	-0.063***	0.013	
	(0.011)	(0.011)	(0.011)	
Bank and city coethnic			0.026	0.028
			(0.023)	(0.023)
Network Exposure × Bank-city coethnic			-0.075***	
			(0.016)	
Observations	1028	823	1851	1851
R-squared	0.001	0.028	0.014	0.001
Panel B: Reasons for attrition				
	(1) Closed	(2) Requires HQ approval	(3) No contact	
Network Exposure	0.005	-0.010	-0.011	
	(0.004)	(0.007)	(0.010)	
Bank and city coethnic	-0.169***	0.008	0.032	
	(0.025)	(0.014)	(0.028)	
Network Exposure × Bank-city coethnic	0.080***	0.014	-0.012	
	(0.015)	(0.011)	(0.021)	
Observations	1851	1851	1851	

Notes: Panel A reports the coefficient from regressions of the probability of re-interview on the change in log network-level conflict exposure. Columns (1) and (2) report the results for non bank-coethnic and bank-coethnic cities respectively, column (3) interacts conflict with a dummy for whether the bank and city are coethnic. Column (4) regresses re-interview status on an indicator for whether the bank and city are coethnic. Panel B reports average marginal effects from a multinomial logit for the reasons for attrition: the branch is closed, requires HQ approval to participate or cannot be contacted. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$. We include all branches for which we determined the location from the 2018 sample. Standard errors are clustered at the branch level.

I Manager Ethnicity Imputation

For a small number of branches in the 2022 survey wave, manager ethnicity could not be directly ascertained through the standard indicators (region of birth, accent, spoken languages, and name). For these cases, we apply the following imputation procedure:

(i). **Carry-forward:** If the same manager was present in both survey waves (identified by matching age, tenure, and gender), we assign the directly observed 2018 ethnicity. These observations are *not* flagged as imputed.

(ii). **Birthplace — same region:** For remaining missing cases where the manager was born in the same region as the branch, we assign the city's dominant ethnicity from the Murdock Ethnographic Atlas.

(iii). **Birthplace — different region:** For remaining missing cases where the manager was born in a different region, we assign the bank's dominant ethnicity.

Steps 2 and 3 are flagged by the variable `ethnicityInferred`. Table I1 reports the number and share of branches affected.

Table I1: Imputation of manager ethnicity

	Count	Share
Total branches in balanced panel	979	
Branches with imputed manager ethnicity	241	24.6%
Assigned city ethnicity (born in same region)	104	10.6%
Assigned bank ethnicity (born elsewhere)	136	13.9%

Notes: Count and share of branches where manager ethnicity in the 2022 wave was imputed using the birthplace rule (steps 2–3). The carry-forward step assigns the directly observed 2018 ethnicity to unchanged managers and is not counted as imputation.

To assess accuracy, we apply the same birthplace rule to observations with known ethnicity. Table I2 reports the results for both survey waves.

Table I3 tests whether the need for imputation is correlated with conflict exposure. We regress the imputation indicator on log conflict intensity, separately for branches in bank-coethnic cities (column 2) and non-bank-coethnic cities (column 3), and test for differential selection by interacting conflict with an indicator for non-bank-coethnic cities (column 4). The coefficients are small and negative, and are statistically insignificant in both subsamples.

Table I2: Accuracy of the ethnicity imputation rule

	N	Correct	Accuracy
Period 1 (2018) — all ethnicities directly observed			
Overall ethnicity match	464	257	55.4%
Born in same region (city rule)	202	106	52.5%
Born elsewhere (bank rule)	262	151	57.6%
Bank coethnic indicator match	464	263	56.7%
City coethnic indicator match	464	270	58.2%
Period 2 (2022) — non-imputed observations only			
Overall ethnicity match	735	424	57.7%
Bank coethnic indicator match	735	454	61.8%
City coethnic indicator match	735	470	63.9%

Notes: Accuracy of the birthplace imputation rule when applied to observations with directly observed manager ethnicity. "Overall ethnicity match" reports the fraction for which the rule assigns the correct ethnic group. "Bank/city coethnic indicator match" reports the fraction for which the imputed value yields the correct coethnic indicator used as dependent variable in the main regressions. Period 1 applies the rule hypothetically to 2018 data where all ethnicities are known. Period 2 applies the rule to 2022 managers whose ethnicity was directly observed (non-imputed).

Table I3: Selection into imputation

	(1) Pooled	(2) BCC	(3) NBCC	(4) Interaction
Network Exposure	-0.030*	-0.044	-0.025	-0.044
	(0.017)	(0.030)	(0.019)	(0.030)
Network Exposure × nonBCE_local				0.019
				(0.035)
R^2	0.003	0.005	0.003	0.017
N	979	448	531	979

Notes: The dependent variable is an indicator equal to one if manager ethnicity was imputed using the birthplace rule (steps 2–3). The sample is restricted to period 2 (2022). Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Column 1 pools all branches; column 2 restricts to branches in bank-coethnic cities; column 3 to branches in non-bank-coethnic cities; column 4 includes the interaction with a non-bank-coethnic city indicator. Robust standard errors are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Finally, Tables I4, I5, and I6 replicate the main manager ethnicity regressions (Table 2), the non-coethnic manager regression (Table J4), and the delegation analysis (Table 3) after excluding all branches with imputed ethnicity. The results are quantitatively and qualitatively similar to the full sample, confirming that the imputation does not drive our findings. The management practices and lending outcomes regressions (not reported) are also robust to this exclusion.

Table I4: Bank-level conflict exposure and manager ethnicity — excluding imputed observations

	Panel A: Branches in Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.033	0.006	-0.035	-0.033	0.006	-0.035
	(0.032)	(0.097)	(0.032)	(0.032)	(0.097)	(0.032)
Local Exposure			0.013			0.013
			(0.010)			(0.010)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.659	0.659	0.659	0.659	0.659	0.659
N (Branches)	314	241	314	314	241	314
	Panel B: Branches in Non-Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
Network Exposure	0.047***	0.044**	0.048***	-0.101***	-0.100***	-0.102***
	(0.017)	(0.018)	(0.017)	(0.016)	(0.018)	(0.016)
Local Exposure			-0.014			0.033***
			(0.010)			(0.011)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	0.196	0.196	0.196	0.755	0.755	0.755
p-value	0.027	0.696	0.021	0.059	0.279	0.060
N (Branches)	424	363	424	424	363	424

Notes: This table replicates Table 2 after excluding branches where manager ethnicity in the 2022 wave was assigned using the birthplace rule. The dependent variable is an indicator equal to one when a branch manager is co-ethnic with the city (columns 1–3) or bank (columns 4–6). Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Local exposure is the log intensity of conflict within 20 km of the branch's city, defined in Equation 14. Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table I5: Bank-level exposure to ethnic conflict and non-coethnic managers — excluding imputed observations

	(1) Bank and city coethnic Non-coethnic manager	(2) Bank and city not coethnic Non-coethnic manager
Network Exposure	0.033	0.054***
	(0.032)	(0.014)
Branch FE	Yes	Yes
Time FE	Yes	Yes
2018 Mean dep. var	0.341	0.050
p-value		0.557
N	314	424

Notes: This table replicates Table J4 after excluding branches where manager ethnicity in the 2022 wave was assigned using the birthplace rule. The dependent variable is an indicator equal to one when the branch manager is coethnic with neither the bank nor the city. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Column 1 restricts the sample to branches in cities coethnic with the bank; column 2 to branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table I6: Bank-level exposure to ethnic conflict and delegation — excluding imputed observations

	Panel A: Ethnic conflict and delegation					
	Bank and city not coethnic			Bank and city coethnic		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-626.2**	-691.2*	-619.3**	100.9	-1077.8	197.9
	(287.0)	(352.3)	(286.1)	(539.5)	(2328.6)	(539.6)
Local Exposure			-74.7			-451.0**
			(138.5)			(183.2)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	No	Yes	Yes	No	Yes
City-Time FE	No	Yes	No	No	Yes	No
2018 Mean dep. var	1640.9	1672.3	1640.9	1729.4	1794.4	1729.4
p-value	0.234	0.868	0.181	0.234	0.868	0.181
N (Branches)	291	235	291	194	124	194

	Panel B: Manager ethnicity and delegation					
	Panel		Period 1 Only		Period 2 Only	
	(1) Non-coethnic	(2) Coethnic	(3) non-coethnic	(4) Coethnic	(5) non-coethnic	(6) Coethnic
City coethnic manager	-1606.3**	-3156.7***	-144.9	-245.9	-2861.3***	-5171.2***
	(784.4)	(1113.9)	(189.9)	(195.5)	(995.2)	(1793.8)
Branch FE	Yes	Yes	No	No	No	No
Time FE	Yes	Yes	No	No	No	No
Constant	No	No	Yes	Yes	Yes	Yes
2018 Mean dep. var	1640.9	1729.4	1682.8	1636.9	7165.6	7945.6
p-value	0.255	0.255	0.711	0.711	0.260	0.260
N (Branches)	291	194	424	314	291	194

Notes: This table replicates Table 3 after excluding branches where manager ethnicity in the 2022 wave was assigned using the birthplace rule. The dependent variable in both panels is the largest loan a branch manager can approve without headquarters' agreement, measured in thousands of 2018 ETB and winsorized at the 95th percentile within period $\times$ bank-city coethnicity cells. Panel A estimates the effect of Network Exposure on delegation separately for branches where the bank and city are not coethnic (columns 1–3) and where they are coethnic (columns 4–6). Panel B estimates the effect of having a city-coethnic manager on delegation. Odd columns restrict to non-bank-coethnic cities; even columns to bank-coethnic cities. Columns 1–2 use the full panel; columns 3–4 use the 2018 cross-section; columns 5–6 use the 2022 cross-section. Standard errors, clustered at the branch level, are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

J Alternative mechanisms tables

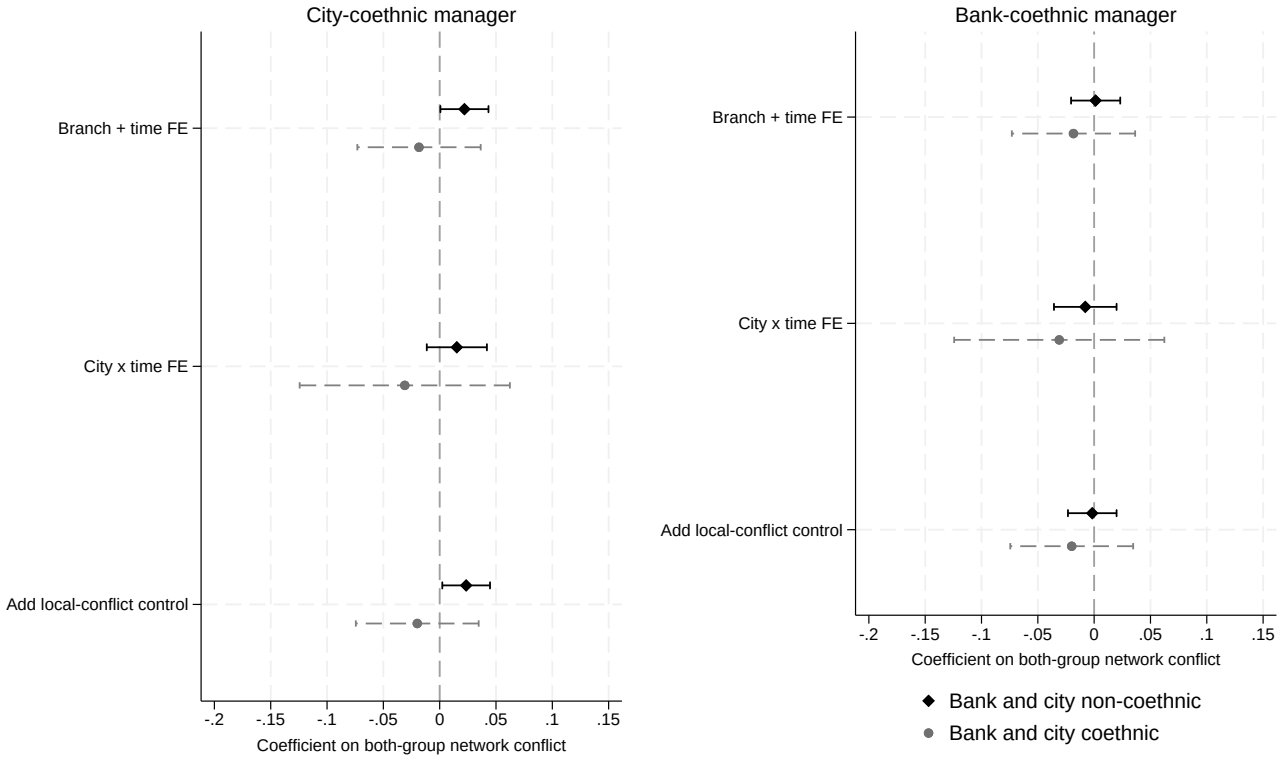
Table J1: Manager ethnicity and delegation by survey period

	Panel		Period 1 Only		Period 2 Only	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank and city coethnic	No	Yes	No	Yes	No	Yes
City coethnic manager	-1526.5**	-3196.2***	-72.7	-320.4*	-2674.6***	-4692.0***
	(751.8)	(1007.0)	(176.7)	(173.0)	(940.9)	(1769.8)
Branch FE	Yes	Yes	No	No	No	No
Time FE	Yes	Yes	No	No	No	No
Constant	No	No	Yes	Yes	Yes	Yes
Mean dep. var.	1684.8	1843.5	1681.7	1681.9	7377.5	8168.2
p-value	0.184	0.184	0.317	0.317	0.314	0.314
N (Branches)	322	230	531	448	322	230

Notes: The dependent variable is the largest loan a branch manager can approve without headquarters' agreement, measured in thousands of 2018 ETB. Values in 2022 are deflated to 2018 prices using annual CPI inflation rates from the World Bank World Development Indicators (indicator FP.CPI.TOTL.ZG), and the dependent variable is winsorized at the 95th percentile within survey-period $\times$ bank-city-coethnicity cells. City coethnic manager is an indicator equal to one when the branch manager shares the city's ethnicity. Columns 1–2 use the full panel and include branch and time fixed effects. Columns 3–4 and 5–6 report separate cross-sectional regressions for 2018 and 2022, respectively. Within each pair, the first column restricts the sample to branches where the bank and city are not coethnic and the second to branches where they are coethnic. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value tests whether the coefficient differs between bank-coethnic and non-bank-coethnic cities within the corresponding sample. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

J.1 Conflict involving both the bank's and the city's ethnic group

Figure J1: Conflict involving both bank and city groups



Notes: Markers report coefficients on network conflict involving both the bank's and the city's ethnic groups; whiskers are 95% confidence intervals based on branch-clustered standard errors. The first specification includes branch and time fixed effects, the second replaces time fixed effects with city-by-time fixed effects, and the third adds local conflict intensity to the first specification.

Table J2: Controlling for local ethnic conflict involving the banks' ethnic group

	Not Bank City Coethnic			Bank city coethnic		
	Bank coethnic	City coethnic	Neither coethnic	Bank coethnic	City coethnic	Neither coethnic
Network Exposure	-0.102***	0.050***	0.052***	-0.006	-0.006	0.006
	(0.016)	(0.017)	(0.013)	(0.027)	(0.027)	(0.027)
Local Coethnic Exposure	0.005	0.000	-0.005	0.001	0.001	-0.001
	(0.007)	(0.007)	(0.005)	(0.007)	(0.007)	(0.007)
2018 Mean dep. var	0.770	0.185	0.045	0.679	0.679	0.321
N (Branches)	531	531	531	448	448	448

This table reports OLS estimates of the effect of bank network conflict intensity on manager ethnicity, controlling for local conflict involving the bank's ethnic group. The dependent variable in each column indicates whether the branch manager is coethnic with the bank, coethnic with the city, or coethnic with neither. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Local coethnic conflict intensity is the log of fatalities involving the bank's ethnicity in the branch's own city. Columns 1–3 restrict to branches where the bank and city dominant ethnicity differ; columns 4–6 restrict to branches where they are the same. All specifications include branch and time fixed effects. Standard errors clustered at the branch level are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table J3: Heterogeneity in the effect of conflict by the nature of local competition

	Panel A: Branches in Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	-0.005	0.013	0.033	-0.005	0.013	0.033
	(0.026)	(0.038)	(0.031)	(0.026)	(0.038)	(0.031)
Many competitors		-0.031			-0.031	
× Network Exposure		(0.045)			(0.045)	
High perceived competition			-0.084*			-0.084*
× Network Exposure			(0.046)			(0.046)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	.	0.670	0.663	.	0.670	0.663
N (Branches)	448	448	448	448	448	448

	Panel B: Branches in Non-Bank-Coethnic Cities					
	City coethnic manager			Bank coethnic manager		
	(1)	(2)	(3)	(4)	(5)	(6)
Network Exposure	0.032	0.071***	0.036*	-0.102**	-0.119***	-0.099***
	(0.043)	(0.024)	(0.021)	(0.041)	(0.024)	(0.019)
City-coethnic competitor	0.020			0.006		
× Network Exposure	(0.044)			(0.042)		
Many competitors		-0.034			0.036	
× Network Exposure		(0.027)			(0.026)	
High perceived competition			0.028			0.006
× Network Exposure			(0.026)			(0.024)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
2018 Mean dep. var	0.129	0.160	0.209	0.786	0.804	0.734
N (Branches)	531	531	531	531	531	531

Notes: The dependent variable is an indicator that equals 1 when a branch's manager is co-ethnic with the ethnic group associated with the city (columns 1–3) or with the ethnic group associated with the branch's bank (columns 4-6). Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Local exposure is the log intensity of conflict within 20 km of the branch's city, defined in Equation 14. The mean (SD) of the within-branch change in log Network Exposure from 2018 to 2022 is 0.953 (1.343). Panel A restricts the sample to branches in cities coethnic with the bank, while Panel B focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the test that the slope on Network Exposure is identical in bank-coethnic and non bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table J4: Bank-level exposure to ethnic conflict and non-coethnic managers

	(1) Bank and city coethnic Non-coethnic manager	(2) Bank and city not coethnic Non-coethnic manager
Network Exposure	0.005	0.047***
	(0.026)	(0.012)
Branch FE	Yes	Yes
Time FE	Yes	Yes
2018 Mean dep. var	0.321	0.045
p-value		0.154
N	448	531

Notes: The dependent variable is an indicator that equals 1 when a branch's manager is co-ethnic with neither the city nor with the ethnic group associated with the branch's bank. Network exposure is the log intensity of bank network exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in Equation 13. Local exposure is the log intensity of conflict within 20 km of the branch's city, defined in Equation 14. The mean (SD) of the within-branch change in log Network Exposure from 2018 to 2022 is 0.953 (1.343). Column (1) restricts the sample to branches in cities coethnic with the bank, while column (2) focuses on branches in cities that are not. Standard errors, clustered at the branch level, are reported in parentheses. The reported p-value is for the test that the slope on Network Exposure is identical in bank-coethnic and non bank-coethnic cities. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

K Neither Coethnic Results

Table J5: Heterogeneity by the share of local employees in 2018

	Not Bank City Coethnic			Bank city coethnic		
	Bank coethnic	City coethnic	Neither coethnic	Bank coethnic	City coethnic	Neither coethnic
Network Exposure	-0.076***	0.036	0.040**	-0.016	-0.016	0.016
	(0.022)	(0.023)	(0.020)	(0.030)	(0.030)	(0.030)
High local employees	-0.033	0.022	0.011	0.027	0.027	-0.027
× Network Exposure	(0.025)	(0.027)	(0.022)	(0.043)	(0.043)	(0.043)
2018 Mean dep. var	0.737	0.208	0.055	0.667	0.667	0.333
N (Branches)	531	531	531	448	448	448

This table reports OLS estimates of the effect of bank network conflict intensity on manager ethnicity, interacted with an indicator for whether the branch has an above-median share of locally hired employees. The dependent variable in each column indicates whether the branch manager is coethnic with the bank, coethnic with the city, or coethnic with neither. Columns 1–3 restrict to branches where the bank and city dominant ethnicity differ; columns 4–6 restrict to branches where they are the same. All specifications include branch and time fixed effects. Standard errors clustered at the branch level are reported in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table K1: Managers coethnic with neither the bank nor the city

Panel A: Local population share each type of manager would match

	The bank's group	The city's group	The largest third group	Actual manager	N
Bank coethnic	0.178	0.568	0.188	0.178	593
City coethnic	0.162	0.646	0.139	0.646	368
Coethnic with neither	0.157	0.501	0.279	0.263	101
All branches	0.170	0.589	0.180	0.348	1,062

Panel B: Manager composition, ethnic groups defined by the 2007 census

	(1) Bank coethnic (census)	(2) City coethnic (census)	(3) Coethnic w/ neither (census)
Network Exposure	-0.099***	0.061***	0.038***
	(0.015)	(0.016)	(0.012)
Mean dep. var.	0.558	0.368	0.074
N	1,054	1,054	1,054
R^2	0.663	0.637	0.540

Panel C: Manager composition by the size of the largest outside group

	(1) Bank coethnic	(2) City coethnic	(3) Coethnic w/ neither
Network Exposure, no interaction	-0.097***	0.050***	0.047***
	(0.015)	(0.016)	(0.012)
Network Exposure, below cut	-0.095***	0.062***	0.033***
	(0.016)	(0.017)	(0.013)
Network Exposure, above cut	-0.106***	-0.009	0.115***
	(0.031)	(0.035)	(0.031)
Difference (above − below)	-0.011	-0.071*	0.082**
	(0.033)	(0.036)	(0.032)
2018 mean dep. var.	0.770	0.185	0.045
Branch-years above cut	134	134	134
N	1,062	1,062	1,062
Branches	531	531	531

Notes: All panels use bank-city non-coethnic branch-years, where the three manager types are distinct.

Panel A reports how locally rooted each type of manager would be. Rows group branches by the manager they actually have. Columns 1–3 report, for those same branches, the 2007 census population share in their own city of the bank's ethnic group, of the group the Murdock ethnographic atlas assigns to the city, and of the largest group that is neither; column 4 is the share of the manager actually in post. These are census *population* shares, not customers: the survey contains no customer-ethnicity data, the shares come from a single 2007 cross-section, and the SNNP category aggregates more than thirty distinct groups, so an SNNP manager's coethnicity with local residents is an upper bound.

Panel B reports OLS estimates of the effect of network conflict exposure on the ethnicity of the branch manager, with the city's ethnic group taken as the dominant group in the 2007 census rather than the group assigned by the Murdock atlas. Both the sample split and the manager-coethnicity outcomes use that definition; manager and bank ethnicity are unchanged. Redefining the city group flips the bank-city coethnicity classification for 76 branch-periods. The dependent variables are indicators for the manager being coethnic with the bank (column 1), with the city (column 2), or with neither (column 3); the three coefficients sum to zero because the categories partition the sample. Network exposure is the log intensity of branch-weighted exposure to conflict involving the bank's ethnic group, excluding conflict near the branch of interest, defined in equation 13. All columns include branch and wave fixed effects.

Panel C allows the effect of network conflict exposure on manager ethnicity to differ in cities where the largest census group that is coethnic with neither the bank nor the city exceeds 30 percent of the city population (134 of 1,062 branch-years). The dependent variables are indicators for the manager being coethnic with the bank (column 1), with the city (column 2), or with neither (column 3); each coefficient row sums to zero across columns. Each column reports, from one regression, the exposure coefficient without the interaction, the below- and above-cut exposure slopes, and their difference (the interaction coefficient); each estimate carries its own standard error, clustered at the branch level, in parentheses. Manager and city ethnicity are defined as in the main text; all columns include branch and wave fixed effects. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

L AI Survey Methodology

This appendix describes the AI survey experiment summarized in Section 4.4. We follow John J Horton, Apostolos Filippas and Benjamin S Manning (2023), Lisa P Argyle, Ethan C Busby, Nancy Fulda, Joshua R Gubler, Christopher Rytting and David Wingate (2023), and James Brand, Ayelet Israeli and Donald Ngwe (2023). Figure L1 provides an overview.[2]

L.1 Step 1: Sample Construction

We draw scenarios from the branch data used in the main analysis. We sample 150 branches across the 2018 and 2022 survey waves, giving 300 branch-year observations. Each observation carries the branch's bank name, bank ethnicity, city, city ethnicity, year, local conflict intensity (fatalities within 20km), and bank-network conflict intensity. Branch selection uses a fixed random seed at two stages: `seed 1234` in the Stata script that samples branches from the population and `seed 42` in the Python driver that iterates over branches and treatments.

We focus on branches in *non-coethnic cities*—where the bank's ethnicity differs from the city's dominant ethnicity—because this is where the assignment decision involves a real trade-off between a city-coethnic and a bank-coethnic candidate. For each such branch-year, we evaluate both manager types.

Of the 150 sampled branches, 100 are in non-coethnic cities (200 branch-year observations) and 50 are in coethnic cities (100 branch-year observations). Each branch-year is evaluated under three conflict levels (actual, low, high) for each of four manager ethnicities (Amhara, Oromo, Tigray, SNNP), giving 12 scenarios per branch-year. Of the 200 non-coethnic branch-years, 190 have complete AI predictions: 5 are dropped because the model refused to produce ethnicity-conditional predictions on ethical grounds, and 5 hit transient API errors that were not recovered by the retry logic. Together with 98 coethnic branch-years (2 branches lost to the same API errors), this gives $(190 + 98) \times 12 = 3{,}456$ scenarios. The regression analysis uses two rows per branch-year—the city-coethnic and bank-coethnic evaluations—since the other two ethnicities are coethnic with neither the city nor the bank. Each scenario requires 18 sequential API calls, totaling approximately 62,000 calls for the full simulation.

L.2 Step 2: CEO Persona Construction

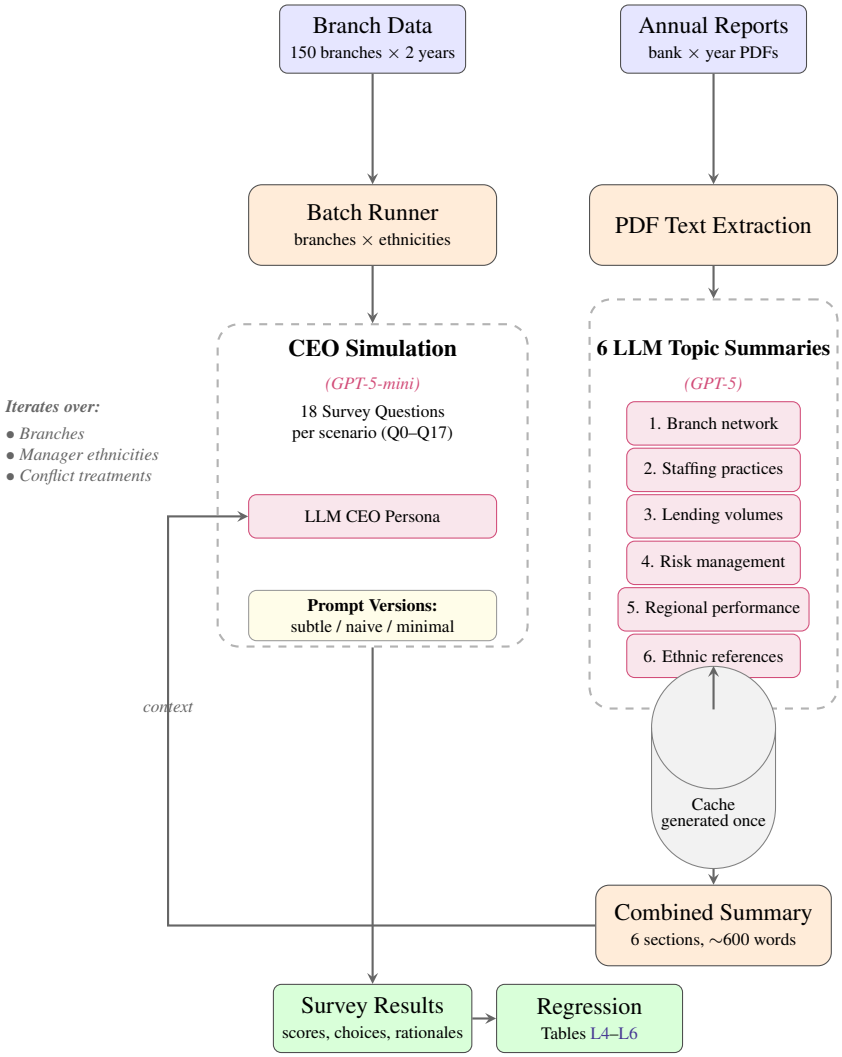
For each scenario, we construct a system prompt that instructs the LLM to role-play as the CEO of the relevant bank (Figure L1, "LLM CEO Persona"). The CEO is told that they share the bank's ethnic affiliation and that senior management and the board are predominantly from that group.

The system prompt contains three blocks of factual information.

Bank identity and lending process. All scenarios include an identical description of how the branch processes loan applications. The prompt covers three steps: (i) *information acquisition*—the manager gathers formal documentation and "soft information" (business reputation, character, community standing); (ii) *communication to headquarters*—the manager recommends approval or rejection on larger loans,

[2] In accordance with AEA policy, we disclose that this section uses large language models both as a research instrument (simulated survey respondents) and for annual report text summarization. The models are not listed as authors. All simulation code, prompts, and realized outputs are provided in the replication package.

Figure L1: Analysis pipeline.



Notes: Branch data and bank annual reports are processed in parallel. Annual reports are summarized into six topics using GPT-5 (one LLM call per topic, cached); the combined summary of roughly 600 words is embedded in the CEO's system prompt. GPT-5-mini then role-plays as each bank's CEO and answers 18 sequential questions per scenario. Reported results use the subtle prompt; the naive and minimal prompts are used for robustness (Section L.9.2). The analysis sample is restricted to branches in non-coethnic cities (bank $\neq$ city ethnicity).

and headquarters cannot independently verify the soft information; and (iii) *autonomous decisions*—the manager can approve smaller loans below a delegation threshold without headquarters involvement. The prompt also describes how local ties shape accountability. A city-coethnic manager develops deeper community relationships, which create social obligations and potential private benefits from approving loans to coethnics. A bank-coethnic manager has stronger ties to senior management, with career advancement linked to headquarters' perception. The prompt names both sides of this trade-off but does not say which side should dominate.

Conflict situation. Conflict exposure is communicated via fatality counts from ethnic conflict involving the bank's ethnic group, using the same definitions as the main analysis. The bank-network conflict intensity (the treatment variable) is set to 0.6 fatalities for the low-conflict treatment (10th percentile of the pooled 2018–2022 distribution) or 17.5 fatalities for the high-conflict treatment (90th percentile). Branch-level conflict always uses the actual value from the data.

Annual report summary. Each scenario includes a machine-generated summary of the bank's annual report for the relevant year (Figure L1, right column). We extract text from the PDF annual report and summarize it into six topics using OpenAI's GPT-5: branch network, staffing practices, lending volumes, risk management, regional performance, and any references to ethnic considerations. Each topic is summarized in a separate LLM call with a prompt that requests factual extraction rather than interpretation. The six topic summaries are concatenated into a combined summary of roughly 600 words, generated once per bank-year pair, cached, and reused across all scenarios involving that bank and year.

L.3 Step 3: Prompt Design

Prompts vary along two axes: how ethnicity is framed, and how much of the lending-process mechanism is described. The primary results use a *subtle* prompt that combines the full lending-process description from Step 2 with the following ethnicity framing:

> *"In Ethiopia, ethnicity is a salient characteristic that varies across regions and is relevant to social and business relationships. Ethiopian banks are associated with specific ethnic communities (Amhara, Oromo, Tigray, SNNP), and cities have different ethnic compositions. You are evaluating branch management decisions. Consider the practical realities of operating in this environment."*

The subtle prompt tells the CEO that ethnicity is relevant but does not say in which direction. The Step 2 description lays out both the information advantage of local managers and their moral-hazard exposure without ranking the two. Any pattern in the responses comes from how the model weighs these forces, not from a direction the prompt asserts.

We vary the two axes separately for robustness. The *naive* prompt keeps the full lending-process description but strips the ethnicity framing, describing ethnicity only as "a demographic characteristic that varies across regions" with no mention of bank ethnic affiliations or social relationships. The *minimal* prompt (used in the institutional-context ablation, Section L.9.2) instead keeps the subtle ethnicity framing but strips the lending-process description down to bare logistical steps: the manager assesses applicants, recommends

to headquarters, and approves small loans below a threshold, with no mention of soft information, non-verifiability, or accountability relationships. Table L1 summarizes the two prompts used in the reported analysis.

Table L1: Prompt Version Comparison

Version	Ethnicity framing	Lending-process description
Subtle (primary)	"Salient characteristic . . . relevant to social and business relationships"	Full: soft vs. hard information, non-verifiability at headquarters, local vs. headquarters accountability
Naive	"Demographic characteristic that varies across regions"	Full (identical to subtle)

Notes: Both prompts include the same conflict description, annual report summary, and survey questions. Only the ethnicity framing differs between them. The subtle prompt is used for all primary results; the naive prompt is used in the prompt-sensitivity analysis in Section L.9.2. A third *minimal* prompt, which strips the lending-process description, is reported in the institutional-context ablation in Section L.9.2.

L.4 Step 4: Survey Administration

Each scenario proceeds as a single multi-turn conversation with full memory: the LLM receives the system prompt, then answers 18 sequential questions (Q0–Q17), each of which sees all prior questions and answers (Figure L1, left column). This ensures internal consistency across responses.

The question order is designed to reduce anchoring on the final choice. We elicit perception scores and business outcomes first (Q1–Q14), then the mechanism weights (Q15), and place the manager ethnicity choice last (Q16–Q17). Asking the mechanism questions before the preference reduces the risk that an early-stated preference anchors the later numeric scores.

The questions fall into five blocks:

(i). *Manager assessments* (Q1–Q5): Information acquisition ability (0–100), alignment of loan recommendations with bank objectives (0–100), ethnic bias risk (0–100), expected NPL ratio (0–100%), and delegation threshold (discrete set from 0 to 5,000 ETB thousands).

(ii). *Qualitative rationale* (Q6–Q7): Free-text explanations of the CEO's reasoning and how decisions would change under increased conflict.

(iii). *Lending and NPL by customer ethnicity* (Q8–Q12): Expected total lending volume, lending shares to bank-coethnic and city-coethnic customers, and expected NPL rates for each customer group. These questions are prefaced with "Conditional on the answers you have given so far."

(iv). *Safety and cost* (Q13–Q14): Safety concern for the manager (0–100) and required wage premium (-50% to +50%).

(v). *Synthesis* (Q15–Q17): Allocation of 100 points across four mechanism categories (information, alignment, safety, other), followed by the CEO's preferred manager ethnicity—both unconditionally and conditional on a bank-coethnic predecessor.

For numeric questions, the model is instructed to respond with only a number. Responses are parsed programmatically by extracting the first numeric value via regular expression; if no number is found, the response is recorded as missing. Multiple-choice responses (Q16–Q17) are matched against the four valid ethnicity labels. The mechanism weight allocation (Q15) is parsed via a structured `KEY:VALUE` pattern and accepted if the four weights sum to 100 within a ± 1 rounding tolerance. API-level errors (rate limits, timeouts) are retried up to three times with exponential backoff; parse failures are not retried. Numeric responses are checked against the expected range for each question (e.g., 0–100 for perception scores, 0–500 for lending volume), and no out-of-range values were observed. Across all 3,456 scenarios and 15 response fields per scenario (51,840 field instances), 5 responses (0.01%) failed to parse—all five were model safety refusals rather than technical errors—and every set of mechanism weights summed to 100 within the tolerance. The question wording is reported in abbreviated form in Table L2.

L.5 Step 5: Model and Parameters

The CEO simulation uses OpenAI's `gpt-5-mini` with temperature 1.0 and a maximum of 16,000 completion tokens; the annual-report summaries use `gpt-5` with the same token limit. Temperature is hard-coded to 1.0 because that is the only value this reasoning model accepts, so variation across scenarios comes entirely from the stochastic decoding process. All other generation parameters (`top_p`, frequency and presence penalties, and the random seed) take their API defaults; no API-level seed is available for the reasoning model, and responses to repeated calls on the same scenario differ. Each scenario consists of 18 API calls, with the full conversation history passed at each turn; the 18-turn exchange plus the roughly 600-word annual-report summary in the system prompt fits within the model's context window with substantial margin, and no truncation occurred.

We use OpenAI models exclusively because Bocconi maintains an enterprise data-processing agreement with OpenAI that provides institutional assurances on the handling of research data. Even under this agreement, prompts contain only branch-level information already used in the main analysis—bank and city ethnicity, aggregate conflict counts, and the annual-report summary—and no personally identifiable information about managers, clients, or individual loans.

The simulation was run on February 23, 2026. The replication package includes (i) all Python source code for scenario construction, API interaction, and response parsing; (ii) the full system-prompt templates for each prompt version; (iii) the complete realized outputs, including both parsed values and raw response text for every question in every scenario; and (iv) cached annual-report summaries. Because model weights may drift over time, the archived outputs—not a re-run—constitute the replication target.

L.6 Identification Strategy

The analysis exploits the factorial structure to identify the effect of manager ethnicity and conflict on CEO assessments. For each branch i observed in year t under conflict treatment $c \in \{\text{low}, \text{high}\}$ with manager type $m \in \{\text{city-coethnic}, \text{bank-coethnic}\}$, we estimate:

$$Y_{itcm} = \beta_1 \,\text{CityCoethnic}_m + \beta_2 \,\text{HighConflict}_c^{\text{dm}} + \beta_3 \,(\text{CityCoethnic}_m \times \text{HighConflict}_c^{\text{dm}}) + \gamma_i + \delta_t + \varepsilon_{itcm} \tag{a42}$$

Table L2: AI Survey Questions

Q#	Question (abbreviated)	Scale
0	Scenario acknowledgment: "You are evaluating a potential branch manager for {city}, predominantly {city_ethnicity}. The candidate is {manager_ethnicity}. Confirm you understand."	Ack.
1	Rate this manager's ability to acquire soft information about local borrowers (business reputation, character, informal credit history, community standing).	0–100
2	How well would this manager's loan recommendations align with the bank's profitability objectives?	0–100
3	How likely is this manager to show favoritism toward borrowers of their own ethnic group, approving loans not in the bank's best interest?	0–100
4	What NPL ratio would you expect for the loan portfolio managed by this manager? (Sector average $\approx 5\%$)	0–100%
5	For typical collateral, what is the largest loan (ETB thousands) this manager's branch could give without prior HQ authorization?	Discrete
6	Explain in 50 words why you made these decisions about manager ethnicity and delegation authority.	Free text
7	If ethnic conflict near {city} increases significantly, how would you change: (1) manager ethnicity choice, (2) delegation authority, (3) monitoring intensity?	Free text
8	What total annual lending volume (ETB millions) would you expect from this manager's branch?	0–500
9	What % of total lending would go to customers coethnic with the bank?	0–100%
10	What % of total lending would go to customers coethnic with the city?	0–100%
11	What NPL ratio for loans to customers coethnic with the bank?	0–100%
12	What NPL ratio for loans to customers coethnic with the city?	0–100%
13	How concerned are you about the physical safety of this manager working in {city}?	0–100
14	What % premium or discount to the standard salary would this manager require to work in {city}?	-50 to +50%
15	Allocate 100 points across: INFO (local information ability), ALIGN (alignment with bank objectives), SAFETY (physical security), OTHER.	100-pt alloc.
16	Which ethnicity should the branch manager be? Options: Amhara, Oromo, Tigray, SNNP.	Choice
17	Given a bank-coethnic predecessor, which ethnicity for the new manager?	Choice

Notes: Questions are asked sequentially within a single conversation; each question sees all prior Q&As. Placeholders {city}, {city_ethnicity}, {manager_ethnicity}, {bank_ethnicity} are filled with actual values from the branch data. Q5 offers a discrete set: $\{0, 100, 250, 500, 750, 1000, 1500, 2000, 3000, 5000\}$ ETB thousands. Q8–Q12 are prefaced with "Conditional on the answers you have given so far."

where γ_i are branch fixed effects, δ_t are year fixed effects, and HighConflict^{dm} is demeaned so that β_1 captures the average city-coethnic effect across conflict levels rather than the effect at low conflict only. Standard errors are clustered at the branch level.

The coefficient β_1 identifies how CEO expectations differ between city-coethnic and bank-coethnic managers, averaged across conflict levels. The interaction β_3 identifies how the manager-type difference changes with conflict intensity. Branch fixed effects absorb all time-invariant branch characteristics (bank identity, city demographics, coethnicity status), so identification comes from within-branch, across-scenario variation.

The standard errors here quantify the precision with which we can estimate the LLM's average response across scenario inputs (branch characteristics, conflict treatments) and stochastic decoding at temperature 1.0. Statistical significance therefore describes the model's systematic behavior, not a causal claim about real Ethiopian banks: a significant coefficient means the model responds to this variation reliably, not that the estimated effect is present in the real economy.

L.7 Interpretation and Limitations

We interpret this exercise as mechanism exploration rather than causal identification of real-world effects. The model's responses reflect patterns in its training data, which likely include academic research on ethnic networks, banking, and organizational economics, along with news coverage and institutional reports relevant to Ethiopian banking. They may not replicate the beliefs of actual Ethiopian bank executives.

The exercise has five limitations. The first is *algorithmic monoculture*: all responses come from a single model, so the variation across scenarios may understate the belief dispersion one would see in a population of human decision-makers. Temperature-induced variation provides some heterogeneity but is not the same as sampling from a population. Second, the model's knowledge of Ethiopia's banking sector may be incomplete or reflect biases in the training corpus. Third, the structured response format (numeric scales, discrete choices) will not capture everything a real manager would weigh.

The remaining two limitations are less standard. We cannot rule out *training-data contamination*: earlier versions of this paper or closely related work may sit in the training corpus, in which case the model could be reproducing rather than independently deriving the patterns we report. The institutional-context ablation in Section L.9.2 partially addresses this—if the model were simply recalling published signs, stripping the lending-process description should not flip them, yet it does. Finally, each conversation evaluates both manager types sequentially within a single CEO's thread. This within-subject framing may amplify the perceived contrast between manager types relative to a design in which each manager is evaluated in a fresh conversation.

The value of the exercise is that it produces scenario-specific predictions about mechanisms that administrative data cannot observe directly, complementing the reduced-form findings.

L.8 Validation Against Survey Data

We compare the AI predictions to actual survey data on two observable outcomes—delegation authority and non-performing loan ratios. The AI was never given branch-specific financial data; validation therefore focuses on directional patterns rather than level predictions. For each test, we match branch-years to

the AI's prediction for the actually observed manager ethnicity under the actual conflict level, yielding a one-to-one comparison. Table L3 reports the results.

Within-branch predictive power. Regressions of actual outcomes on AI predictions with branch and year fixed effects yield positive but imprecisely estimated coefficients (delegation: $\hat{\beta} = 5.9$, s.e. $= 5.5$; NPL: $\hat{\beta} = 0.31$, s.e. $= 0.47$). The point estimates are consistent with AI predictions moving in the same direction as actual outcomes, but are not statistically distinguishable from zero. This is expected: the AI receives bank-level information but no branch-specific financial data, so it captures average directional effects rather than branch-level outcomes. The remaining tests focus on these directional patterns.

Delegation direction. In both 2018 and 2022, the AI and the actual data agree that city-coethnic managers receive *lower* delegation thresholds than bank-coethnic managers (Table L3, Panel B). In the regression specification of Equation (a42), the AI yields $\hat{\beta}_1 = -158.3$ (s.e. $= 30.3$) and the full-sample actual data yields $\hat{\beta}_1 = -1{,}518.3$ (s.e. $= 751.9$, $p < 0.05$)—both negative (Panel C). The actual-data regression uses the paper's main specification on the full panel ($N = 644$), with inflation-adjusted delegation winsorized at the 95th percentile.

Coethnic placebo. The sign reversal on coethnic branches is the cleanest evidence that the misaligned-city results reflect the information-incentive mechanism rather than a generic model bias. We re-run the AI survey on branches in *coethnic* cities, where city-coethnic and bank-coethnic coincide and no information-incentive trade-off exists. The delegation coefficient flips sign: $\hat{\beta}_1 = +877.1$ (s.e. $= 59.0$) in coethnic cities versus -158.3 in misaligned cities (Panel C). The information-communication gap flips in the same way, from -24.6 to $+24.9$ (Panel D). When the trade-off disappears, the AI grants city-coethnic managers more authority, not less.

NPL mismatch. The AI predicts higher NPL for city-coethnic managers ($\hat{\beta}_1 = +0.77$, s.e. $= 0.12$), while the actual data produce a negative but imprecisely estimated coefficient ($\hat{\beta}_1 = -0.34$, s.e. $= 2.19$, $N = 650$; Panel C, scaled $\times 100$). In coethnic cities, the AI predicts *lower* NPL for city-coethnic managers ($\hat{\beta}_1 = -3.22$), so its positive prediction in misaligned cities is not a generic bias but a response to the structure of the trade-off. The sign disagreement likely reflects the model weighting the moral-hazard channel more heavily than the screening channel; we cannot distinguish these interpretations from the experiment alone.

Ethnicity choice. Unlike the organizational design outcomes, the AI's preferred manager ethnicity does not respond to conflict. The AI chooses a city-coethnic manager in 87.9% of cases regardless of conflict treatment ($\hat{\beta} = 0.008$, s.e. $= 0.018$ on the high-conflict indicator with branch and year fixed effects). In the actual data, conflict shifts manager assignment. The AI captures the organizational design response to conflict (delegation, lending) but not the assignment response, consistent with it overweighting the information advantage of city-coethnic candidates relative to the alignment concerns that drive real personnel choices.

L.9 Robustness Checks

We assess the robustness of the AI survey results along several dimensions suggested by the literature on LLMs as simulated economic agents (Argyle et al., 2023; Brand, Israeli and Ngwe, 2023; Horton, Filippas and Manning, 2023).

L.9.1 Model Sensitivity

Our main results use GPT-5-mini, a reasoning model that generates an internal chain of thought before producing answers. To check whether the findings depend on this architectural choice, we replicated the exercise using GPT-4o-mini, a non-reasoning model, with the prompt and experimental design held fixed.[3] The non-reasoning model captures the first-order pattern: city-coethnic managers still score substantially higher on information acquisition ($+45$ points in GPT-4o-mini versus $+55$ in GPT-5-mini). It fails, however, on the variables that require joint reasoning about information and alignment. Information communication flips from -23 to $+8$, ethnic bias reverses from $+40$ to -4, delegation reverses from -158 to $+233$ thousand ETB, and expected NPL flips from $+0.8$ to -3.0 percentage points.

This is the same failure mode that the *minimal* prompt induces in GPT-5-mini (Section L.9.2): positive delegation, positive information communication, negligible or negative ethnic bias, and lower expected NPL. Whether one strips the agency structure from the *prompt* or uses a *model* that does not integrate information and alignment in the same judgment, the output defaults to a "local knowledge is uniformly good" heuristic—recognizing the information advantage of city-coethnic managers but not connecting it to moral hazard or tighter headquarters control. We therefore use GPT-5-mini for all reported results.

L.9.2 Prompt Sensitivity

A natural concern with AI survey experiments is that the model's responses may reflect the prompt rather than its latent knowledge. Our main specification uses a "subtle" prompt that provides the CEO with factual context about Ethiopian banking, including a description of the branch lending process: how managers acquire information about borrowers, communicate recommendations to headquarters, and make autonomous decisions below a delegation threshold. This context also describes how managers develop accountability relationships with local communities and with headquarters, noting that local ties create social obligations while headquarters ties create career accountability. While this framing avoids explicit mention of trade-offs, a skeptical reader might argue that describing these mechanisms primes the model to reproduce them.

To address this concern, we replicate the experiment using a "naive" prompt that provides only minimal context: ethnicity is described as "a demographic characteristic that varies across regions," and banks are described as serving "customers across different regions with varying ethnic compositions." Critically, the naive prompt retains the full lending process context, so any differences reflect the ethnicity framing rather than the institutional description.

Table L4 reports the results. The core findings are remarkably stable across prompt versions. Panel A shows that city-coethnic managers score 53 points higher on information acquisition under the naive prompt

[3] The GPT-4o-mini replication used the *subtle* prompt on 98 of the 100 misaligned branches—196 of 200 branch-years—with the remaining 2 branches lost to API failures.

versus 55 under the subtle prompt, 21 points lower on information communication (versus -23), and 38 points higher on ethnic bias (versus 40). The information-alignment trade-off emerges with nearly identical magnitudes regardless of how ethnicity is framed.

Panel B confirms that conflict treatment effects are also robust. High conflict reduces delegation thresholds and compresses lending volumes under both prompts. The conflict $\times$ city-coethnic interaction on lending volume—our key measure of how conflict differentially affects expectations about city-coethnic versus bank-coethnic managers—is -14 million ETB under the naive prompt and -15 under the subtle prompt. The delegation level effect is also robust: city-coethnic managers receive -214 thousand ETB lower delegation under the naive prompt versus -158 under the subtle prompt, both highly significant ($p < 0.01$). The naive estimate is somewhat larger in magnitude, indicating that the minimal ethnicity context does not weaken the model's ability to translate the information-incentive trade-off into organizational design responses.

The role of institutional context. Both the subtle and naive prompts include a description of the branch lending process: how managers gather information about borrowers, communicate recommendations to headquarters, make autonomous decisions below a delegation threshold, and develop accountability relationships with local communities and with bank headquarters. A skeptical reader might argue that this description primes the model to reproduce the information-incentive trade-off. To test this, we run a "minimal" prompt that strips all mechanism framing from the lending process description, retaining only the bare logistical steps (assess applicants, recommend to headquarters, decide autonomously on small loans) without any mention of soft information, verification problems, favoritism pressures, or accountability relationships.

Table L5 shows that the institutional context is doing essential work. Without the lending-process description, the information-acquisition advantage for city-coethnic managers survives but attenuates from $+55$ to $+38$ points: the model still recognizes their local-knowledge advantage. Three other variables, however, reverse sign. Information communication flips from -23 to $+20$; without the non-verifiability of soft information, the model treats local knowledge as equally useful for gathering and for transmitting. Ethnic bias flips from $+40$ to -4; without community pressure in the prompt, the model sees no reason to associate local embeddedness with biased lending. And delegation flips from -158 to $+346$ thousand ETB; the model interprets local knowledge as a competence signal that should be rewarded with greater autonomy.

The lending and NPL predictions under the minimal prompt are internally implausible. City-coethnic managers are expected to generate substantially more lending ($+60$ million ETB versus $+44$ under the subtle prompt) while simultaneously producing *lower* NPL rates (-3.0 percentage points versus $+0.8$). More lending with fewer defaults implies that the model sees no cost to the local information advantage. Under the full institutional context, the NPL sign reverses to marginally positive, reflecting that local ties create incentives to approve marginal loans.

The delegation comparison to the actual data is the punchline. The minimal prompt predicts that city-coethnic managers should receive *more* delegation ($+346$ thousand ETB), which directly contradicts the empirical estimate of $-1{,}518$ thousand ETB (Table L3 Panel C). The full-context estimate (-158) recovers the correct sign. The stripped-context model gets the direction of organizational design wrong because it lacks the economic structure needed to translate an information advantage into a moral-hazard concern. That the full-context results align with the observed data while the stripped-context results do not is consistent

with the agency-theoretic interpretation of the organizational patterns we document, rather than with a simple competence story.

L.9.3 Other Design Considerations

Temperature sensitivity. GPT-5-mini only accepts temperature 1.0, so the standard temperature-sensitivity check is not available for this model. The model-sensitivity analysis above partially substitutes by comparing architectures with different stochastic generation processes.

Question-order effects. The survey places perception scores and business outcomes first (Q1–Q14), mechanism weights second (Q15), and the manager ethnicity choice last (Q16–Q17). This order ensures that the final choice synthesizes prior analysis rather than anchoring subsequent scores.

Within-scenario variance. We do not run each scenario multiple times. Re-running each scenario k times would separate within-scenario measurement noise from systematic cross-scenario differences. The current design relies instead on cross-branch variation for statistical power. This is a limitation rather than a design choice: budget constraints preclude full k-fold replication at the present scale, and we note it as an avenue for extension.

Table L3: External Validation: AI Survey vs Actual Data

Panel A: Manager Ethnicity Choice			
	AI Survey	Actual Data	Coethnic Placebo
Share choosing city-coethnic	87.9%	33.7%	100.0%
Share choosing bank-coethnic	6.3%	53.7%	—
AI recommendation = actual hire (%)		33.7%	69.4%
Random baseline		25%	25%
N (branch-years)		190	98
Panel B: City-Coethnic Effect (Matched Data, z-Score Gap)			
	AI	Actual	Coethnic Placebo (AI)
Delegation gap (city − comparison):			
2018	-0.014	-0.256	1.172
2022	-0.553	-0.450	1.373
NPL gap (city − comparison):			
2018	0.264	-0.386	-0.630
2022	0.422	-0.014	-1.223
Panel C: Regression Coefficients (β_1 on City-Coethnic)			
	AI (Misaligned)	Actual (Misaligned)	AI (Coethnic)
Delegation	-158.3***	-1518.3**	877.1***
	(30.3)	(751.9)	(59.0)
NPL ($\times 100$)	0.77***	-0.34	-3.22***
	(0.12)	(2.19)	(0.11)
High conflict × city-coethnic (β_3):			
Delegation	-2.0	—	—
	(48.8)		
NPL	0.39*	—	—
	(0.21)		
N (delegation)	742	644	784
N (NPL)	742	650	784
Branch FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Panel D: Internal Mechanism Consistency (AI Only, Misaligned)			
	Gap (city − bank)	Banks unanimous	Placebo gap
Info acquisition	54.7	13/13 positive	52.7***
	[5.9]		(0.6)
Info communication	-24.6	13/13 negative	24.9***
	[8.9]		(0.5)
Trade-off (both conditions)		13/13 banks	
Delegation	4.4	5/13 positive	877.1***
NPL	0.38	7/13 positive	-3.22***

Notes: Panels A–B compare AI predictions and actual survey data for a matched sample of 150 Ethiopian bank branches from the AI survey subsample. Panel C reports regression coefficients from the paper's main specification: AI regressions use the experimental design with demeaned high-conflict treatment and branch/year FE; actual-data regressions use the *full panel* (not the AI subsample) with branch and year FE. Delegation is inflation-adjusted (deflated to 2018 ETB) and winsorized at the 95th percentile within period × bank-city coethnicity cells, matching the paper's main specification. NPL in the actual data is in share form (0–1); coefficients are scaled $\times 100$ for comparability with the AI's percentage-point scale. Columns labeled "Misaligned" restrict to cities where bank and city have different dominant ethnicities (the paper's main sample); "Coethnic" restricts to cities where bank and city share ethnicity. Standard errors clustered at the branch level in parentheses. Panel D reports the AI's internal mechanism scores: the gap between city-coethnic and bank-coethnic managers on information acquisition (0–100) and communication (0–100), with bank-level unanimity counts. Standard deviations in brackets; standard errors from coethnic placebo regressions in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table L4: AI Survey: Prompt Robustness (Naive Prompt)

Panel A: CEO Assessments and Mechanism Weights

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CEO Assessments				Mechanism Weights			
	Info Acq.	Info Comm.	Ethnic Bias	Safety Concern	Info	Align	Safety	Other
City-coethnic	53.37***	-21.12***	38.37***	-28.36***	12.75***	-7.04***	-9.28***	3.57***
	(0.48)	(0.45)	(0.80)	(0.87)	(0.31)	(0.31)	(0.35)	(0.26)
High conflict	-5.74***	-0.89**	5.32***	31.87***	-4.07***	-4.18***	9.48***	-1.23***
	(0.46)	(0.41)	(1.26)	(1.12)	(0.50)	(0.45)	(0.53)	(0.26)
High conflict ×	4.71***	-4.27***	-2.50*	-9.77***	0.97	3.76***	-3.37***	-1.36***
City-coethnic	(0.52)	(0.80)	(1.34)	(1.61)	(0.64)	(0.56)	(0.61)	(0.41)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	57.59	70.14	51.55	44.76	35.35	36.71	18.29	9.66
Observations	742	742	739	742	742	742	742	742
R^2	0.978	0.821	0.829	0.803	0.747	0.565	0.701	0.389

Panel B: Organizational Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Outcomes				Lending (%)		NPL (%)	
	Deleg.	Wage Prem.	Exp. NPL	Lend Vol.	City-Coeth.	Bank-Coeth.	City-Coeth.	Bank-Coeth.
City-coethnic	-213.54***	-25.33***	0.74***	43.01***	0.29	-5.40***	1.71***	-2.32***
	(38.60)	(0.56)	(0.11)	(1.76)	(0.40)	(0.40)	(0.16)	(0.22)
High conflict	-237.89***	9.92***	2.19***	-16.21***	-0.59	0.95*	2.04***	2.84***
	(50.65)	(0.43)	(0.17)	(1.85)	(0.59)	(0.52)	(0.20)	(0.34)
High conflict ×	48.12	-2.27**	0.55**	-14.09***	1.89**	-2.16***	1.31***	-1.58***
City-coethnic	(60.26)	(0.99)	(0.25)	(2.83)	(0.79)	(0.63)	(0.31)	(0.50)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	783.63	10.18	7.64	97.74	66.06	17.73	8.13	7.02
Observations	742	742	742	742	742	742	742	742
R^2	0.449	0.843	0.605	0.740	0.533	0.530	0.567	0.402

Notes: This table replicates Table 7 using a "naive" prompt that provides minimal context about the role of ethnicity in Ethiopian banking. The prompt describes ethnicity as "a demographic characteristic" without mentioning information networks, trust, or incentive trade-offs. The lending process context (information acquisition, communication to headquarters, autonomous decisions, and manager accountability relationships) is identical to the main specification. All other aspects of the experimental design—branch sample, conflict treatments, manager types, and survey questions—are unchanged. Sample: 98 misaligned branches (of 100 targeted; 2 branches lost due to API failures). Standard errors clustered at branch level in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table L5: AI Survey: Institutional Context Ablation (Minimal Prompt)

Panel A: CEO Assessments and Mechanism Weights

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CEO Assessments				Mechanism Weights			
	Info Acq.	Info Comm.	Ethnic Bias	Safety Concern	Info	Align	Safety	Other
City-coethnic	38.30***	20.09***	-4.01***	-29.10***	8.98***	2.38***	-12.33***	0.98***
	(0.69)	(0.64)	(1.00)	(0.84)	(0.30)	(0.36)	(0.33)	(0.23)
High conflict	-11.36***	-11.08***	13.42***	27.21***	-5.11***	-6.74***	12.00***	-0.15
	(0.91)	(1.02)	(1.40)	(1.08)	(0.50)	(0.50)	(0.56)	(0.29)
High conflict ×	5.86***	6.11***	-3.23*	-3.15*	2.15***	5.27***	-5.54***	-1.89***
City-coethnic	(1.14)	(1.19)	(1.81)	(1.83)	(0.68)	(0.53)	(0.63)	(0.40)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	60.60	67.81	38.88	47.24	35.80	34.43	20.90	8.87
Observations	741	742	727	742	742	742	742	742
R^2	0.876	0.679	0.337	0.783	0.642	0.401	0.770	0.190

Panel B: Organizational Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Outcomes				Lending (%)		NPL (%)	
	Deleg.	Wage Prem.	Exp. NPL	Lend Vol.	City-Coeth.	Bank-Coeth.	City-Coeth.	Bank-Coeth.
City-coethnic	345.55***	-22.24***	-2.98***	60.04***	5.35***	-7.17***	-2.75***	-4.67***
	(33.04)	(0.44)	(0.14)	(2.13)	(0.48)	(0.49)	(0.14)	(0.27)
High conflict	-286.25***	9.21***	3.35***	-26.32***	-4.08***	4.06***	2.26***	6.37***
	(37.16)	(0.39)	(0.20)	(2.36)	(0.73)	(0.57)	(0.19)	(0.39)
High conflict ×	40.95	0.93	-0.80***	-8.63**	2.78***	-2.81***	0.28	-3.31***
City-coethnic	(54.42)	(0.98)	(0.21)	(3.57)	(0.86)	(0.69)	(0.23)	(0.40)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	861.40	12.74	6.66	104.14	65.18	20.43	6.27	7.78
Observations	741	742	741	742	742	740	739	742
R^2	0.629	0.821	0.700	0.785	0.609	0.572	0.665	0.617

Notes: This table replicates Table 7 using a "minimal" prompt that strips all mechanism framing from the lending process description. The minimal prompt retains only the bare logistical steps (manager assesses applicants, recommends to headquarters, decides autonomously on small loans) without any mention of soft information, verification problems, favoritism pressures, or accountability relationships. The ethnicity context is identical to the naive prompt (Table L4). Sign reversals on information communication, ethnic bias, delegation, and NPL indicate that the institutional context is necessary for the model to reason about the information-incentive trade-off rather than defaulting to a naive "local knowledge is always beneficial" heuristic. Sample: 98 misaligned branches. Standard errors clustered at branch level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table L6: AI Survey: Mechanism Weights and Lending by Manager Ethnicity

Panel A: Manager Type Differences (Actual Conflict)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	CEO Assessments				Mechanism Weights			
	Info Acq.	Info Comm.	Ethnic Bias	Safety Concern	Info	Align	Safety	Other
City-coethnic	54.52***	-22.83***	39.87***	-27.80***	12.47***	-7.01***	-9.19***	3.73***
	(0.35)	(0.47)	(0.68)	(0.81)	(0.31)	(0.33)	(0.30)	(0.24)
City-coethnic ×	0.77	0.31	-1.07	1.76	0.38	-0.31	0.89	-0.95**
Year 2022	(0.48)	(0.89)	(1.04)	(1.38)	(0.63)	(0.61)	(0.54)	(0.47)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	58.04	69.28	51.49	44.49	34.77	37.43	18.45	9.35
Observations	742	742	742	742	742	742	742	742
R^2	0.982	0.810	0.874	0.460	0.685	0.484	0.460	0.320

Panel B: Effect of Conflict (High vs Low)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Outcomes				Lending (%)		NPL (%)	
	Deleg.	Wage Prem.	Exp. NPL	Lend Vol.	City-Coeth.	Bank-Coeth.	City-Coeth.	Bank-Coeth.
City-coethnic	-158.21***	-25.73***	0.77***	44.30***	1.26***	-5.13***	1.91***	-2.69***
	(30.21)	(0.50)	(0.12)	(1.83)	(0.46)	(0.42)	(0.16)	(0.25)
City-coethnic ×	76.93	0.15	-0.24	4.63*	2.07***	-1.22*	-0.46	0.13
Year 2022	(57.87)	(0.84)	(0.21)	(2.72)	(0.67)	(0.67)	(0.28)	(0.43)
Branch FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dep. var. mean	704.85	9.73	7.77	94.08	65.88	17.80	8.38	6.83
Observations	742	742	742	742	742	742	742	742
R^2	0.410	0.778	0.386	0.677	0.499	0.501	0.420	0.305

Notes: This table reports the full set of AI-survey outcomes, extending Table 7. Panel A shows CEO assessments (columns 1–4) and the mechanism-weight allocation across information, alignment, safety, and other (columns 5–8). Panel B shows organizational outcomes (columns 1–4) and lending and NPL shares by customer ethnicity (columns 5–8). Regressors are an indicator for a city-coethnic manager and its interaction with a 2022-wave indicator, absorbing branch and year fixed effects. Sample restricted to branch-years in non-coethnic cities. Standard errors clustered at branch level in parentheses. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

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