# Appendix to Writing Sample

## Stress Testing, Lender Concentration and Credit Supply: Evidence from the US mortgage market

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| Variable Name | Variable Definition | Code in BHC Financial Information |
|---|---|---|
| **Total Assets** | | BHCP2170/ BHCK2170 |
| **Size** | Calculated as the log of total assets of the BHC | log(Total Assets) |
| **Equity** | Tier 1 Capital Ratio | BHCK3210 |
| **Nonperforming Loan Ratio** | Calculated as the ratio of nonperforming C&I loans to all comparable loans | $\frac{\text{BHCK1606+BHCK1607+BHCK1608}}{\text{BHDM1975+BHCK1410-BHDM1797-BHDM5367-BHDM5368}}$ |
| **Total Liabilities** | | BHCP2200+BHCP0279+BHCP2309+ BHCP2332+BHCP0368+BHCP4062+ BHCP2930+BHCP3605+BHBHCP3606+ BHCP3607 |
| **Total equity capital** | | BHCP3210 |
| **Leverage Ratio** | Total liabilities divided by total equity capital | Total Liabilities/ Total Equity Capital |
| **Liquidity Ratio** | Cash and Cash Equivalents divided by Total Assets | BHCP6775/ Total Assets |

Table A1: This table describes the variable definition and construction for BHC level controls.

**Source:** Federal Reserve Bank of Chicago

| Lien Status | County-level conforming Loan Limit (CLL) available via FHFA? | Loan Amount | Conforming Loan Indicator |
|---|---|---|---|
| 1 | Yes | $\leq CLL$ | C |
| | | $>$ CLL | NC |
| 2 | Yes | $\leq 0.5 \times CLL$ | C |
| | | $> 0.5 \times CLL$ | NC |
| 1 | No | $\leq$ lowest possible CLL for the state | C |
| | | $>$ highest possible CLL for the state | NC |
| | | $>$ lowest possible CLL for the state & $\leq$ highest possible CLL for the state | U |
| 2 | No | $\leq 0.5 \times$ lowest possible CLL for the state | C |
| | | $> 0.5 \times$highest possible CLL for the state | NC |
| | | $> 0.5 \times$lowest possible CLL for the state & $\leq 0.5 \times$ highest possible CLL for the state | U |

Table A2: This table describes the methodology for construction of the dummy variable describing whether a given loan in HMDA is conforming or jumbo using conforming loan limits from Federal Housing Finance Agency (FHFA), for HMDA data available prior to the year 2018. The constructed dummy variable has three categories: **conforming** (C), **jumbo** or **non-conforming** (NC) and **conforming status unknown** (U). Note also that data on conforming loan limit (CLL) is available at the county-level at an annual frequency. In cases where CLL data is not available for a particular county in a given year, the lowest possible CLL and highest possible CLL across all counties in that state (available via FHFA) are utilized to evaluate the conforming loan status of loans in that county.

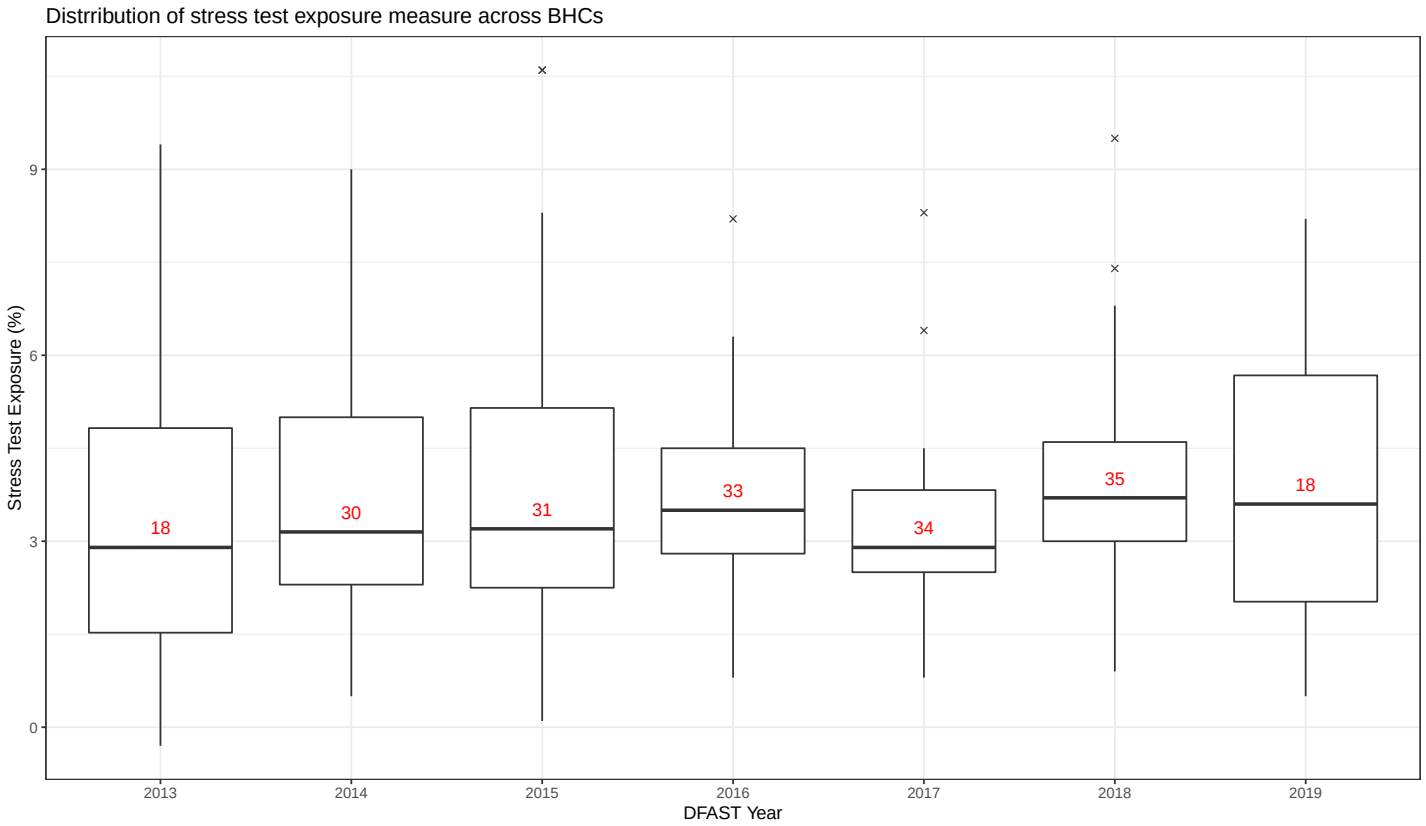


Fig. A1: Distribution of constructed stress text exposure measure using Tier 1 capital shortfall. The figure shows the cross-sectional distribution of stress test exposure for each year between 2013 and 2019. Note that the years correspond to the years in which DFAST results are announced, and accordingly are based on an assessment of portfolios for the previous years. The red label inside the boxplot represents the number of BHCs stress tested during that year's stress testing cycle under the "Severely Adverse" scenario. An "x" marks an outlier.

**Loan Level Regressions: Concentration Other**

$$\begin{aligned} Rejection_{i,l,c,t} = \beta_1 StresstestExposure_{l,t-1} + BHCControls_{l,t-1} \times CountyYearControls_{c,t-1} \\ + \beta_2 StresstestExposure_{l,t-1} \times ConcentrationOther_{l,c,t-1} + \eta' X_i + \gamma_{c,t} + \alpha_l + \epsilon_{i,l,c,t} \end{aligned} \tag{25}$$

$$\begin{aligned} Rejection_{i,l,c,t} = \beta_1 StresstestExposure_{l,t-1} + BHCControls_{l,t-1} \times CountyYearControls_{c,t-1} \\ + \beta_2 StresstestExposure_{l,t-1} \times ConcentrationOther_{l,c,t-1} + \eta' X_i + \gamma_{c,t} + \gamma'_{l,t} + \epsilon_{i,l,c,t} \end{aligned} \tag{26}$$

| **Dependent Variable:** Denial of loan application (dummy variable) | | | | |
|---|---|---|---|---|
| **All Loans** | (1) **CR4** | (2) **HHI** | (3) **CR4** | (4) **HHI** |
| | (1) | (2) | (3) | (4) |
| Stress Test Exposure | -0.003*** | -0.003** | - | - |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.002 | 0.002 | 0.003* | 0.004 |
| | (0.001) | (0.003) | (0.002) | (0.003) |
| Observations (N) | 11,543,895 | 11,543,895 | 11,543,895 | 11,543,895 |
| $R^2$ | 0.093 | 0.093 | 0.098 | 0.098 |
| **Jumbo Loans Only** | | | | |
| Stress Test Exposure | 0.01*** | 0.011*** | - | - |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.003*** | 0.007*** | 0.002** | 0.005** |
| | (0.001) | (0.002) | (0.001) | (0.002) |
| Observations (N) | 1,108,327 | 1,108,327 | 1,108,325 | 1,108,325 |
| R2 | 0.082 | 0.082 | 0.086 | 0.086 |
| **Conforming Loans Only** | | | | |
| Stress Test Exposure | -0.006*** | -0.006*** | - | - |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.001 | 0.001 | 0.003 | 0.003 |
| | (0.002) | (0.003) | (0.002) | (0.003) |
| Observations (N) | 10,433,657 | 10,433,657 | 10,433,656 | 10,433,656 |
| R2 | 0.098 | 0.098 | 0.104 | 0.104 |
| County X Year effects | Yes | Yes | Yes | Yes |
| BHC X County Controls | Yes | Yes | Yes | Yes |
| Bank-fixed effects | Yes | Yes | - | - |
| Bank Year FE | - | - | Yes | Yes |
| | ***$p$ <0.01 | **$p$ <0.05 | *$p$ <0.1 | |

Table A3: This table presents the results from equations (10) and (11). The regressions are run at the loan level. Standard errors are clustered at the county level and reported in parentheses. These empirical specifications utilize *ConcentrationOther* variable as constructed in equation (8). The sample utilized for mortgage loan application and loan origination ($ amount) is HMDA, which includes 30-year conventional mortgages originated for purchases of owner-occupied single family loans. Stress text exposure measure is constructed via publicly available data on DFAST stress tests by the Federal Reserve. BHC controls employed include total assets, tier 1 Capital Ratio, size, leverage ratio, the share of nonperforming loans (NPL) and liquidity ratio. County characteristic controls include FFIEC median family income and minority population (%). Both concentration measures are standardized relative to the entire available sample before running the regression. While all specifications utilize BHC × County Controls, (1) and (2) utilize BHC-level fixed effects while (3) and (4) utilize bank-year fixed effects.

**Loan Level Regressions: Concentration Other with market share included in the regression**

$$\begin{aligned} Rejection_{i,l,c,t} = {} & \beta_1 StresstestExposure_{l,t-1} + BHCControls_{l,t-1} \times CountyYearControls_{c,t-1} \\ & + \beta_2 StresstestExposure_{l,t-1} \times ConcentrationOther_{l,c,t-1} \\ & + \beta_3 StresstestExposure_{l,t-1} \times MarketShare_{l,c,t-1} + \eta' X_i + \gamma_{c,t} + \alpha_l + \epsilon_{i,l,c,t} \end{aligned} \tag{27}$$

$$\begin{aligned} Rejection_{i,l,c,t} = {} & \beta_1 StresstestExposure_{l,t-1} + BHCControls_{l,t-1} \times CountyYearControls_{c,t-1} \\ & + \beta_2 StresstestExposure_{l,t-1} \times ConcentrationOther_{l,c,t-1} \\ & + \beta_3 StresstestExposure_{l,t-1} \times MarketShare_{l,c,t-1} + \eta' X_i + \gamma_{c,t} + \gamma'_{l,t} + \epsilon_{i,l,c,t} \end{aligned} \tag{28}$$

| **Dependent Variable:** Denial of loan application (dummy variable) | | | | |
|---|---|---|---|---|
| **All Loans** | (1) **CR4** | (2) **HHI** | (3) **CR4** | (4) **HHI** |
| | (1) | (2) | (3) | (4) |
| Stress Test Exposure | -0.003*** | -0.003** | - | - |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.002 | 0.002 | 0.003* | 0.004 |
| | (0.001) | (0.003) | (0.002) | (0.003) |
| Stress Test Exposure X Market Share (CR4)/Market Share^2(HHI) | 0.0001 | 0.0002 | 0.0002** | 0.001 |
| | (0.0001) | (0.001) | (0.0001) | (0.0007) |
| Observations (N) | 11,543,895 | 11,543,895 | 11,543,895 | 11,543,895 |
| R2 | 0.093 | 0.093 | 0.098 | 0.098 |
| **Jumbo Loans Only** | | | | |
| Stress Test Exposure | 0.013*** | 0.011*** | | |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.004*** | 0.006*** | 0.004*** | 0.004** |
| | (0.001) | (0.002) | (0.001) | (0.002) |
| Stress Test Exposure X Market Share (CR4)/Market Share^2(HHI) | -0.001*** | -0.003*** | -0.001*** | -0.004*** |
| | (0.0002) | (0.001) | (0.0003) | (0.001) |
| Observations (N) | 1,108,327 | 1,108,327 | 1,108,325 | 1,108,325 |
| R2 | 0.082 | 0.082 | 0.087 | 0.087 |
| **Conforming Loans Only** | | | | |
| Stress Test Exposure | -0.003*** | -0.003** | | |
| | (0.001) | (0.001) | | |
| Stress Test Exposure X ConcentrationOther | 0.002 | 0.002 | 0.003* | 0.004 |
| | (0.001) | (0.003) | (0.002) | (0.003) |
| Stress Test Exposure X Market Share (CR4)/Market Share^2(HHI) | 0.00001 | 0.001 | 0.0003** | 0.002 |
| | (0.0001) | (0.001) | (0.0001) | (0.001) |
| Observations (N) | 11,543,895 | 11,543,895 | 11,543,895 | 11,543,895 |
| R2 | 0.093 | 0.093 | 0.098 | 0.098 |
| | $^{***}p<0.01$ | $^{**}p<0.05$ | $^{*}p<0.1$ | |

Table A4: This table presents the results from equations (12) and (13). The regressions are run at the loan level. Standard errors are clustered at the county level and reported in parentheses. These empirical specifications utilize *ConcentrationOther* variable as constructed in equation (8) and also include market share (market share squared when using HHI as a measure of concentration). The sample utilized for mortgage loan application and loan origination ($ amount) is HMDA, which includes 30-year conventional mortgages originated for purchases of owner-occupied single family loans. Stress text exposure measure is constructed via publicly available data on DFAST stress tests by the Federal Reserve. BHC controls employed include total assets, tier 1 Capital Ratio, size, leverage ratio, the share of nonperforming loans (NPL) and liquidity ratio. County characteristic controls include FFIEC median family income and minority population (%). Both concentration measures are standardized relative to the entire available sample before running the regression. While all specifications utilize BHC $\times$ County Controls, (1) and (2) utilize BHC-level fixed effects while (3) and (4) utilize bank-year fixed effects.

| **Dependent Variable:** Rate Spread | | | | |
|---|---|---|---|---|
| **All Loans** | (1) **CR4** | (2) **HHI** | (3) **CR4** | (4) **HHI** |
| | (1) | (2) | (3) | (4) |
| Stress Test Exposure | 0.112*** | 0.111*** | - | - |
| | (0.007) | (0.007) | | |
| Stress Test Exposure X Concentration | 0.007 | 0.012 | 0.013*** | 0.018* |
| | (0.006) | (0.01) | (0.005) | (0.01) |
| Observations (N) | 2,510,111 | 2,510,111 | 2,510,111 | 2,510,111 |
| $R^2$ | 0.337 | 0.337 | 0.346 | 0.346 |
| **Jumbo Loans Only** | | | | |
| Stress Test Exposure | -0.028*** | -0.024*** | - | - |
| | (0.006) | (0.006) | | |
| Stress Test Exposure X Concentration | 0.01*** | 0.023*** | 0.009*** | 0.019*** |
| | (0.002) | (0.004) | (0.002) | (0.005) |
| Observations (N) | 276,818 | 276,818 | 276,818 | 276,818 |
| $R^2$ | 0.213 | 0.213 | 0.232 | 0.232 |
| **Conforming Loans Only** | | | | |
| Stress Test Exposure | 0.116*** | 0.116*** | - | - |
| | (0.007) | (0.006) | | |
| Stress Test Exposure X Concentration | 0.004 | 0.007 | 0.013** | 0.015* |
| | (0.006) | (0.009) | (0.005) | (0.009) |
| Observations (N) | 2,232,538 | 2,232,538 | 2,232,538 | 2,232,538 |
| $R^2$ | 0.311 | 0.311 | 0.321 | 0.321 |
| County X Year effects | Yes | Yes | Yes | Yes |
| Loan Controls | Yes | Yes | Yes | Yes |
| BHC X County Controls | Yes | Yes | Yes | Yes |
| Bank-fixed effects | Yes | Yes | - | - |
| Bank Year FE | - | - | Yes | Yes |
| | ***$p$ <0.01 | **$p$ <0.05 | *$p$ <0.1 | |

Table A5: This table presents the results from equations (14) and (15). The regressions are run at the loan level. Loan level controls also include binned values for the debt-to-income (DTI) ratio. Note that other specification and data control details are similar to Table 1. Standard errors are clustered at the county level and reported in parentheses. Specification (1) and (2) includes BHC-level fixed effects ($\alpha_l$) and county-year controls, while specifications (3) and (4) include bank-year fixed effects ($\gamma'_{l,t}$) along with county-year controls. All specifications include county-year nonparametric fixed effects ($\gamma_{c,t}$).

| **Dependent Variable: STExposure** | |
|---|---|
| Leverage Ratio | 1.749 (2.628) |
| Liquidity Ratio | 0.138 (0.17) |
| NPL Ratio | -0.06 (0.144) |
| Size | 5.065*** (1.752) |
| Tier 1 Capital | -0.587 (0.756) |
| BHC FE | Yes |
| Year FE | Yes |
| Observations (N) | 136 |
| $R^2$ | 0.848 |
| ***$p$ <0.01 **$p$ <0.05 *$p$ <0.1 | |

Table A6: This table presents the results from equation (4). The regressions are run at the lender-year level. Standard errors are clustered at the BHC level and reported in parentheses. Stress text exposure measure is constructed via publicly available data on DFAST stress tests by the Federal Reserve. The set of BHC level financial variables we use an independent variables in our empirical specification (available publicly via Federal Reserve Bank of Chicago) include total tier 1 Capital Ratio, size, leverage ratio, the share of nonperforming loans (NPL) and liquidity ratio (size= log( Total Assets) so only size is included in the regression equation). BHC and year fixed effects are included.

| Counties<br>Sort by weighted exposure | Low Exposure | Medium Exposure | High Exposure | All |
|---|---|---|---|---|
| **Harmonized Loan Growth** | | | | |
| **Total** | -0.244 | -0.133 | -0.09 | -0.002 |
| | (1.473) | (1.501) | (1.486) | (1.448) |
| **Jumbo** | -0.926 | -0.933 | -0.783 | -0.809 |
| | (1.36) | (1.415) | (1.472) | (1.44) |
| **Conforming** | -0.163 | -0.13 | -0.111 | -0.028 |
| | (1.494) | (1.502) | (1.49) | (1.464) |
| **Rejection Rates (Fraction)** | | | | |
| **Total** | 0.21 | 0.214 | 0.21 | 0.207 |
| | (0.32) | (0.287) | (0.278) | (0.283) |
| **Jumbo** | 0.209 | 0.303 | 0.29 | 0.28 |
| | (0.322) | (0.367) | (0.35) | (0.355) |
| **Conforming** | 0.264 | 0.248 | 0.239 | 0.252 |
| | (0.329) | (0.298) | (0.289) | (0.31) |
| **FFIEC Median Income ($)** | 64038.45 | 62453.72 | 61813.97 | 62769.84 |
| | (12953.82) | (12395.21) | (13801.6) | (13096.5) |
| **Minority Population (%)** | 18.679 | 17.938 | 23.0427 | 19.89 |
| | (18.098) | (16.528) | (20.23) | (18.49) |
| **Counties**<br>**Sort by concentration (HHI)** | **Low Conc** | **Medium Conc** | **High Conc** | **All** |
| **Harmonized Loan Growth** | | | | |
| **Total** | -0.037 | -0.076 | -0.072 | -0.002 |
| | (1.476) | (1.47) | (1.451) | (1.448) |
| **Jumbo** | -0.711 | -0.946 | -1.15 | -0.809 |
| | (1.445) | (1.43) | (1.372) | (1.44) |
| **Conforming** | -0.051 | -0.091 | -0.097 | -0.028 |
| | (1.466) | (1.485) | (1.507) | (1.464) |
| **Rejection Rates (Fraction)** | | | | |
| **Total** | 0.187 | 0.212 | 0.236 | 0.207 |
| | (0.25) | (0.286) | (0.323) | (0.283) |
| **Jumbo** | 0.235 | 0.321 | 0.413 | 0.28 |
| | (0.314) | (0.381) | (0.431) | (0.355) |
| **Conforming** | 0.222 | 0.255 | 0.298 | 0.252 |
| | (0.276) | (0.308) | (0.352) | (0.31) |
| **FFIEC Median Income ($)** | 67515.51 | 60912.85 | 62453.71 | 62769.84 |
| | (14905.77) | (11423) | (12395.21) | (13096.5) |
| **Minority Population (%)** | 21.2 | 18.97 | 19.47 | 19.89 |
| | (16.18) | (17.21) | (21.58) | (18.49) |

Table A7: This table presents the summary statistics at the county-year level by different quartiles of weighted exposure. Harmonized loan growth and rejection rates' units are as defined in this paper before. The main values in the table are mean values across all counties and years and the values in the parantheses represent the standard deviation across that sample. Sample covers the years 2014-2020.

| Summary Statistics<br>Loan Level | Mean | SD | Median | N |
|---|---|---|---|---|
| **Loan Applications** | | | | |
| **Total** | - | - | - | 13,355,289 |
| Accepted | - | - | - | 10,671,062 (79.9%) |
| Rejected | - | - | - | 2,684,227 (20.1%) |
| **Jumbo** | - | - | - | 1,316,147 |
| Accepted | - | - | - | 1,046,829 (79.5%) |
| Rejected | - | - | - | 269,318 (20.5%) |
| **Conforming** | - | - | - | 12,039,142 |
| Accepted | - | - | - | 9,624,233 (79.9%) |
| Rejected | - | - | - | 2,414,909 (20.1%) |
| **Rate Spread** | | | | |
| **Total** | 0.41 | 0.804 | 0.26 | 2,518,793 |
| Jumbo | -0.12 | 0.377 | -0.13 | 277,959 |
| Conforming | 0.474 | 0.82 | 0.31 | 2,240,834 |
| **County Characteristics** | | | | |
| FFIEC Median Income ($) | 62769.84 | 13096.5 | 60,400 | 21,732 |
| Minority Population (%) | 19.89 | 18.49 | 13.41 | 21,732 |
| **BHC Characteristics** | | | | |
| Total Assets | 135,191,983.329 | 164,263,201.677 | 47,829,614.000 | 137 |
| Size | 17.806 | 1.385 | 17.683 | 137 |
| Leverage Ratio (%) | 70.230 | 76.500 | 36.200 | 137 |
| Nonperforming Loan Ratio (%) | 1.290 | 1.610 | 0.740 | 137 |
| Liquidity Ratio (%) | 9.070 | 6.210 | 8.620 | 137 |
| Return on Assets (%) | 0.020 | 0.100 | 0.00001 | 137 |
| **CR4 (%)** | 41.44 | 14.29 | 38.64 | 21,241 |
| **HHI** | 751.96 | 676.83 | 575.3065 | 21,251 |

Table A8: This table presents the summary statistics for key variables used in our regressions at the loan level. We constrain our summary statistics to only stress-tested banks, because all our regressions at the lender portfolio level include only stress-tested banks. The sample utilized for mortgage loan application and loan origination ($ amount) is HMDA, which includes 30-year conventional mortgages originated for purchases of owner-occupied single family loans. County level characteristics are available in HMDA. We use FFIEC's data dictionary to classify financial institutions as banks or non-banks. The sample period included for HMDA is 2014-2020 for all variables except *Rate Spread* which is only available for the sample period 2018-2020.

| Summary Statistics<br>Lender Portfolio Level | Mean | SD | Median | N |
|---|---|---|---|---|
| **Harmonized Loan Growth** | | | | |
| Total | -0.399 | 1.161 | -0.21 | 157,454 |
| Jumbo | -0.049 | 1.55 | -0.02 | 45,970 |
| Conforming | -0.54 | 1.23 | -0.375 | 144,106 |
| **Rejection Rates (Fraction)** | | | | |
| Total | 0.208 | 0.282 | 0.102 | 180,747 |
| Jumbo | 0.311 | 0.368 | 0.162 | 54,334 |
| Conforming | 0.251 | 0.21 | 0.14 | 158,249 |
| **County Characteristics** | | | | |
| FFIEC Median Income ($) | 62769.84 | 13096.5 | 60,400 | 21,732 |
| Minority Population (%) | 19.89 | 18.49 | 13.41 | 21,732 |
| **CR4 (%)** | 41.44 | 14.29 | 38.64 | 21,241 |
| **HHI** | 751.96 | 676.83 | 575.3065 | 21,251 |
| **Stress Test Exposure** | 3.583 | 2.141 | 3.100 | 137 |
| **BHC Characteristics** | | | | |
| Total Assets | 135,191,983.329 | 164,263,201.677 | 47,829,614.000 | 137 |
| Size | 17.806 | 1.385 | 17.683 | 137 |
| Leverage Ratio (%) | 70.230 | 76.500 | 36.200 | 137 |
| Nonperforming Loan Ratio (%) | 1.290 | 1.610 | 0.740 | 137 |
| Liquidity Ratio (%) | 9.070 | 6.210 | 8.620 | 137 |
| Return on Assets (%) | 0.020 | 0.100 | 0.00001 | 137 |
| **Total Volume of mortgage origination: lender-county level ($ millions)** | | | | |
| Total | 21.386 | 152.3 | 0.97 | 180,747 |
| Jumbo | 15.8 | 111 | 0.98 | 54,334 |
| Conforming | 16.96 | 132 | 0.71 | 158,249 |
| **Aggregate total Volume of mortgage origination by BHC in an year ($ billions)** | | | | |
| Total | 28.2 | 51.2 | 5.66 | 137 |
| Jumbo | 6.26 | 10.7 | 1.67 | 137 |
| Conforming | 19.59 | 37.04 | 4.69 | 137 |

Table A9: This table presents the summary statistics for key variables used in our regressions at the lender portfolio level, that is, the lender-county-year level. We constrain our summary statistics to only stress-tested banks, because all our regressions at the lender portfolio level include only stress-tested banks. The sample utilized for mortgage loan application and loan origination ($ amount) is HMDA, which includes 30-year conventional mortgages originated for purchases of owner-occupied single family loans. Stress text exposure measure is constructed via publicly available data on DFAST stress tests by the Federal Reserve: please refer to Section 4.2 for details about the same. County level characteristics are available in HMDA, while BHC level characteristics are obtained from publicly available "Financial Holding Company Data" from Federal Reserve Bank of Chicago. The sample period included for HMDA is 2014-2020.

| Summary Statistics County-Year Level | Mean | SD | Median | N |
|---|---|---|---|---|
| **Harmonized Loan Growth** | | | | |
| Total | -0.0002 | 1.437 | 0.00001 | 2,057,873 |
| Jumbo | -1.4 | 1.22 | -2 | 264,745 |
| Conforming | -0.003 | 1.45 | 0.00001 | 1,340,287 |
| ST Bank | -0.002 | 1.448 | 0.002 | 155,809 |
| Non-ST Bank | 0.0001 | 1.411 | 0.00001 | 1,455,358 |
| Non-bank | -0.000043 | 1.472 | 0.00001 | 446,087 |
| **Rejection Rates (Fraction)** | | | | |
| Total | 0.177 | 0.295 | 0.00001 | 2,079,969 |
| Jumbo | 0.22 | 0.346 | 0.00001 | 302,454 |
| Conforming | 0.187 | 0.31 | 0.00001 | 1,359,804 |
| ST Bank | 0.207 | 0.283 | 0.1 | 156,853 |
| Non-ST Bank | 0.157 | 0.286 | 0.00001 | 1,470,448 |
| Non-bank | 0.23 | 0.32 | 0.064 | 452,668 |
| **County Characteristics** | | | | |
| FFIEC Median Income ($) | 62769.84 | 13096.5 | 60,400 | 21,732 |
| Minority Population (%) | 19.89 | 18.49 | 13.41 | 21,732 |
| **CR4 (%)** | 41.44 | 14.29 | 38.64 | 21,241 |
| **HHI** | 751.96 | 676.83 | 575.3065 | 21,251 |
| **Total Volume of mortgage origination: county-year level ($ millions)** | | | | |
| Total | 270 | 1280 | 21.8 | 53,297 |
| Jumbo | 29.8 | 270 | 0.055 | 28,871 |
| Conforming | 446 | 2200 | 32 | 17,372 |
| ST-bank | 191 | 933 | 13.2 | 17,773 |
| Non-ST Bank | 396 | 1610 | 44.4 | 17,769 |
| Non-bank | 222 | 1180 | 16.2 | 17,755 |

Table A10: This table presents the summary statistics for key variables used in our regressions at the county-year level. The presented summary statistics include stress-tested BHCs, non-stress tested BHCs and non-banks consistent with our empirical specifications at the county-year level. The sample utilized for mortgage loan application and loan origination ($ amount) is HMDA, which includes 30-year conventional mortgages originated for purchases of owner-occupied single family loans. County level characteristics are available in HMDA. We use FFIEC's data dictionary to classify financial institutions as banks or non-banks. The sample period included for HMDA is 2014-2020.