

ARE LOANS TO MINORITY FIRMS MISPRICED?

Measuring the Risk Mispricing for Firms Owned by People of Color and the Lost Economic Opportunity That It Creates

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Credit mispricing occurs when lenders adjust the terms for borrowers based on factors unrelated to their financial risk, such as the race of the business owner, rather than economic and creditworthiness indicators.

This research explores whether interest rate and collateral mispricing are evident across racial groups using survey data on small business loans.

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Overview



- Nationwide Survey on Small Business Lending
- Assessment of loan terms—interest rates and collateral—for loans granted to small businesses across the U.S. from Jan 2022 to Jun 2023. Similar data has not been available since the Federal Reserve's 2003 Survey of Small Business Finances (SSBF).

Findings

Interest Rates

- Our data indicates statistically significant mispricing resulting in higher interest paid by Asian American-, Black- and Hispanic- owned firms, and woman-owned firms.

Impact

- This mispricing leads to minority business borrowers paying over $8 billion in higher interest annually.

Collateral

- Co-signatures from third parties are required for Asian American-, Black- and Hispanic- and Native-owned firms more frequently than is justified by our economic analysis.

Impact

- The opportunity cost due to excessive collateral requirements remains unclear due to limited data.

II. Background

- **Conducted By:**
  - The Foster School of Business, University of Washington
  - Social & Economic Sciences Research Center (SESRC), Washington State University
- **Focus Areas:**
  - National survey on business loan and credit accessibility, equity, and related challenges
- **Sponsor:**
  - The Schultz Family Foundation

Description of Surveys

- Supplier.IO provided the authors with a nationwide list of over 300,000 firms, to which we sent an internet survey.
- The firms were potential or actual government or business suppliers, some of which also served personal consumers.
- The survey collected firm/owner/lender information on non-government guaranteed borrowing by small firms (< 500 employees) from January 2022 through May 2023.
- Duns credit score information was added for a subset of firms that completed the survey.
- To be eligible for the survey, a business must be operating at the time of the survey and a for-profit firm with employees.
- The firm must have borrowed during the specified period through a line of credit or loan. Following previous studies, firms in the finance industry were ineligible.



FINDINGS

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Loan Outcomes

Exhibit1A Measures: Race and Gender

	Race						Gender	
	White	Hispanic	Asian	Black	Native	Total	Man Owned	Woman Owned
Mean Value								
Loan Rate percent	6.74	8.74	9.16	8.60	7.33	7.86	7.14	10.35
Loan Spread (Loan Rate - Prime Rate) percent	1.722	3.121	3.866	3.374	2.089	2.603	1.99	4.88
Collateral Value Relative to Loan (Intervalled*)	1.490	1.992	1.869	1.841	1.643	1.727	1.701	1.746
N	992	649	320	434	389	2,784	2,065	327

*The survey asked the firm its location in six intervals of collateral relative to the amount of credit granted: 0, 1 – 50%, 51 – 99%, 100%, 101 – 150%, or greater than 150%.

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Loan Outcomes

(Cont.)

Exhibit1B Measures: Collateral

	Race						Gender	
Collateral Requirement	White	Hispanic	Asian	Black	Native	Total	Man-Owned	Woman-Owned
Required Collateral (vs. Not)	0.737	0.741	0.784	0.719	0.679	0.732	0.728	0.676
More Collateral than Loan Amount	0.057	0.191	0.106	0.180	0.121	0.122	0.121	0.153
Blanket Lien Required	0.296	0.507	0.431	0.565	0.265	0.398	0.341	0.459
Business Assets as Collateral	0.735	0.490	0.734	0.712	0.440	0.633	0.653	0.563
Personal Assets as Collateral	0.536	0.589	0.581	0.567	0.450	0.546	0.527	0.492
Business & Personal Assets as Collateral	0.528	0.367	0.550	0.560	0.270	0.462	0.467	0.401
External Party Required to Sign	0.387	0.676	0.731	0.829	0.730	0.611	0.571	0.667
Sample Size (N)	992	649	320	434	389	2,784	2,065	327

SUMMARY

White-owned firms

- Paid the lowest interest rates.
- Committed the least collateral relative to the loan amount, were least often required to commit more collateral than the amount of the loan, and least often required by the lender to have an external party sign for the loan.
- Were the most satisfied with the credit they received.



Comparison Process

Minority-Owned vs. White-Owned Firms in Loan Pricing

- Separate Comparisons:
  Each minority group is compared individually to white-owned firms.
- Indicator Variable:
  An indicator variable for each minority group is included, capturing the loan rate difference between the minority and white-owned firms.
- Sequential Analysis:
  The minority-white loan pricing difference is analyzed by sequentially adding control variables to examine the impact on loan rate disparities.

Control Variables

Firm Characteristics

Category	Control Variables
Location & Industry	- State of Firm's Headquarters - Industry
Firm Profile	- Business Age - Sales Level (categories) - Assets Level (categories) - Family Business - Limited Liability Protection
Owner Characteristics	- Most Responsible Owner's Experience - Most Responsible Owner's Age - Most Responsible Owner's Percentage Ownership
Financial Health	- Firm Suffered Loss in 2021 - Revenue Stability (2021-2022) - Employee Stability (2021-2022) - In Good or Very Good Condition at Year-End 2022
Credit Profile	- Credit Score - Duns Credit Rating - Woman-Majority-Owned (for racial analysis) - Racial-Majority-Owned (for gender analysis)

Loan Characteristics

Category	Control Variables
Loan Type & Purpose	- Loan vs. Line of Credit - Purpose of Loan (Debt Consolidation) - Fixed Rate vs. Variable Rate
Loan Details	- Year and Month of Loan - Term of the Loan (in months)

Lender Characteristics

Category	Control Variables
Lender Type	- Large Bank (deposits > $10 billion) - Small Bank - Credit Union - CDFI - Fintech Lender - Nonbank Finance Company
Lender-Firm Relationship	- Years of Relationship with Firm - Previous Lending Experience
Geographic Market Factors	- Bank Deposit Concentration Index in County - Number of Bank Branches in County

Selected Firm Characteristics

Exhibit 2

	Race						Gender	
Firm Attribute	White	Hispanic	Asian	Black	Native	Total	Man-Owned	Woman-Owned
Business Age (years)	10.036	13.448	11.709	11.251	9.882	11.192	10.105	13.156
Most Responsible Owner's Experience (years)	8.823	9.442	10.131	11.501	10.064	9.709	9.252	11.115
Most Responsible Owner's Age (years)	42.392	43.846	48.184	41.180	41.460	43.078	42.118	48.110
Most Responsible Owner's Ownership Percentage	77.505	42.542	54.975	53.901	65.388	61.392	64.928	57.043
Sales Value (in $10,000)	897.157	1308.918	906.117	748.324	1390.479	1039.904	1018.502	1060.830
Asset Value (in $10,000)	1608.683	1619.476	799.648	1583.986	2079.251	1580.108	1594.398	1164.278
Sample Size (N)	992	649	320	434	389	2,784	2,065	327

Firm Condition

White Firms

- Report the highest fraction of firms with the same or higher revenue in 2022 vs. 2021.
- Have the highest fraction of firms with the same or more employees in 2022 vs. 2021.
- Show the highest credit rating scores.
- Report the lowest fraction of firms in good or better condition at year-end 2022.

Black and Hispanic Firms

- Have the lowest credit score profile

Other Traits

- Mixed across groups; no group stands out as significantly better or worse in other firm measures

Quantifying Impact of Race and Gender on Interest Rates and Collateral

- *I* = interest rate charged to borrowing firms
  I is based on a set of controls (attributes) that gauge the lender's risk:

$$I = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ .... + \beta_N X_N + \ \beta_R \text{Race} \ + \beta_G \text{Gender} \qquad (1)$$

- β_0 is the base interest rate charged
- β_j (j = 1 through N) is the coefficient reflecting the effect of attribute j on the interest rate. X_j is the firm's quantity of attribute j.
- Mispricing indicated if β_R or β_G is statistically different from zero.
- Estimate each β_i through ordinary least squares regression.

  For Collateral, change *I* to *C* in the model above. *C* and β_j are estimated using model (1) with a different form of regression.

Exhibit 3

Regressions Controlling for Different Characteristics

Minority v. White Firms and Male-Owned vs. Female Owned Firms

- Significance levels:
  - p < 0.10 (*)
  - P < 0.05 (**)
  - P < 0.01 (***)

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	Comparison	Model 1	Model 2	Model 3	Model 4	Model 5
Hispanic	Panel A: Hispanic vs. White	2.0026**	2.3430**	2.6620**	2.8372***	2.9087***
		(0.9234)	(1.0678)	(0.9907)	(0.9854)	(0.9956)
	Sample Size (N)	1641	1641	1641	1641	1641
Black	Panel B: Black vs. White	1.8639***	1.9852***	2.1188***	2.0053***	3.0893***
		(0.4687)	(0.5124)	(0.7415)	(0.6930)	(0.8492)
	Sample Size (N)	1426	1426	1426	1426	1426
Asian	Panel C: Asian vs. White	2.4219***	3.1231***	3.1949***	2.8458***	2.8815***
		(0.7679)	(0.9138)	(1.0042)	(0.9661)	(0.8325)
	Sample Size (N)	1312	1312	1312	1312	1312
Native American	Panel D: Native vs. White	0.5918	1.0220**	0.7642*	0.6510	1.1290
		(0.4708)	(0.4383)	(0.4459)	(0.4468)	(1.0911)
	Sample Size (N)	1381	1381	1381	1381	1381
Women	Panel E: Women vs. Men	3.2043***	3.1645***	2.4638***	2.1873***	2.1702***
		(0.8197)	(0.8037)	(0.5961)	(0.5836)	(0.5645)
	Sample Size (N)	2392	2392	2392	2392	2392

Control Variables by Model

Control Variable	Included in Model
State and Time Fixed Effects	2, 3, 4, 5
Firm Characteristics	3, 4, 5
Loan Characteristics	4, 5
Lender Characteristics	5

Exhibit 4

Split Sample Regressions:

Minority - White Interest Rate Differences

	Comparison	Hispanics	Blacks	Asians	Natives
A	**Panel A: By Relationship Length with Lender**				
	Less than or equal to 5 years	3.3312*	1.0837	0.8391	0.5346
		(1.6622)	(0.9714)	(1.8169)	(1.4756)
	N	926	844	817	863
	More than 5 years	2.3477**	3.0606***	3.8078***	1.3801
		(0.9785)	(0.9788)	(1.0411)	(1.0282)
	N	715	582	495	518
B	**Panel B: Type of Credit**				
	Loan	2.4803**	2.5289***	3.0594***	0.8267
		(0.9285)	(0.8789)	(1.0276)	(1.1318)
	N	1446	1267	1166	1233
	Line of Credit	0.4809	4.1107***	-0.8806	2.8035
		(1.7546)	(3.3065)	(1.4159)	(1.8576)
	N	195	159	146	148
C	**Panel C: New Credit vs. Renewal**				
	New Credit	2.4974***	2.0964**	1.5817	-0.1018
		(0.7778)	(0.9057)	(0.9831)	(0.7589)
	N	1270	1199	1068	1128
	Credit Renewal	2.9905***	5.6609***	4.6012***	6.0234***
		(2.2403)	(1.3237)	(1.1687)	(1.8520)
	N	371	227	244	253

Notes:

- Standard Errors in Parentheses
- Statistical Significance:
  - $p < 0.10$ (*)
  - $p < 0.05$ (**)
  - $p < 0.01$ (***)

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Interest Rates

Minority-White Interest Rate Differences **Across Lenders**

Comparison	Hispanics vs. Whites	Blacks vs. Whites	Asians vs. Whites	Natives vs. Whites	Women vs. Men
Minority	3.5731***	0.5895	2.6551***	0.7244	0.8331
(Standard Error)	(1.2329)	(1.0616)	(0.8840)	(1.1117)	(0.6866)
Small Bank * Minority	3.0689	4.5001	1.4790	14.0013***	3.9394
(Standard Error)	(2.3661)	(3.3365)	(2.6590)	(1.5123)	(2.9026)
Credit Union * Minority	1.5382	3.1969*	0.3149	2.3315	4.4811*
(Standard Error)	(1.5683)	(1.6556)	(2.8489)	(3.5924)	(2.4053)
CDFI * Minority	-2.9093**	1.9211	2.3406	-1.0608	5.9552*
(Standard Error)	(1.3765)	(1.5238)	(4.2601)	(2.9209)	(3.2581)
FinTech * Minority	-2.3932	12.7471***	0.1324	-0.7767	9.0033**
(Standard Error)	(1.9775)	(2.6414)	(1.7479)	(2.0745)	(3.7717)
Nonbank * Minority	-1.7110	2.6211**	-	-0.3626	-0.1703
(Standard Error)	(2.0830)	(1.0503)	(.)	(1.6183)	(1.8867)
Control Variables	All	All	All	All	All
Sample Size (N)	1,641	1,426	1,312	1,381	2,392

Minority-White difference at large banks

Lender i-large bank difference in minority-white interest rate

Notes:
- Dependent Variable: Loan Rate
- Significance levels:
  - p < 0.10 (*)
  - P < 0.05 (**)
  - P < 0.01 (***)

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SUMMARY: Interest Rate Differences Across Lenders

Black-owned firms

- Paid higher rates than their white counterparts at credit unions, fintech lenders and nonbank finance companies. Black owned category was not statistically significant in loans from large banks, small banks and CDFIs.

Hispanic-owned firms

- Paid higher interest rates than their white counterparts at all of the six lender types except CDFIs.

Asian-owned firms

- Paid higher interest rates than their white counterparts at large banks. There were too few cases in the sample to make inferences about the other lenders to Asian firms.

Women-owned firms

- Paid higher interest rates than male counterparts at credit unions, CDFIs, and fintech lenders. We did not find that gender affected the interest rate at large banks, small banks and nonbank finance company loans

Collateral (cont.)

Minority vs. White Firms & Women-Owned vs. Man-Owned Firms

	Race				Gender
Dependent Variable	Hispanic vs. White	Black vs. White	Asian vs. White	Native vs. White	Woman vs. Man
Required Blanket Lien	0.0109	0.1020*	-0.1180	-0.0953*	0.0339
	(0.0453)	(0.0600)	(0.1016)	(0.0527)	(0.0289)
Required Business Assets as Collateral	-0.2607***	-0.0270	-0.0173	-0.2427***	-0.0435
	(0.0536)	(0.0722)	(0.0887)	(0.0445)	(0.0337)
Required Personal Assets as Collateral	0.0103	0.0145	0.0165	-0.0135	-0.0374*
	(0.0474)	(0.0814)	(0.0845)	(0.0500)	(0.0199)
Required Both Business and Personal Assets as Collateral	-0.1814***	0.0002	-0.0046	-0.1756***	-0.0361
	(0.0602)	(0.0836)	(0.0890)	(0.0437)	(0.0254)
Lender Required External Party to Sign	0.1184**	0.2589***	0.2069***	0.2609***	0.0023
	(0.0510)	(0.0350)	(0.0413)	(0.0393)	(0.0287)
Sample Size (N)	1641	1426	1312	1381	2392
Control Variables	All	All	All	All	All

Notes:

- Dependent Variable: Loan Collateral Requirements
- Standard errors in parentheses
- Significance levels:
  - p < 0.10 (*)
  - P < 0.05 (**)
  - P < 0.01 (***)

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IV. Conclusion

A: Discussion

Disparities in borrowing experiences extend beyond economics, fueling broader inequalities and perpetuating historical discrimination.

Addressing these issues requires joint efforts from policymakers, regulators, lenders, and other stakeholders to improve credit access and reduce discrimination in lending.

Conclusion B

Total Annual Difference in Interest **$8 Billion**

Additional Interest Paid From Mispricing

	A	B	C	D	E	F	G
				A*B*C*			D*E*F
	2021 Census ABS U.S. Total Employer Firms	2022 Fed Res SBCS Fraction Applied For Credit	2022 Fed Res SBCS Fraction Approved#	2022 Number of Approved Loans	$ Estimated Average Loan Size##	Survey Estimated Mispriced Interest Rate Difference %	$ Total Annual Difference in Interest (000)
White	4,409,715	0.40	0.820	1,446,387	414,796		
Hispanic	406,086	0.44	0.680	121,501	336,158	3.34	1,363,765
Asian	637,539	0.48	0.690	211,153	776,816	3.96	6,502,357
Black	149,326	0.40	0.500	29,865	276,518	2.82	232,682
Native	28,338	0.46	0.560	7,300	489,811	0.00	0
							8,098,804
	#Partially approved plus fully approved						
	##Fiscal year 2023 average SBA 7(A) loan for each racial group						

Notes:

- **Sources:** Census ABS (2021), Fed Reserve SBCS (2022)
- **Calculation Details:**
  - Column D, E, F contribute to final total in G
  - **#** Partially approved plus fully approved applications included.
  - **##** Fiscal year 2023 average SBA 7(a) loan size for each racial group.

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IV. Appendix

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Opinions of Borrowing Firms

Q35:
"Overall, how satisfied were you with the credit services offered by lender that provided you this credit?"

	Race					Gender	
Percent	White	Hispanic	Asian	Black	Native	Woman	Man
Very satisfied	35.61	23.61	20.94	17.97	22.11	25.99	26.36
Satisfied	53.92	40.10	43.44	42.17	41.13	40.67	46.89
Neither satisfied nor dissatisfied	7.02	18.54	19.69	20.05	19.28	20.18	13.91
Dissatisfied	2.34	13.63	11.56	11.29	11.83	11.31	8.46
Very Dissatisfied	1.12	4.12	4.38	8.53	5.66	1.83	4.38
Total	100	100	100	100	100	100	100

Opinions of Borrowing Firms (cont.)

Q37:
"Compared to the average business owner with the same business risk factors and other attributes, how would you describe your experiences in applying for a loan or line of credit?"

	Race					Gender	
Percent	White	Hispanic	Asian	Black	Native	Woman	Man
Experienced more difficulty in borrowing	8.33	28.55	32.81	28.80	24.87	28.17	19.95
Experienced about the same difficulty in borrowing	32.11	37.81	45.43	40.32	49.74	43.96	37.91
Experienced less difficulty in borrowing	56.91	29.63	19.24	24.19	20.73	25.39	37.52
Don't know	2.64	4.01	2.52	6.68	4.66	2.48	4.62
Total	100	100	100	100	100	100	100

SUMMARY: Opinions of Borrowing Firms

Minority and women-owned firms

- Found going through the credit process more difficult
- Were less satisfied with their loan terms
- More often felt that their loan terms were mispriced, than were White and men owners.

Opinions of Borrowing Firms (cont.)

Q39:
"Mispricing occurs when the lender's terms (interest rate, collateral, etc..) do not objectively match the risk and other attributes of the business being lent the money. The terms are more onerous or less onerous than those in a fairly priced market. Everything considered (interest rate, collateral, terms of loan, etc.), do you feel you have experienced mispricing?"

	Race					Gender	
Percent	White	Hispanic	Asian	Black	Native	Woman	Man
Yes	19.08	65.28	70.53	76.04	58.44	69.02	42.97
No	80.10	30.09	24.76	21.43	40.78	28.83	54.54
Don't Know	0.82	4.63	4.70	2.53	0.78	2.15	2.49
Total	100	100	100	100	100	100	100

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Robustness Tests Using Weights

Sample Composition

- Our sample of 2,784 firms includes a higher concentration from more populated states.
- However, it does not fully mirror the U.S. distribution of minority and white-owned firms by state and industry.

Weighted Analyses

- We conducted two separately weighted analyses to enhance representativeness.
- In both analyses, weights were applied to reflect the national distribution of white-owned and minority-owned firms across different states.

Excerpts from Weighted Regressions

Using Race-State-Industry of Gender-State-Industry Weights

Notes:

- Dependent Variable: Loan Rate and Requirement for External Party Signature
- Standard errors in parentheses
- Significance levels:
  - p < 0.10 (*)
  - P < 0.05 (**)
  - P < 0.01 (***)

	Race				Gender
Dependent Variable	Hispanics vs. Whites	Blacks vs. Whites	Asians vs. Whites	Natives vs. Whites	Women vs. Men
Loan Rate	3.7351***	3.3082***	3.9554***	1.3963	2.0956***
	(1.2385)	(0.6926)	(0.9551)	(0.9967)	(0.4493)
Lender Required External Party to Sign	0.1114***	0.3084***	0.1926***	0.2331***	0.0168
	(0.0411)	(0.0449)	(0.0534)	(0.0449)	(0.0385)
Sample Size (N)	1,622	1,404	1,294	1,360	2,392

Dependent Variable	Hispanics vs. Whites	Blacks vs. Whites	Asians vs. Whites	Natives vs. Whites	Women vs. Men
Loan Rate	3.3733***	2.0552***	5.0559***	1.3299	2.1065***
	(0.9317)	(0.6055)	(1.3493)	(1.1203)	(0.7639)
Lender Required External Party to Sign	0.1523***	0.2703***	0.1563***	0.2693***	-0.0125
	(0.0333)	(0.0486)	(0.0487)	(0.0478)	(0.0499)
Sample Size (N)	1,622	1,404	1,294	1,360	2,392

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THANK YOU

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