

Internet Appendix
Public Disclosure and Consumer Financial Protection

This appendix provides supplemental materials that support the manuscript “Public Disclosure and Consumer Financial Protection.”

TABLE A1
Effect of Mortgage Complaint Disclosure on Mortgage Applications – Alternative Definitions of Local Markets

Note: This table reports the effect of mortgage complaint disclosure on mortgage applications, under three alternative definitions of a local market: a ZIP Code area, an MSA, and a state. The coefficients and corresponding t-statistics are estimated from pooled regressions of the dependent variables shown in each column header on the independent variables listed. M_APPLICATION_NUM is the log of the number of mortgage applications to a bank in a local market-year. M_APPLICATION_DOLLAR is the log of the total dollar amount (in thousands) of mortgage applications to a bank in a local market-year. M_COMPLAINT is the number of mortgage complaints as of the disclosure date from a local market against a bank divided by the number of mortgage originations by the bank in the local market in 2011. POST is an indicator equal to one for years in and after 2013. APPRV_RATE is the mortgage approval rate of a bank in a local market in year $t-1$. BRANCH_PRES is an indicator equal to one for the presence of a branch of the bank in the local market in year $t-1$. BRANCH_DEP is the log of total deposits collected by a bank's branches in a given local market in year $t-1$. Bank-year fixed effects, bank-local market fixed effects, and local market-year fixed effects are included. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

Panel A: Analysis at the Bank-ZIP-year Level

| | 1 | 2 |
|----------------------|----------------------|----------------------|
| Dependent variable = | M_APPLICATION_NUM | M_APPLICATION_DOLLAR |
| M_COMPLAINT×POST | -0.507*** (-8.71) | -0.429*** (-6.20) |
| APPRV_RATE | 0.126 (1.55) | 0.111** (2.10) |
| BRANCH_DEP | 0.033 (1.25) | 0.039 (0.72) |
| BRANCH_PRES | -0.675** (-2.36) | -0.783 (-1.21) |
| Bank-year FE | Yes | Yes |
| Bank-ZIP FE | Yes | Yes |
| ZIP-year FE | Yes | Yes |
| Bank clustering | Yes | Yes |
| Observations | 44808 | 44808 |
| R ² | 0.8105 | 0.7346 |

Panel B: Analysis at the Bank-MSA-year Level

| | 1 | 2 |
|----------------------|----------------------|----------------------|
| Dependent variable = | M_APPLICATION_NUM | M_APPLICATION_DOLLAR |
| M_COMPLAINT×POST | -0.519*** (-6.60) | -0.496*** (-7.08) |
| APPRV_RATE | -0.097 (-0.50) | -0.078 (-0.42) |
| BRANCH_DEP | 0.003 (0.28) | -0.000 (-0.02) |
| BRANCH_PRES | -0.117 (-0.73) | -0.048 (-0.28) |
| Bank-year FE | Yes | Yes |
| Bank-MSA FE | Yes | Yes |
| MSA-year FE | Yes | Yes |
| Bank clustering | Yes | Yes |
| Observations | 20502 | 20502 |
| R ² | 0.7246 | 0.6776 |

Panel C: Analysis at the Bank-state-year Level

| | 1 | 2 |
|----------------------|----------------------|----------------------|
| Dependent variable = | M_APPLICATION_NUM | M_APPLICATION_DOLLAR |
| M_COMPLAINT×POST | -0.356*** (-3.19) | -0.212* (-1.90) |
| APPRV_RATE | -0.038 (-0.22) | -0.245 (-1.29) |
| BRANCH_DEP | 0.041*** (3.31) | 0.028*** (2.77) |
| BRANCH_PRES | -0.165 (-1.10) | -0.054 (-0.42) |
| Bank-year FE | Yes | Yes |
| Bank-state FE | Yes | Yes |
| State-year FE | Yes | Yes |
| Bank clustering | Yes | Yes |
| Observations | 4549 | 4549 |
| R ² | 0.8072 | 0.7491 |

TABLE A2
Complaints as of the Disclosure Date (December 1, 2011 to March 28, 2013)

Note: In this table, we break down mortgage complaints and credit card complaints by issue. When filing a complaint, a consumer has to choose one from a pre-set list of issues. Other complaints are broken down by product.

| Product | Frequency |
|--|---------------|
| Mortgage Complaints | |
| Loan modification, collection, foreclosure | 27,274 |
| Loan servicing, payments, escrow account | 10,691 |
| Application, originator, mortgage broker | 3,137 |
| Settlement process and costs | 1,450 |
| Credit decision, underwriting | 1,019 |
| Other mortgage issues | <u>1,286</u> |
| Total mortgage complaints | 44,857 |
| Credit Card Complaints | |
| Billing-related disputes | 3,376 |
| Credit-related (credit determination, credit line, credit reporting) | 2,666 |
| APR or interest rate | 1,956 |
| Collection debt dispute, practices | 1,534 |
| Fee-related | 1,458 |
| Identity theft, fraud, embezzlement | 1,233 |
| Closing/canceling account | 1,179 |
| Other credit card issues | <u>5,257</u> |
| Total credit card complaints | 18,659 |
| Other Complaints | |
| Bank account or service | 14,705 |
| Consumer loan | 2,351 |
| Student loan | <u>1,108</u> |
| Total other complaints | 18,164 |
| Total Complaints | 81,680 |

TABLE A3

Effect of Mortgage Complaint Disclosure on Mortgage Applications – Alternative Designs

Note: The table reports the effect of mortgage complaint disclosure on mortgage applications using alternative designs. Panel A reports the results using a test variable that varies over time during 2012-2015.

M_APPLICATION_NUM is the log of the number of mortgage applications to a bank in a county-year.

M_APPLICATION_DOLLAR is the log of the total dollar amount (in thousands) of mortgage applications to a bank in a county-year. M_COMPLAINT_{*i,c,t*} is the number of mortgage complaints from county *c* against bank *i* as of March 28 in year *t* divided by the number of mortgage originations by the bank in the county during 2011 through year *t*-1. Note that since the disclosed mortgage complaints date back to December 1 (2011), we cannot compute M_COMPLAINT_{*i,c,t*} for year 2011 and thus exclude that year from the analysis. POST is an indicator equal to one for years in and after 2013. APPRV_RATE is the mortgage approval rate of a bank in a county in year *t*-1.

BRANCH_PRES is an indicator equal to one for the presence of a branch of the bank in the county in year *t*-1.

BRANCH_DEP is the log of total deposits collected by a bank’s branches in a given county in year *t*-1. POST0, POST1, and POST2 are indicators set to one for 2013, 2014, and 2015, respectively.. Bank-year fixed effects, bank-county fixed effects, and county-year fixed effects are included. Panel B reports the results using a bank-level measure of mortgage complaints as the test variable during the original sample period of 2011-2015.

M_COMPLAINT_{*i*} is the total number of mortgage complaints against bank *i* as of the disclosure date, March 28, 2013, divided by the total number of mortgage originations by the bank in 2011. Bank fixed effects and county-year fixed effects are included in columns 1 and 3. Bank-county fixed effects and county-year fixed effects are included in columns 2 and 4. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

Panel A: Allowing Mortgage Complaints to Vary over Time

| Dependent variable = | 1 | 2 | 3 | 4 |
|---|---|----------------------|--|----------------------|
| | M_APPLICATION_NUM _{<i>i,c,t</i>} | | M_APPLICATION_DOLLAR _{<i>i,c,t</i>} | |
| M_COMPLAINT _{<i>i,c,t</i>} | -0.239** (-2.69) | -0.140 (-1.61) | -0.243** (-2.49) | -0.159 (-1.65) |
| M_COMPLAINT _{<i>i,c,t</i>} ×POST _{<i>t</i>} | -0.720*** (-5.21) | | -0.637*** (-4.96) | |
| M_COMPLAINT _{<i>i,c,t</i>} ×POST0 | | 0.005 (0.04) | | 0.002 (0.01) |
| M_COMPLAINT _{<i>i,c,t</i>} ×POST1 | | -1.120*** (-6.32) | | -1.047*** (-6.55) |
| M_COMPLAINT _{<i>i,c,t</i>} ×POST2 | | -1.076*** (-6.11) | | -0.899*** (-5.87) |
| APPRV_RATE _{<i>i,c,t-1</i>} | 0.032 (0.28) | 0.046 (0.45) | 0.109 (1.03) | 0.122 (1.39) |
| BRANCH_PRES _{<i>i,c,t-1</i>} | 0.090 (0.45) | 0.059 (0.30) | 0.035 (0.20) | 0.005 (0.03) |
| BRANCH_DEP _{<i>i,c,t-1</i>} | 0.002 (0.12) | 0.005 (0.26) | 0.004 (0.25) | 0.007 (0.41) |
| Bank-year FE | Yes | Yes | Yes | Yes |
| Bank-county FE | Yes | Yes | Yes | Yes |
| County-year FE | Yes | Yes | Yes | Yes |
| Bank clustering | Yes | Yes | Yes | Yes |
| Observations | 30627 | 30627 | 30627 | 30627 |
| R ² | 0.7589 | 0.7742 | 0.6973 | 0.7093 |

Panel B: Using Bank-level Mortgage Complaints

| Dependent variable = | 1 | 2 | 3 | 4 |
|--|---|---|--|--|
| | M_APPLICATION_NUM _{<i>i,c,t</i>} | M_APPLICATION_NUM _{<i>i,c,t</i>} | M_APPLICATION_DOLLAR _{<i>i,c,t</i>} | M_APPLICATION_DOLLAR _{<i>i,c,t</i>} |
| M_COMPLAINT _{<i>i</i>} × POST _{<i>t</i>} | -3.520** (-2.08) | -6.735*** (-3.58) | -2.960 (-1.65) | -6.436*** (-3.60) |
| ROA _{<i>i,t</i>} | -2.238 (-0.79) | 1.598 (0.50) | -2.773 (-1.05) | 0.950 (0.32) |
| ASSET _{<i>i,t</i>} | 0.189*** (3.21) | 0.252*** (3.17) | 0.217*** (3.75) | 0.273*** (3.55) |
| EQUITY _{<i>i,t</i>} | -2.610** (-2.19) | -3.946** (-2.17) | -3.167** (-2.32) | -3.056* (-1.98) |
| DEPOSIT _{<i>i,t</i>} | -0.127** (-2.49) | -0.187*** (-3.04) | -0.149*** (-2.97) | -0.177*** (-3.14) |
| APPRV_RATE _{<i>i,c,t-1</i>} | 0.312** (2.41) | 0.278 (0.94) | 0.519*** (4.52) | 0.383* (1.70) |
| BRANCH_DEP _{<i>i,c,t-1</i>} | 0.284*** (12.83) | -0.020 (-0.76) | 0.262*** (13.46) | -0.003 (-0.18) |
| BRANCH_PRES _{<i>i,c,t-1</i>} | -2.770*** (-11.21) | 0.466 (1.65) | -2.579*** (-11.23) | 0.226 (1.12) |
| Bank FE | Yes | No | Yes | No |
| Bank-county FE | No | Yes | No | Yes |
| County-year FE | Yes | Yes | Yes | Yes |
| Bank clustering | Yes | Yes | Yes | Yes |
| Observations | 39263 | 39263 | 39263 | 39263 |
| R ² | 0.3557 | 0.4930 | 0.3227 | 0.4671 |

Table A4
Sensitivity Tests

Note: This table presents the effect of mortgage complaint disclosure on mortgage applications using alternative samples, test variables, dependent variables, and selection criteria. The coefficients and corresponding t-statistics in parentheses are estimated from pooled regressions of the dependent variables shown in each column header on the independent variables listed. M_APPLICATION_NUM is the log of the number of mortgage applications to a bank in a county-year. M_COMPLAINT is the number of mortgage complaints as of the disclosure date from a county against a bank divided by the number of mortgage originations by the bank in the county in 2011. POST is an indicator equal to one for years in and after 2013. Panel A shows the results using three alternative samples. Panel B shows the results using three alternative measures of M_COMPLAINT. Panel C shows the results using two alternative dependent variables. M_APPLICATION_NUM_SH is a bank's market share of the number of mortgage applications within a county-year. M_APPLICATION_DOLLAR_SH is a bank's market share of the dollar amount of mortgage applications within a county-year. Panel D shows the results using three alternative cutoffs for sample selection. The baseline control variables, bank-year fixed effects, bank-county fixed effects, and county-year fixed effects are included. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

Panel A: Alternative Samples

| Dependent variable = | M_APPLICATION_NUM _{i,c,t} | | |
|--|------------------------------------|------------------------------|---|
| | 1 | 2 | 3 |
| | Constant sample | Sample period from 2012-2014 | At least one complaint in a county-year |
| M_COMPLAINT _{i,c} × POST _t | -0.286*** (-3.49) | -0.401*** (-3.53) | -0.636*** (-5.48) |
| Baseline Controls | Yes | Yes | Yes |
| Bank-year FE | Yes | Yes | Yes |
| Bank-county FE | Yes | Yes | Yes |
| County-year FE | Yes | Yes | Yes |
| Bank clustering | Yes | Yes | Yes |
| Observations | 22350 | 24570 | 34440 |
| R ² | 0.8804 | 0.7829 | 0.7567 |

Panel B: Alternative Test Variables

| Dependent variable = | M_APPLICATION_NUM _{i,c,t} | | |
|--|------------------------------------|--|---|
| | 1 | 2 | 3 |
| Measure of M_COMPLAINT _{i,c} = | Log of mortgage complaints (#) | Scaled by # of the 3-year average of loan originations | Scaled by the amount of loan originations |
| M_COMPLAINT _{i,c} × POST _t | -0.096*** (-5.69) | -0.642*** (-5.53) | -1.227*** (-5.94) |
| Baseline Controls | Yes | Yes | Yes |
| Bank-year FE | Yes | Yes | Yes |
| Bank-county FE | Yes | Yes | Yes |
| County-year FE | Yes | Yes | Yes |
| Bank clustering | Yes | Yes | Yes |
| Observations | 39263 | 39263 | 39263 |
| R ² | 0.7525 | 0.7526 | 0.7530 |

Panel C: Alternative Dependent Variables

| Dependent variable = | 1 | 2 |
|--|--|---|
| | M_APPLICATION_NUM_SH _{<i>i,c,t</i>} | M_APPLICATION_DOLLAR_SH _{<i>i,c,t</i>} |
| M_COMPLAINT _{<i>i,c</i>} × POST _{<i>t</i>} | -0.021*** (-2.64) | -0.022*** (-2.78) |
| Baseline Controls | Yes | Yes |
| Bank-year FE | Yes | Yes |
| Bank-county FE | Yes | Yes |
| County-year FE | Yes | Yes |
| Bank clustering | Yes | Yes |
| Observations | 39263 | 39263 |
| R ² | 0.6292 | 0.6020 |

Panel D: Alternative Selection Criteria

| Dependent variable = | M_APPLICATION_NUM _{<i>i,c,t</i>} | | |
|--|--|--|---|
| | 1 | 2 | 3 |
| | # of annual mortgage originations ≥ 30 | # of annual mortgage originations ≥ 70 | # of annual mortgage originations ≥ 100 |
| M_COMPLAINT _{<i>i,c</i>} × POST _{<i>t</i>} | -0.492*** (-4.68) | -0.760*** (-5.91) | -0.852*** (-6.35) |
| Baseline Controls | Yes | Yes | Yes |
| Bank-year FE | Yes | Yes | Yes |
| Bank-county FE | Yes | Yes | Yes |
| County-year FE | Yes | Yes | Yes |
| Bank clustering | Yes | Yes | Yes |
| Observations | 53252 | 31638 | 22638 |
| R ² | 0.7350 | 0.7645 | 0.7771 |

TABLE A5
Applications to FHA-insured and VA-guaranteed Loans Only

Note: This table reports the results that rule out the possibility that the adoption of the Ability-to-Repay and Qualified Mortgage Rule in 2014 drives the primary findings using applications for FHA-insured and VA-guaranteed loans, which are exempt from the rule. The coefficients and corresponding t-statistics are estimated from pooled regressions of the dependent variables shown in each column header on the independent variables listed. M_APPLICATION_NUM is the log of the number of mortgage applications for FHA-insured and VA-guaranteed loans to a bank in a county-year. M_COMPLAINT is the number of mortgage complaints as of the disclosure date from a county against a bank divided by the number of mortgage originations by the bank in the county in 2011. POST is an indicator equal to one for years in and after 2013. APPRV_RATE is the mortgage approval rate of a bank in a county in year $t-1$. BRANCH_PRES is an indicator equal to one for the presence of a branch of the bank in the county in year $t-1$. BRANCH_DEP is the log of total deposits collected by a bank's branches in a given county in year $t-1$. Bank-year fixed effects, bank-county fixed effects, and county-year fixed effects are included. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

| Dependent variable = | M_APPLICATION_NUM _{<i>i,c,t</i>} |
|--|---|
| M_COMPLAINT _{<i>i,c</i>} × POST _{<i>t</i>} | -0.832*** (-3.58) |
| APPRV_RATE _{<i>i,c,t-1</i>} | 0.494*** (3.05) |
| BRANCH_DEP _{<i>i,c,t-1</i>} | -0.011 (-0.43) |
| BRANCH_PRES _{<i>i,c,t-1</i>} | 0.195 (0.79) |
| Bank-year FE | Yes |
| Bank-county FE | Yes |
| County-year FE | Yes |
| Bank clustering | Yes |
| Observations | 39263 |
| R ² | 0.6712 |

TABLE A6
Cross-Sectional Analyses Based on Information Dissemination

Note: This table reports the effect of mortgage complaint disclosure on mortgage applications conditional on two partitioning variables related to the strength of information dissemination. M_APPLICATION_NUM is the log of the number of mortgage applications to a bank in a county-year. M_COMPLAINT is the number of mortgage complaints as of the disclosure date from a county against a bank divided by the number of mortgage originations by the bank in the county in 2011. POST is an indicator equal to one for mortgage application years in and after 2013. CH_GOOGLE_SVI is the state-level change in the Google Search Volume Index for the keyword “CFPB” during 12 months before and after the release date. CONSUMER_LOBBY is the number of consumer groups that are in favor of the public complaint database as expressed in their comment letters and have a local branch in a state, scaled by the state’s population in 2018. HIGH is an indicator equal to one for states that have the above-median levels of ΔGOOGLE_SVI and CONSUMER_LOBBY, respectively. The baseline control variables, bank-year fixed effects, bank-county fixed effects, and county-year fixed effects are included. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

| Dependent variable = | M_APPLICATION_NUM _{i,c,t} | |
|---|------------------------------------|----------------------|
| | 1 | 2 |
| Partitioning variable = | ΔGOOGLE_SVI | CONSUMER_LOBBY |
| M_COMPLAINT _{i,c} ×POST _t | -0.566*** (-4.67) | -0.529*** (-4.15) |
| M_COMPLAINT _{i,c} ×POST _t ×HIGH | -0.164** (-2.39) | -0.272*** (-4.84) |
| Baseline Controls | Yes | Yes |
| Bank-year FE | Yes | Yes |
| Bank-county FE | Yes | Yes |
| County-year FE | Yes | Yes |
| Bank clustering | Yes | Yes |
| Observations | 39263 | 39263 |
| R ² | 0.7526 | 0.7530 |

TABLE A7
Disciplinary Effect After Disclosing Credit Card Complaints

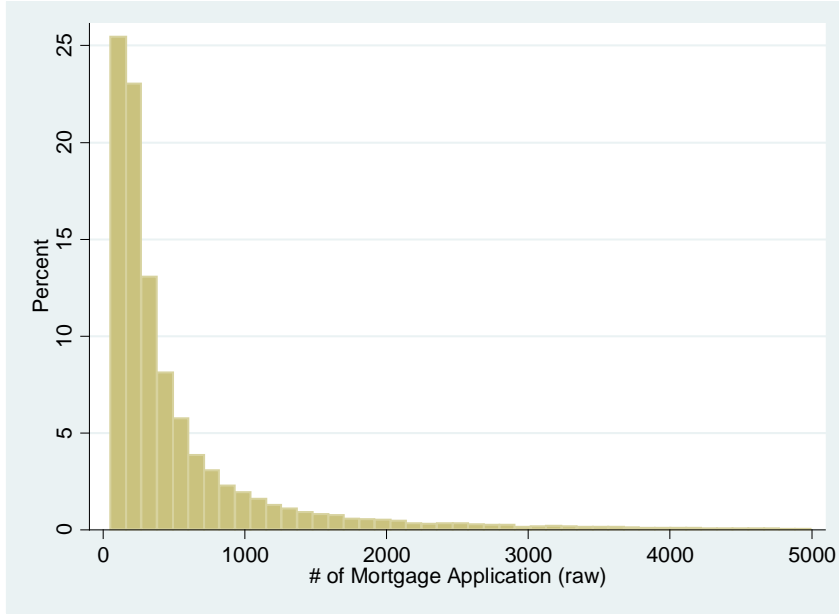
Note: This table presents the regression results using bank-county-month observations before the disclosure of mortgage complaints (March 2013). $M_COMPLAINT_{i,c,m}$ is the number of monthly mortgage complaints against a bank in a county in month m scaled by the number of mortgage originations by the bank in the county in that year. $POST_CC_m$ is an indicator equal to one for year-months in and after June 2012. Standard errors clustered by bank are presented in parentheses. *, **, and *** denote two-tailed statistical significance at 10%, 5%, and 1% levels, respectively.

| | $M_COMPLAINT_{i,c,m+1}$ |
|--|--------------------------|
| $M_COMPLAINT_{i,c,m}$ | 0.441*** (6.34) |
| $M_COMPLAINT_{i,c,m} \times POST_CC_m$ | 0.014 (1.65) |
| Bank Clustering | Yes |
| Observations | 25529 |
| R ² | 0.1918 |

FIGURE A1
Distribution of the Number of Mortgage Applications

Note: This figure shows the histogram of the number of mortgage applications measured at the bank-county-year level. Panel A shows the distribution of the number of mortgage applications (raw value), whereas Panel B shows the distribution after we take the log of the raw value.

Panel A: Number of Mortgage Applications (Raw Value)



Panel B: Log of the Number of Mortgage Applications

