**Online Appendix**

**Appendix A. Summary of the macroprudential policy measures adopted by states during 2008-2014**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Authors | Period | Countries | Macroprudential policy measures | Solvency measures | Liquidity measures | Other measures |
| Akinci and Olmstead-Rumsey (2015) | 2000Q1-2014Q2 | Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Serbia, Ukraine | Housing - loan to value; debt to income; other housing measures excl. CCR and Provisions; countercyclical capital requirements; loan loss provisioning. Non-housing - countercyclical capital requirements; loan loss provisioning; consumer loan measures; credit growth limits | Housing - other housing measures excl. CCR and Provisions; countercyclical capital requirements; loan loss provisioning. Non-housing - countercyclical capital requirements; loan loss provisioning; consumer loan measures; credit growth limits | - | Housing - loan to value; debt to income |
| Kuttner and Shim (2016) | 2000Q1-2012Q2 | Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Serbia, Slovakia, Slovenia, Ukcraine, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK | Reserve requirements; Liquidity requirements; Credit growth limits; LTV limits loan prohibition; DSTI limits lending criteria; Risk weights applied to housing loans; Loan-loss provisioning; Exposure limits to the housing sector; Housing related taxes | Credit growth limits; Risk weights applied to housing loans; Loan-loss provisioning; Exposure limits to the housing sector  | Reserve requirements; Liquidity requirements  | LTV limits loan prohibition; DSTI limits lending criteria; Housing related taxes  |
| Cerutti et al. (2016) | 2000Q1-2014Q4 | Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, UK,  | Sector specific capital buffer: real estate credit; Sector specific capital buffer: consumer credit; Sector specific capital buffer: other sectors; Capital requirements; Concentration limit; Interbank exposure limit; LTV ratio cap; Reserve requirements on FC denominated accounts; Reserve requirements on LC-denominated accounts | Sector specific capital buffer: real estate credit; Sector specific capital buffer: consumer credit; Sector specific capital buffer: other sectors; Capital requirements; Concentration limit; Interbank exposure limit;  | Reserve requirements on FC denominated accounts; Reserve requirements on LC-denominated accounts |  LTV ratio cap |
| Vandenbussch, Vogel and Detragiache (2015) | 2000Q1-2010Q4 | Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine | Minimum required capital adequacy ratio; Regulatory capital eligibility; Minimum required capital adequacy ratio as a function of credit growth; Maximum ratio of household loans to share capital; Maximum ratio of FC loans to own funds; Basel II implementation; Risk weights on LC mortgage loans; Risk weight on FC mortgage loans; Risk weights on LC consumer loans; Risk weights on FC consumer loans; Risk weights on loans above a threshold related to credit growth; Rules for general provisions; Rules for specific provisions; Rules for specific provisions on FC loans; Reserve requirements rate on LC deposits; Reserve requirements rate on FC deposits; Reserve requirements base; Liquidity regulation; Foreign currency liquidity requirement; Marginal reserve requirements; Special reserve requirements; Credit growth reserve; Marginal reserve requirements on credit growth above a threshold; Loan-to-value ceiling; Restriction on loan-to-value for FC loans relative to LC loans; Debt-service-to-income ceiling; Restriction on debt-service-to-income for FC loans relative to LC loans; Other quantitative limits on FC-lending as a share of total lending; Regulatory measures on non-bank credit institutions | Minimum required capital adequacy ratio; Regulatory capital eligibility; Minimum required capital adequacy ratio as a function of credit growth (if above a threshold); Maximum ratio of household loans to share capital; Maximum ratio of FC loans to own funds; Basel II implementation; Risk weights on LC mortgage loans; Risk weight on FC mortgage loans; Risk weights on LC consumer loans; Risk weights on FC consumer loans; Risk weights on loans above a threshold related to credit growth; Rules for general provisions; Rules for specific provisions; Rules for specific provisions on FC loans (when different from those on LC loans); Other quantitative limits on fc-lending as a share of total lending  |  Reserve requirements rate on LC deposits; Reserve requirements rate on FC deposits; Reserve requirements base; Liquidity regulation; Foreign currency liquidity requirement; Marginal reserve requirements; Special reserve requirements ;Credit growth reserve (banks need to hold low-yield CB bills if their credit growth is above a threshold); Marginal reserve requirements on credit growth above a threshold. Penalty rate is a step function with up to three thresholds. | Loan-to-value ceiling; Restriction on loan-to-value for FC loans relative to LC loans; Debt-service-to-income ceiling; Restriction on debt-service-to-income for FC loans relative to LC loans; Regulatory measures on non-bank credit institutions |
| Andries, Iesan-Muntean and Nistor S. (2016) | 2005-2012 | Czech Republic, Poland, Latvia, Estonia, Romania, Bulgaria, Hungary, Lithuania, Albania, Bosnia Herzegovina, Croatia, Ukcraine, Montenegro, Macedonia, Serbia | Relaxation of reserve requirements; Domestic currency liquidity injections; Foreign exchange liquidity injections; Increase in deposit insurance coverage; Interventions in individual institutions –liquidity injection; Recapitalization fund; Relaxation of capital/provisioning requirements; Interventions in individual institutions – capital injection; Policy interest rate cuts | Recapitalization fund; Relaxation of capital/provisioning requirements; Interventions in individual institutions – capital injection | Relaxation of reserve requirement; Domestic currency liquidity injections; Foreign exchange liquidity injections; Increase in deposit insurance coverage; Interventions in individual institutions  | Policy interest rate cuts |

**Appendix B. List of banks and the associated risk (average during 2008-2014)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Country** | **Banks** | **Total assets**(billion $) | **Individual risk** | **Systemic risk** |
| **VaR** | **DTD** | **CoVaR** | **MES** |
| % loss of banks’ Market equity | standard deviations of banks' Market equity | % loss of system’s Market equity | % loss of banks’ Market equity |
| Austria | Bank für Tirol und Vorarlberg AG-BTV (3 Banken Gruppe) | 12.30 | 0.07 | 3.00 | 0.01 | 0.02 |
|  | Erste Group Bank AG | 22.50 | 0.13 | 1.75 | 0.06 | 0.10 |
|  | Oberbank AG | 797.00 | 0.09 | 1.33 | 0.05 | 0.09 |
|  | Raiffeisen Bank International AG | 58.20 | 0.14 | 2.51 | 0.06 | 0.08 |
| Belgium | Banque Nationale de Belgique SA | 138.00 | 0.08 | -0.26 | 0.04 | 0.04 |
|  | KBC Groep NV/ KBC Groupe SA-KBC Group | 49.40 | 0.09 | 1.58 | 0.06 | 0.08 |
| Canada | Bank of Montreal-Banque de Montreal | 508.00 | 0.07 | 2.89 | 0.07 | 0.05 |
|  | Bank of Nova Scotia (The) - SCOTIABANK | 668.00 | 0.06 | 4.69 | 0.07 | 0.05 |
|  | Canadian Imperial Bank of Commerce CIBC | 45.70 | 0.07 | 0.19 | 0.04 | 0.04 |
|  | National Bank of Canada-Banque | 101.00 | 0.14 | 2.39 | 0.07 | 0.08 |
|  | Royal Bank of Canada | 814.00 | 0.06 | 3.79 | 0.06 | 0.06 |
|  | Toronto Dominion Bank | 781.00 | 0.06 | 1.91 | 0.05 | 0.05 |
| Czech Republic | Komercni Banka | 93.10 | 0.11 | 2.78 | 0.04 | 0.08 |
| Denmark | Danske Bank A/S | 1070.00 | 0.10 | 1.28 | 0.06 | 0.09 |
|  | Jyske Bank A/S (Group) | 2230.00 | 0.10 | 2.29 | 0.06 | 0.07 |
|  | Spar Nord Bank | 12.90 | 0.09 | 1.60 | 0.03 | 0.06 |
|  | Sydbank A/S | 27.20 | 0.09 | 2.19 | 0.06 | 0.08 |
| France | BNP Paribas | 2660.00 | 0.12 | 0.64 | 0.07 | 0.10 |
|  | Caisse régionale de crédit agricole mutuel Nord de France SC | 37.70 | 0.09 | -0.81 | 0.04 | 0.04 |
|  | Crédit Agricole S.A. | 956.00 | 0.16 | -0.41 | 0.04 | 0.11 |
|  | Crédit Industriel et Commercial SA - CIC | 2240.00 | 0.12 | -0.90 | 0.07 | 0.11 |
|  | Natixis SA | 176.00 | 0.08 | 3.64 | 0.06 | 0.04 |
|  | Caisse régionale de crédit agricole mutuel de Paris et d'Ile-de-France | 157.00 | 0.13 | 1.16 | 0.05 | 0.12 |
|  | Société Générale SA | 1610.00 | 0.14 | 0.16 | 0.06 | 0.13 |
| Germany | Commerzbank AG | 62.50 | 0.09 | 3.18 | 0.05 | 0.06 |
|  | Deutsche Bank AG | 614.00 | 0.13 | 0.54 | 0.06 | 0.09 |
| Hungary | OTP Bank Plc | 22.90 | 0.04 | 8.74 | 0.03 | 0.02 |
| Ireland | Allied Irish Banks plc | 195.00 | 0.26 |  | 0.00 | 0.08 |
|  | Bank of Ireland-Governor and Company of the Bank of Ireland | 217.00 | 0.23 | -0.10 | 0.03 | 0.15 |
| Italy | Banca Carige SpA | 54.20 | 0.18 | 1.42 | 0.03 | 0.07 |
|  | Banca Monte dei Paschi di Siena SpA | 296.00 | 0.17 |  | 0.03 | 0.10 |
|  | Banca Piccolo Credito Valtellinese | 36.60 | 0.14 | 0.82 | 0.03 | 0.07 |
|  | Banca popolare dell'Emilia Romagna | 80.10 | 0.14 | 1.41 | 0.05 | 0.07 |
|  | Banca popolare dell'Etruria e del Lazio Soc. coop. | 17.30 | 0.13 | -0.39 | 0.01 | 0.07 |
|  | Banca Popolare di Milano SCaRL | 67.30 | 0.14 | 0.70 | 0.04 | 0.08 |
|  | Banco Popolare - Società Cooperativa-Banco Popolare | 179.00 | 0.15 | 0.28 | 0.04 | 0.11 |
|  | Intesa Sanpaolo | 55.80 | 0.10 | 2.57 | 0.03 | 0.08 |
|  | Mediobanca SpA-MEDIOBANCA | 31.00 | 0.12 | 1.55 | 0.05 | 0.09 |
|  | UniCredit SpA | 1280.00 | 0.18 | 0.20 | 0.05 | 0.12 |
|  | Unione di Banche Italiane Scpa-UBI Banca | 173.00 | 0.13 | 1.33 | 0.05 | 0.08 |
| Netherlands | Van Lanschot NV | 26.20 | 0.10 | 2.09 | 0.03 | 0.03 |
| Norway | DnB ASA | 2620.00 | 0.11 | -0.21 | 0.06 | 0.10 |
|  | SpareBank 1 SMN | 16.60 | 0.10 | 1.13 | 0.04 | 0.07 |
| Poland | Bank Handlowy w Warszawie S.A. | 14.00 | 0.12 | 2.21 | 0.05 | 0.07 |
|  | Bank Millennium | 16.60 | 0.15 | 1.52 | 0.05 | 0.10 |
|  | Bank Polska Kasa Opieki SA-Bank Pekao SA | 46.20 | 0.11 | 2.34 | 0.05 | 0.09 |
|  | Bank Zachodni WBK S.A. | 24.40 | 0.11 | 2.56 | 0.05 | 0.08 |
|  | mBank SA | 76.50 | 0.08 | 4.20 | 0.04 | 0.05 |
|  | Powszechna Kasa Oszczednosci Bank Polski SA - PKO BP SA | 275.00 | 0.11 | 4.08 | 0.05 | 0.06 |
| Portugal | Banco BPI SA | 59.10 | 0.13 | 0.91 | 0.05 | 0.08 |
|  | Banco Comercial Português, SA-Millennium bcp | 122.00 | 0.16 |  | 0.03 | 0.10 |
|  | Banco Espirito Santo SA | 110.00 | 0.17 | 1.14 | 0.05 | 0.09 |
| Romania | BRD-Groupe Societe Generale SA | 15.20 | 0.10 | 2.47 | 0.04 | 0.07 |
| Russian Federation | Sberbank of Russia OAO | 355.00 | 0.12 | 1.32 | 0.04 | 0.08 |
|  | VTB Bank (public joint-stock company)-JSC VTB Bank | 185.00 | 0.17 | 0.84 | 0.03 | 0.10 |
| Spain | Banco Bilbao Vizcaya Argentaria SA | 783.00 | 0.13 | 2.08 | 0.07 | 0.10 |
|  | Banco de Sabadell SA | 162.00 | 0.11 | 1.65 | 0.04 | 0.08 |
|  | Banco Popular Espanol SA | 188.00 | 0.14 | 1.58 | 0.05 | 0.11 |
|  | Banco Santander SA | 1590.00 | 0.12 | 1.76 | 0.07 | 0.09 |
|  | Bankinter SA | 75.70 | 0.13 | 1.54 | 0.06 | 0.08 |
| Sweden | Nordea Bank AB (publ) | 41.00 | 0.08 | 3.28 | 0.05 | 0.04 |
|  | Skandinaviska Enskilda Banken AB | 354.00 | 0.11 | 1.52 | 0.05 | 0.11 |
|  | Svenska Handelsbanken | 342.00 | 0.08 | 2.46 | 0.06 | 0.08 |
|  | Swedbank AB | 271.00 | 0.11 | 2.30 | 0.05 | 0.10 |
| Switzerland | Banque Cantonale de Genève | 16.00 | 0.05 | 2.55 | 0.03 | 0.02 |
|  | Banque Cantonale Vaudoise | 40.40 | 0.09 | 4.07 | 0.04 | 0.04 |
|  | Basellandschaftliche Kantonalbank | 19.60 | 0.07 | 6.16 | 0.01 | 0.02 |
|  | Credit Suisse Group AG | 326.00 | 0.07 | 0.11 | 0.03 | 0.05 |
|  | EFG International | 357.00 | 0.11 | 1.84 | 0.05 | 0.09 |
|  | St. Galler Kantonalbank AG | 26.80 | 0.07 | 4.13 | 0.04 | 0.04 |
|  | UBS Group AG | 1110.00 | 0.12 |  | 0.06 | 0.09 |
|  | Valiant Holding | 24.90 | 0.15 | 4.87 | 0.02 | 0.02 |
| Turkey | Finansbank A.S. | 119.00 | 0.16 | 2.67 | 0.04 | 0.09 |
|  | Turkiye Garanti Bankasi A.S. | 92.70 | 0.12 | 1.74 | 0.05 | 0.08 |
|  | Turkiye Halk Bankasi A.S. | 53.40 | 0.15 | 1.57 | 0.05 | 0.09 |
|  | Turkiye is Bankasi A.S. - ISBANK | 103.00 | 0.10 | 1.18 | 0.06 | 0.08 |
|  | Yapi Ve Kredi Bankasi A.S. | 63.00 | 0.13 | 1.53 | 0.05 | 0.10 |
| United States of America | Bank of America Corporation | 2150.00 | 0.14 | 1.98 | 0.05 | 0.11 |
|  | BB&T Corporation | 167.00 | 0.09 | 3.68 | 0.05 | 0.05 |
|  | Citigroup Inc | 387.00 | 0.07 | 3.15 | 0.07 | 0.06 |
|  | Comerica Incorporated | 1930.00 | 0.14 | 1.69 | 0.04 | 0.12 |
|  | Fifth Third Bancorp | 281.00 | 0.16 | 1.59 | 0.06 | 0.12 |
|  | Hudson City Bancorp Inc | 28.50 | 0.14 | 1.71 | 0.03 | 0.06 |
|  | Huntington Bancshares Inc | 48.40 | 0.10 |  | 0.04 | 0.05 |
|  | JPMorgan Chase & Co | 877.00 | 0.15 | 0.41 | 0.06 | 0.11 |
|  | KeyCorp | 410.00 | 0.16 | 0.99 | 0.06 | 0.17 |
|  | M&T Bank Corporation | 40.00 | 0.11 | 2.97 | 0.05 | 0.07 |
|  | New York Community Bancorp, Inc | 706.00 | 0.12 | -0.22 | 0.04 | 0.12 |
|  | People's United Financial, Inc | 46.80 | 0.17 | 1.39 | 0.06 | 0.12 |
|  | PNC Financial Services Group Inc | 26.40 | 0.07 | 4.26 | 0.03 | 0.03 |
|  | Regions Financial Corporation | 130.00 | 0.14 |  | 0.03 | 0.09 |
|  | SunTrust Banks, Inc. | 176.00 | 0.11 | 2.75 | 0.05 | 0.09 |
|  | Synovus Financial Corp | 27.30 | 0.15 | 1.70 | 0.04 | 0.09 |
|  | US Bancorp | 319.00 | 0.11 | 4.54 | 0.05 | 0.05 |
|   | Wells Fargo & Company | 1290.00 | 0.11 | 4.12 | 0.05 | 0.07 |
|   | *Sample total* | 397.97 |  |  |  |  |
|   | *Sample average* |  | 0.12 | 1.97 | 0.05 | 0.08 |

**Appendix C. The impact of macroprudential policies on systemic risk: Dependent variable expressed by Marginal Expected Shortfall**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent variable: Marginal Expected Shortfall (MES) | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| *All policies* | *General policies* | *Housing policies* | *General policies* | *General policies* | *General policies* | *General policies* | *Housing policies* | *Housing policies* | *Housing policies* | *Housing policies* |
| Capital requirements | -0.002 | **-0.005\*\*** |  | **-0.004\*** |  |  |  |  |  |  |  |
| (0.005) | **(0.002)** |  | **(0.002)** |  |  |  |  |  |  |  |
| Sector capital buffers | **-0.008\*\*\*** | **-0.006\*\*** |  |  | **-0.007\*\*** |  |  |  |  |  |  |
| **(0.001)** | **(0.003)** |  |  | **(0.003)** |  |  |  |  |  |  |
| Reserve requirements FX | -0.000 | -0.003 |  |  |  | -0.007 |  |  |  |  |  |
| (0.006) | (0.004) |  |  |  | (0.005) |  |  |  |  |  |
| Reserve requirements local | -0.002 | -0.006 |  |  |  |  | -0.007 |  |  |  |  |
| (0.003) | (0.004) |  |  |  |  | (0.004) |  |  |  |  |
| Countercyclical capital requirements | **-0.012\*\*\*** |  | **-0.020\*\*\*** |  |  |  |  | **-0.017\*\*** |  |  |  |
| **(0.003)** |  | **(0.003)** |  |  |  |  | **(0.007)** |  |  |  |
| Loan loss provisioning | **-0.007\*\*** |  | **-0.006\*** |  |  |  |  |  | 0.001 |  |  |
| **(0.003)** |  | **(0.003)** |  |  |  |  |  | (0.003) |  |  |
| DSTI lending criteria | **-0.013\*\*\*** |  | **-0.012\*\*\*** |  |  |  |  |  |  | **-0.015\*\*\*** |  |
| **(0.003)** |  | **(0.003)** |  |  |  |  |  |  | **(0.003)** |  |
| Risk weights on housing loans | -0.004 |  | -0.002 |  |  |  |  |  |  |  | -0.008 |
| (0.002) |  | (0.002) |  |  |  |  |  |  |  | (0.006) |
| Size | -0.047\*\* | -0.017 | -0.046\*\* | -0.018 | -0.019 | -0.017 | -0.017 | -0.026\*\* | -0.026\*\* | -0.041\*\* | -0.042\*\* |
| (0.017) | (0.017) | (0.017) | (0.018) | (0.018) | (0.018) | (0.018) | (0.010) | (0.010) | (0.016) | (0.016) |
| Capitalization | -0.889\*\*\* | -0.956\*\*\* | -0.926\*\*\* | -0.978\*\*\* | -0.985\*\*\* | -0.961\*\*\* | -0.961\*\*\* | -0.862\*\*\* | -0.851\*\*\* | -0.921\*\*\* | -0.936\*\*\* |
| (0.203) | (0.177) | (0.211) | (0.176) | (0.181) | (0.179) | (0.181) | (0.244) | (0.240) | (0.179) | (0.184) |
| Credit risk | 1.187 | 1.959 | 1.319\* | 1.957 | 1.947 | 1.992 | 2.008 | 0.150 | 0.215 | 0.431 | 0.392 |
| (0.815) | (1.216) | (0.730) | (1.213) | (1.230) | (1.203) | (1.205) | (0.719) | (0.736) | (0.849) | (0.849) |
| Liquidity risk | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Funding | 0.021\* | -0.023 | 0.021\* | -0.025 | -0.025 | -0.025 | -0.024 | 0.001 | 0.001 | 0.010 | 0.008 |
| (0.010) | (0.033) | (0.010) | (0.034) | (0.034) | (0.034) | (0.033) | (0.022) | (0.023) | (0.015) | (0.016) |
| Lerner index | 0.014 | -0.047\* | 0.013 | -0.045 | -0.046\* | -0.048\* | -0.047\* | -0.013 | -0.009 | 0.022 | 0.016 |
| (0.017) | (0.026) | (0.018) | (0.026) | (0.026) | (0.026) | (0.026) | (0.014) | (0.015) | (0.015) | (0.014) |
| Foreign bank assets | -0.000 | 0.001 | -0.000 | 0.001 | 0.001 | 0.001 | 0.001 | -0.001 | -0.001 | -0.000 | -0.000 |
| (0.000) | (0.002) | (0.000) | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) | (0.001) | (0.000) | (0.000) |
| Inflation | 0.004\*\* | 0.006\*\* | 0.004\*\* | 0.006\*\* | 0.006\*\* | 0.006\*\* | 0.006\*\* | 0.003\*\* | 0.003\*\* | 0.004\*\* | 0.004\*\*\* |
| (0.001) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.001) | (0.001) | (0.001) | (0.001) |
| Observations | 843 | 1,877 | 843 | 1,877 | 1,877 | 1,877 | 1,877 | 1,158 | 1,158 | 880 | 880 |
| R-squared | 0.101 | 0.234 | 0.097 | 0.230 | 0.230 | 0.231 | 0.231 | 0.083 | 0.081 | 0.094 | 0.091 |
| Number of banks | 49 | 75 | 49 | 75 | 75 | 75 | 75 | 50 | 50 | 51 | 51 |
| No of countries | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Cluster | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country |

**Appendix D. The impact of macroprudential policies on individual bank risk: Dependent variable expressed by Distance to Default**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent variable: Distance to Default (DTD) | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| *All policies* | *General policies* | *Housing policies* | *General policies* | *General policies* | *General policies* | *General policies* | *Housing policies* | *Housing policies* | *Housing policies* | *Housing policies* |
| Capital requirements | -0.096 | 0.263 |  | 0.247 |  |  |  |  |  |  |  |
| (0.160) | (0.233) |  | (0.228) |  |  |  |  |  |  |  |
| Sector capital buffers | 0.059 | -0.011 |  |  | -0.013 |  |  |  |  |  |  |
| (0.122) | (0.069) |  |  | (0.072) |  |  |  |  |  |  |
| Reserve requirements FX | **0.294\*\*** | 0.165 |  |  |  | 0.185 |  |  |  |  |  |
| **(0.098)** | (0.199) |  |  |  | (0.146) |  |  |  |  |  |
| Reserve requirements local | -0.010 | 0.052 |  |  |  |  | 0.095 |  |  |  |  |
| (0.119) | (0.196) |  |  |  |  | (0.138) |  |  |  |  |
| Countercyclical capital requirements | -0.146 |  | -0.087 |  |  |  |  | 0.061 |  |  |  |
| (0.167) |  | (0.124) |  |  |  |  | (0.096) |  |  |  |
| Loan loss provisioning | **-0.328\*\*\*** |  | **-0.304\*\*\*** |  |  |  |  |  | **-0.233\*\*** |  |  |
| **(0.051)** |  | **(0.047)** |  |  |  |  |  | **(0.089)** |  |  |
| DSTI lending criteria | 0.084 |  | 0.140 |  |  |  |  |  |  | 0.229 |  |
| (0.091) |  | (0.122) |  |  |  |  |  |  | (0.167) |  |
| Risk weights on housing loans | 0.110 |  | 0.089 |  |  |  |  |  |  |  | 0.157 |
| (0.107) |  | (0.129) |  |  |  |  |  |  |  | (0.114) |
| Size | -0.109 | 0.842 | -0.107 | 0.879 | 0.919 | 0.890 | 0.909 | -0.106 | -0.110 | 0.211 | 0.220 |
| (0.381) | (0.623) | (0.392) | (0.595) | (0.594) | (0.611) | (0.599) | (0.487) | (0.488) | (0.467) | (0.471) |
| Capitalization | 30.741\*\*\* | 40.805\*\*\* | 31.813\*\*\* | 41.521\*\*\* | 41.739\*\*\* | 41.155\*\*\* | 41.451\*\*\* | 41.839\*\*\* | 41.802\*\*\* | 28.393\*\*\* | 28.620\*\*\* |
| (6.454) | (9.230) | (6.203) | (8.983) | (9.031) | (9.117) | (9.085) | (8.261) | (8.242) | (6.003) | (6.040) |
| Credit risk | -11.140 | -41.992 | -15.656 | -41.373 | -42.483 | -42.874 | -42.857 | 10.837 | 10.593 | 5.041 | 5.658 |
| (18.860) | (38.104) | (17.749) | (38.090) | (39.294) | (38.948) | (39.012) | (17.781) | (17.899) | (19.795) | (19.888) |
| Liquidity risk | 0.002 | 0.007\*\*\* | 0.002 | 0.006\*\* | 0.006\*\* | 0.007\*\*\* | 0.007\*\*\* | -0.004 | -0.004 | -0.008 | -0.007 |
| (0.003) | (0.002) | (0.003) | (0.002) | (0.002) | (0.002) | (0.002) | (0.004) | (0.004) | (0.008) | (0.008) |
| Funding | -0.327 | 3.039\* | -0.370 | 3.058\* | 3.104\* | 3.095\* | 3.085\* | 0.765 | 0.766 | 0.539 | 0.575 |
| (0.514) | (1.521) | (0.519) | (1.516) | (1.539) | (1.534) | (1.538) | (0.459) | (0.462) | (0.812) | (0.820) |
| Lerner index | -0.782 | 1.215 | -0.800 | 1.159 | 1.200 | 1.253 | 1.222 | 0.355 | 0.341 | -1.315\* | -1.223 |
| (0.657) | (0.839) | (0.651) | (0.824) | (0.846) | (0.855) | (0.842) | (0.708) | (0.728) | (0.695) | (0.702) |
| Foreign bank assets | -0.029 | -0.099 | -0.030 | -0.100 | -0.101 | -0.101 | -0.101 | -0.023 | -0.023 | -0.031 | -0.031 |
| (0.027) | (0.077) | (0.027) | (0.076) | (0.078) | (0.078) | (0.078) | (0.025) | (0.025) | (0.030) | (0.030) |
| Inflation | -0.118\*\*\* | -0.191\*\*\* | -0.128\*\*\* | -0.194\*\*\* | -0.195\*\*\* | -0.191\*\*\* | -0.195\*\*\* | -0.125\*\* | -0.125\*\* | -0.140\*\*\* | -0.144\*\*\* |
| (0.030) | (0.046) | (0.032) | (0.042) | (0.042) | (0.045) | (0.043) | (0.045) | (0.045) | (0.033) | (0.033) |
| Observations | 800 | 1,774 | 800 | 1,774 | 1,774 | 1,774 | 1,774 | 1,092 | 1,092 | 837 | 837 |
| R-squared | 0.241 | 0.394 | 0.233 | 0.393 | 0.391 | 0.392 | 0.391 | 0.256 | 0.256 | 0.215 | 0.213 |
| Number of banks | 47 | 72 | 47 | 72 | 72 | 72 | 72 | 48 | 48 | 49 | 49 |
| No of countries | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Cluster | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country |

**Appendix E. The impact of macroprudential policies on individual bank risk: Dependent variable expressed by Z score**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dependent variable: Z score | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| *All policies* | *General policies* | *Housing policies* | *General policies* | *General policies* | *General policies* | *General policies* | *Housing policies* | *Housing policies* | *Housing policies* | *Housing policies* |
| Capital requirements | -0.155 | -0.066 |  | -0.088 |  |  |  |  |  |  |  |
| (0.138) | (0.091) |  | (0.093) |  |  |  |  |  |  |  |
| Sector capital buffers | 0.048 | **0.248\*\*\*** |  |  | **0.256\*\*\*** |  |  |  |  |  |  |
| (0.101) | **(0.069)** |  |  | **(0.070)** |  |  |  |  |  |  |
| Reserve requirements FX | **0.153\*\*** | **0.168\*** |  |  |  | **0.236\*** |  |  |  |  |  |
| **(0.061)** | **(0.090)** |  |  |  | **(0.125)** |  |  |  |  |  |
| Reserve requirements local | 0.182 | 0.080 |  |  |  |  | 0.176 |  |  |  |  |
| (0.105) | (0.101) |  |  |  |  | (0.124) |  |  |  |  |
| Countercyclical capital requirements | **1.592\*\*** |  | **1.665\*\*** |  |  |  |  | **1.297\*** |  |  |  |
| **(0.552)** |  | **(0.547)** |  |  |  |  | **(0.615)** |  |  |  |
| Loan loss provisioning | **1.077\*\*\*** |  | **1.091\*\*\*** |  |  |  |  |  | **1.094\*\*\*** |  |  |
| **(0.109)** |  | **(0.108)** |  |  |  |  |  | **(0.146)** |  |  |
| DSTI lending criteria | 0.037 |  | 0.075 |  |  |  |  |  |  | -0.031 |  |
| (0.125) |  | (0.141) |  |  |  |  |  |  | (0.104) |  |
| Risk weights on housing loans | -0.327 |  | **-0.338\*** |  |  |  |  |  |  |  | -0.188 |
| (0.185) |  | **(0.172)** |  |  |  |  |  |  |  | (0.392) |
| Size | -0.708 | -0.408 | -0.796 | -0.408 | -0.395 | -0.441 | -0.434 | -1.089 | -1.121 | -0.503 | -0.516 |
| (0.680) | (0.470) | (0.692) | (0.476) | (0.472) | (0.486) | (0.493) | (0.676) | (0.685) | (0.654) | (0.652) |
| Capitalization | 10.657\* | 7.876\*\* | 11.276\* | 8.294\*\* | 8.442\*\*\* | 7.733\*\* | 7.760\*\* | 12.433\*\*\* | 11.663\*\*\* | 9.033\* | 9.123 |
| (5.047) | (2.811) | (5.659) | (2.909) | (2.841) | (2.917) | (2.912) | (3.670) | (3.297) | (4.735) | (5.172) |
| Credit risk | -120.735\*\*\* | -93.619\*\*\* | -122.287\*\*\* | -93.389\*\*\* | -91.978\*\*\* | -94.030\*\*\* | -94.098\*\*\* | -86.243\*\* | -91.262\*\* | -132.740\*\*\* | -133.683\*\*\* |
| (35.918) | (15.945) | (37.167) | (15.618) | (15.334) | (16.104) | (16.130) | (30.520) | (33.806) | (24.768) | (25.526) |
| Liquidity risk | 0.002 | 0.004\*\* | 0.003 | 0.003 | 0.003 | 0.004\*\* | 0.004\* | 0.006 | 0.006 | -0.007 | -0.007 |
| (0.002) | (0.002) | (0.003) | (0.002) | (0.002) | (0.002) | (0.002) | (0.005) | (0.005) | (0.007) | (0.007) |
| Funding | -0.446 | 0.636 | -0.477 | 0.696 | 0.660 | 0.649 | 0.646 | -0.805 | -0.731 | 0.322 | 0.322 |
| (0.444) | (0.876) | (0.449) | (0.911) | (0.916) | (0.887) | (0.884) | (0.482) | (0.484) | (0.760) | (0.767) |
| Lerner index | -0.474 | 0.356 | -0.464 | 0.301 | 0.301 | 0.327 | 0.319 | 0.216 | -0.048 | -1.230 | -1.273 |
| (1.590) | (1.537) | (1.646) | (1.592) | (1.566) | (1.584) | (1.571) | (1.639) | (1.764) | (1.707) | (1.720) |
| Foreign bank assets | 0.011 | -0.009 | 0.009 | -0.011 | -0.009 | -0.010 | -0.010 | 0.009 | 0.008 | 0.009 | 0.008 |
| (0.020) | (0.026) | (0.020) | (0.027) | (0.026) | (0.026) | (0.027) | (0.016) | (0.017) | (0.022) | (0.023) |
| Inflation | -0.032 | -0.062\*\* | -0.040 | -0.065\*\* | -0.065\*\* | -0.061\*\* | -0.064\*\* | -0.073\*\* | -0.083\*\* | -0.069 | -0.067 |
| (0.036) | (0.026) | (0.034) | (0.027) | (0.027) | (0.026) | (0.027) | (0.032) | (0.035) | (0.041) | (0.040) |
| Observations | 703 | 1,645 | 703 | 1,645 | 1,645 | 1,645 | 1,645 | 1,012 | 1,012 | 740 | 740 |
| R-squared | 0.170 | 0.170 | 0.157 | 0.163 | 0.166 | 0.165 | 0.165 | 0.149 | 0.124 | 0.148 | 0.149 |
| Number of banks | 48 | 74 | 48 | 74 | 74 | 74 | 74 | 49 | 49 | 50 | 50 |
| No of countries | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Cluster | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country |

**Appendix F. The impact of macroprudential policies on risk: Robustness assessment using First Difference GMM**

|  |  |  |
| --- | --- | --- |
|  | Dependent variable: Conditional Value at Risk (CoVaR) | Dependent variable: Value at Risk (VaR) |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| *General policies* | *Housing policies* | *General policies* | *Housing policies* |
| Capital requirements | 0.001 |  |  |  |  |  |  |  | **0.005\*\*\*** |  |  |  |  |  |  |   |
| (0.001) |  |  |  |  |  |  |  | **(0.002)** |  |  |  |  |  |  |   |
| Sector capital buffers |  | **-0.005\*\*\*** |  |  |  |  |  |  |  | **-0.008\*\*\*** |  |  |  |  |  |  |
|  | **(0.002)** |  |  |  |  |  |  |  | **(0.003)** |  |  |  |  |  |  |
| Reserve requirements FX |  |  | **-0.005\*\*\*** |  |  |  |  |  |  |  | **-0.010\*\*\*** |  |  |  |  |   |
|  |  | **(0.002)** |  |  |  |  |  |  |  | **(0.003)** |  |  |  |  |   |
| Reserve requirements local |  |  |  | **-0.006\*\*\*** |  |  |  |  |  |  |  | **-0.008\*\*\*** |  |  |  |   |
|  |  |  | **(0.002)** |  |  |  |  |  |  |  | **(0.003)** |  |  |  |   |
| Countercyclical capital requirements |  |  |  |  | **-0.028\*\*** |  |  |  |  |  |  |  | **-0.053\*\*** |  |  |  |
|  |  |  |  | **(0.013)** |  |  |  |  |  |  |  | **(0.022)** |  |  |  |
| Loan loss provisioning |  |  |  |  |  | **0.020\*\*\*** |  |  |  |  |  |  |  | **0.038\*\*\*** |  |  |
|  |  |  |  |  | **(0.001)** |  |  |  |  |  |  |  | **(0.003)** |  |  |
| DSTI lending criteria |  |  |  |  |  |  | **-0.014\*\*\*** |  |  |  |  |  |  |  | **-0.027\*\*\*** |  |
|  |  |  |  |  |  | **(0.003)** |  |  |  |  |  |  |  | **(0.006)** |  |
| Risk weights on housing loans |  |  |  |  |  |  |  | -0.007 |  |  |  |  |  |  |  | **-0.031\*\*** |
|  |  |  |  |  |  |  | (0.008) |  |  |  |  |  |  |  | **(0.013)** |
| Size | -0.010 | -0.011 | -0.005 | -0.008 | -0.035\*\*\* | -0.021\*\* | -0.030\*\*\* | -0.026\*\* | 0.003 | -0.011 | 0.001 | -0.002 | -0.029 | -0.005 | -0.011 | -0.009 |
| (0.009) | (0.008) | (0.008) | (0.009) | (0.010) | (0.009) | (0.011) | (0.011) | (0.015) | (0.013) | (0.014) | (0.014) | (0.021) | (0.019) | (0.020) | (0.020) |
| Capitalization | -0.270\*\* | -0.354\*\*\* | -0.245\*\* | -0.243\*\* | -0.049 | -0.008 | -0.121 | -0.233\*\* | 0.118 | -0.109 | 0.190 | 0.141 | 0.336\* | 0.363\* | 0.420\* | -0.165 |
| (0.110) | (0.102) | (0.111) | (0.111) | (0.107) | (0.105) | (0.105) | (0.108) | (0.199) | (0.190) | (0.201) | (0.207) | (0.202) | (0.190) | (0.249) | (0.317) |
| Credit risk | -0.279 | -0.325\* | -0.283\* | -0.226 | -0.403\* | -0.255 | -0.091 | 0.190 | -0.469 | -0.792\*\* | -0.902\*\*\* | -0.860\*\*\* | -0.809\* | -0.702\*\* | -0.792 | -0.205 |
| (0.174) | (0.167) | (0.156) | (0.172) | (0.233) | (0.208) | (0.343) | (0.380) | (0.321) | (0.322) | (0.310) | (0.328) | (0.429) | (0.319) | (0.625) | (0.732) |
| Liquidity risk | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -0.000 | 0.000\* | 0.000 | 0.000\* | 0.000\* | 0.000\* | 0.000\* | -0.000 | -0.000 | 0.000 | 0.000 |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Funding | -0.001 | 0.000 | -0.000 | -0.002 | -0.003 | 0.000 | -0.003 | 0.002 | 0.003 | 0.005 | 0.007 | 0.006 | 0.012 | 0.009 | 0.006 | 0.020 |
| (0.005) | (0.005) | (0.005) | (0.006) | (0.006) | (0.005) | (0.007) | (0.006) | (0.015) | (0.015) | (0.015) | (0.015) | (0.016) | (0.016) | (0.018) | (0.016) |
| Lerner index | -0.005 | -0.009 | -0.004 | -0.005 | -0.008 | 0.003 | 0.004 | 0.027\*\*\* | 0.036\*\* | 0.023 | 0.032\*\* | 0.032\*\* | 0.048 | 0.057\*\* | 0.079\*\* | 0.144\*\*\* |
| (0.005) | (0.005) | (0.005) | (0.005) | (0.010) | (0.005) | (0.009) | (0.010) | (0.016) | (0.017) | (0.016) | (0.016) | (0.037) | (0.024) | (0.036) | (0.038) |
| Foreign bank assets | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.001 | 0.001 | -0.000 | 0.000 | 0.000 | 0.001 |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.001) | (0.001) | (0.001) |
| Inflation | -0.001\*\*\* | -0.001 | -0.001\*\* | -0.001 | -0.001\*\* | -0.002\*\*\* | -0.003\*\*\* | -0.002\*\*\* | -0.005\*\*\* | -0.004\*\*\* | -0.005\*\*\* | -0.005\*\*\* | -0.006\*\*\* | -0.006\*\*\* | -0.007\*\*\* | -0.007\*\*\* |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Observations | 1817 | 1817 | 1817 | 1817 | 1107 | 1107 | 833 | 833 | 1817 | 1817 | 1817 | 1817 | 1107 | 1107 | 833 | 833 |
| Number of banks | 73 | 73 | 73 | 73 | 48 | 48 | 48 | 48 | 73 | 73 | 73 | 73 | 48 | 48 | 48 | 48 |
| No of countries | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Number of instruments  | 13 | 42 | 39 | 39 | 37 | 26 | 31 | 37 | 13 | 42 | 39 | 39 | 37 | 26 | 31 | 37 |
| Wald chi2  | 23.65 | 26.80 | 36.44 | 23.54 | 16.23 | 447.59 | 30.29 | 28.92 | 107.26 | 57.47 | 131.27 | 90.33 | 132.02 | 326.51 | 146.50 | 86.06 |
| Wald chi2 p value  | 0.00 | 0.00 | 0.00 | 0.01 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| AR(2) test p value  | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hansen test  | 6.04 | 18.67 | 14.91 | 39.11 | 26.58 | 0.00 | 19.58 | 31.77 | 20.33 | 19.25 | 16.45 | 35.57 | 27.32 | 0.00 | 14.96 | 33.24 |
| Hansen test p-value  | 0.20 | 0.98 | 0.99 | 0.12 | 0.54 | 1.00 | 0.61 | 0.28 | 0.00 | 0.97 | 0.98 | 0.22 | 0.50 | 1.00 | 0.86 | 0.23 |

**Appendix G. The impact of macroprudential policies on risk: European banks sub-sample**

|  |  |  |
| --- | --- | --- |
|  | Dependent variable: Conditional Value at Risk (CoVaR) | Dependent variable: Value at Risk (VaR) |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| *All* | *General policies* | *Housing policies* | *All* | *General policies* | *Housing policies* |
| Capital requirements | -0.002 | -0.002 |  |  |  |  |  |  |  | -0.005 | -0.003 |  |  |  |  |  |  |  |
| (0.003) | (0.002) |  |  |  |  |  |  |  | (0.006) | (0.003) |  |  |  |  |  |  |  |
| Sector capital buffers | -0.005\*\*\* |  | -0.005\*\*\* |  |  |  |  |  |  | -0.012\*\*\* |  | -0.012\*\*\* |  |  |  |  |  |  |
| (0.000) |  | (0.001) |  |  |  |  |  |  | (0.004) |  | (0.003) |  |  |  |  |  |  |
| Reserve requirements FX | -0.000 |  |  | -0.005\*\*\* |  |  |  |  |  | 0.004 |  |  | -0.003 |  |  |  |  |  |
| (0.003) |  |  | (0.001) |  |  |  |  |  | (0.006) |  |  | (0.003) |  |  |  |  |  |
| Reserve requirements local | -0.000 |  |  |  | -0.003 |  |  |  |  | -0.000 |  |  |  | -0.004 |  |  |  |  |
| (0.002) |  |  |  | (0.002) |  |  |  |  | (0.003) |  |  |  | (0.004) |  |  |  |  |
| Countercyclical capital requirements | -0.009\*\*\* |  |  |  |  | -0.011\*\* |  |  |  | -0.015\*\*\* |  |  |  |  | -0.022\* |  |  |  |
| (0.002) |  |  |  |  | (0.004) |  |  |  | (0.005) |  |  |  |  | (0.011) |  |  |  |
| Loan loss provisioning | -0.002 |  |  |  |  |  | 0.003\* |  |  | -0.001 |  |  |  |  |  | 0.008\*\*\* |  |  |
| (0.002) |  |  |  |  |  | (0.002) |  |  | (0.002) |  |  |  |  |  | (0.002) |  |  |
| DSTI lending criteria | -0.009\*\*\* |  |  |  |  |  |  | -0.010\*\*\* |  | -0.016\*\* |  |  |  |  |  |  | -0.024\*\*\* |  |
| (0.002) |  |  |  |  |  |  | (0.002) |  | (0.006) |  |  |  |  |  |  | (0.008) |  |
| Risk weights on housing loans | -0.003\* |  |  |  |  |  |  |  | -0.006 | -0.019\*\*\* |  |  |  |  |  |  |  | -0.026\*\*\* |
| (0.001) |  |  |  |  |  |  |  | (0.004) | (0.006) |  |  |  |  |  |  |  | (0.006) |
| Size | -0.028\*\* | -0.016\*\*\* | -0.018\*\*\* | -0.016\*\*\* | -0.016\*\*\* | -0.017\*\*\* | -0.016\*\*\* | -0.027\*\* | -0.027\*\* | -0.008 | -0.027 | -0.029 | -0.026 | -0.026 | -0.005 | -0.004 | -0.024 | -0.028\*\* |
| (0.010) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.010) | (0.010) | (0.017) | (0.021) | (0.021) | (0.021) | (0.021) | (0.017) | (0.017) | (0.022) | (0.010) |
| Capitalization | -0.538\*\*\* | -0.489\*\*\* | -0.494\*\*\* | -0.471\*\*\* | -0.478\*\*\* | -0.520\*\*\* | -0.513\*\*\* | -0.513\*\*\* | -0.524\*\*\* | -0.820\*\*\* | -0.632\*\* | -0.643\*\* | -0.619\*\* | -0.617\*\* | -0.885\*\*\* | -0.871\*\*\* | -0.574\* | -0.538\*\*\* |
| (0.139) | (0.128) | (0.130) | (0.132) | (0.133) | (0.158) | (0.154) | (0.127) | (0.130) | (0.203) | (0.254) | (0.248) | (0.262) | (0.261) | (0.228) | (0.223) | (0.295) | (0.139) |
| Credit risk | 0.472 | -0.091 | -0.135 | -0.084 | -0.076 | -0.058 | -0.015 | 0.146 | 0.119 | -0.110 | -0.396 | -0.502 | -0.388 | -0.374 | -0.359 | -0.275 | -0.522 | 0.472 |
| (0.428) | (0.256) | (0.241) | (0.243) | (0.243) | (0.359) | (0.371) | (0.445) | (0.443) | (0.991) | (0.615) | (0.641) | (0.608) | (0.620) | (0.444) | (0.411) | (0.892) | (0.428) |
| Liquidity risk | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -0.000 | 0.001 | 0.001 | 0.001 | 0.001 | -0.000 | -0.000 | 0.001 | 0.000 |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.000) | (0.001) | (0.000) |
| Funding | 0.009 | -0.009 | -0.009 | -0.009 | -0.009 | -0.000 | -0.001 | -0.000 | -0.002 | 0.035 | -0.031 | -0.031 | -0.031 | -0.031 | 0.004 | 0.003 | -0.002 | 0.009 |
| (0.005) | (0.014) | (0.014) | (0.014) | (0.014) | (0.012) | (0.012) | (0.010) | (0.011) | (0.031) | (0.055) | (0.055) | (0.055) | (0.055) | (0.042) | (0.043) | (0.048) | (0.005) |
| Lerner index | 0.009 | -0.004 | -0.005 | -0.006 | -0.005 | -0.010 | -0.007 | 0.015 | 0.011 | 0.016 | 0.006 | 0.005 | 0.004 | 0.004 | -0.018 | -0.014 | 0.053\* | 0.009 |
| (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.010) | (0.011) | (0.011) | (0.010) | (0.022) | (0.024) | (0.023) | (0.024) | (0.023) | (0.015) | (0.016) | (0.029) | (0.011) |
| Foreign bank assets | -0.001\*\* | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001\* | -0.001\* | -0.001\*\* | -0.001 | -0.002\* | -0.001 | -0.001 | -0.001\* | -0.001\* | -0.001\* | -0.001\*\* |
| (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) |
| Inflation | 0.002\* | 0.002\*\* | 0.002\*\* | 0.001\*\* | 0.002\*\* | 0.001\* | 0.001\* | 0.002\*\* | 0.002\*\* | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | -0.000 | -0.000 | 0.001 | 0.002\* |
| (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Observations | 843 | 1,241 | 1,241 | 1,241 | 1,241 | 1,158 | 1,158 | 880 | 880 | 843 | 1,241 | 1,241 | 1,241 | 1,241 | 1,158 | 1,158 | 880 | 843 |
| R-squared | 0.106 | 0.098 | 0.102 | 0.101 | 0.100 | 0.094 | 0.091 | 0.096 | 0.092 | 0.071 | 0.053 | 0.059 | 0.053 | 0.054 | 0.072 | 0.068 | 0.046 | 0.106 |
| Number of banks | 49 | 52 | 52 | 52 | 52 | 50 | 50 | 51 | 51 | 49 | 52 | 52 | 52 | 52 | 50 | 50 | 51 | 49 |
| No of countries | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 | 19 |
| Cluster | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country | Country |