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# Bank Competition and the Effects on Financial Stability

## Insights into the Emerging Banking Markets of the Philippines

Jovi Clemente Dacanay
Ella Mae Odtuhan Leonida
Michaela Nicole E. Meriño

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# Preface

Financial inclusion is the root of sustainable economic development. However, being financially included entails access to a wide range of financial services that respond to one's needs and capabilities.[1] This means targeting seven out of 10 financially excluded Filipinos,[2] which challenges Philippine universal and commercial banks (UKBs) to for-mulate and implement more creative products and services adopted to the needs of low-to-middle income Filipinos who aspire to be financially included.

Taking on this challenge exposes banks to risks and vulnerabilities, as they maintain healthy Basel III and BSP-regulated banking indicators. Yet the local industry managed to achieve this amidst the multiple difficulties posed by the COVID-19 pandemic.

This work took about six years in the making, starting with my dissertation that presented empirical proof to the stability of the Philippine banking system. Ella and Micha, graduate students then, together with their research seminar group mates took up the challenge of investigating important aspects of bank stability, namely bank efficiency and macro stress testing, could no longer be covered in my dissertation, due to time constraints. These research papers served as the seedbed of their individual theses which they successfully accomplished and defended in

[1] BSP. National Strategy for Financial Inclusion (2022–2028), pp. 1–3, (https://www.bsp.gov.ph/Pages/InclusiveFinance/NSFI-2022-2028.pdf).

[2] BSP. Financial Inclusion Survey (2019).

spite of the many COVID-related personal, financial, and health issues that we all had to grapple with. The data gathered, which was open to the public, covering up to the third quarter of 2022, provided sufficient information for us to verify if the banks in this study retained their pre-pandemic stability indicators. They did. This book establishes the theoretical, conceptual, and empirical evidence behind this remarkable phenomenon.

Pasig City, Philippines — Jovi Clemente Dacanay
Pasig City, Philippines — Ella Mae Odtuhan Leonida
Makati City, Philippines — Michaela Nicole E. Meriño

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Second, I thank my colleagues in the School of Economics of the University of Asia and the Pacific (UA&P), Dr. Peter U and Dr. Victor

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# Contents


**1 Growing Literature** 1

**2 Bank Stability and Market Concentration in the Emerging Capital Markets of Southeast Asia** 7
*Introduction* 7
*Emerging Capital Markets and the ASEAN Banking Industry* 13
*Framework* 16
*Empirical Methodology* 18
*Results* 20
*Bank Stability Trend of the ASEAN 7* 33
*Annex* 35

**3 Bank Competition + Market Concentration = Financial Stability?** 49
*Background* 49
*Review of Related Literature* 51
*Historical Development* 52
*Bank Competition and Financial Stability Pertinent to the Asia–Pacific Region* 56
*Studies Pertinent to the Philippines* 56
*Policy Issues* 58
*Theoretical Issues on Bank Competition, Capital Regulation, and Financial Stability* 61

*Empirical Issues: Industrial Organization Approach to Banking* 67
*Z-Index* 68
*Financial Stability Indicator Reflecting a Bank's Resilience From Insolvency: Z-index (ROA) or* $Z_{ROA}$ 70
*An Alternative Financial Stability Indicator Reflecting a Bank's Resilience From Insolvency: Z-index (ROE) or* $Z_{ROE}$ 70
*Risk-Based Capital Adequacy Ratio Z-index: Z-index (RCAR) or* $Z_{RCAR}$ 71
*Herfindahl–Hirschman Index (HHI)* 72
*Lerner Index* 73
*Boone Indicator or the Profit Elasticity Indicator* 76
*Theoretical Framework and Empirical Methodology* 77
*Hypotheses* 78
*Theoretical and Conceptual Framework* 78
*Theoretical Model: Imperfect Competition in the Philippine Banking Industry with a Dominant Bank Model* 79
*Bank Competition, Concentration, Fragility, and Stability* 83
*Conceptual Framework* 89
*Empirical Methodology* 98
*Empirical Verification of an Imperfectly Competitive Banking Industry* 98
*Competition, Concentration, and Banking Industry Stability* 101
*Competition, Concentration, Financial Stability, and Bank Capitalization* 107
*Results* 111
*Market Structure and Market Power in the UKB Industry of the Philippines* 116
*Bank Competition, Market Concentration, and Bank Stability as Indicators of Resilience to Bank Distress or Insolvency* 136
*Bank Competition, Market Concentration, and Financial Stability as Indicators of Resilience to Regulatory Distress* 141
*Summary, Conclusion, and Recommendations* 156
*Appendix* 160

**4 Does Income Diversification Enhance Bank Efficiency and Stability in Periods of Increased Competition?** 167
*Background* 167

*Review of Related Literature* 170
*Theoretical Studies on Bank Competition, Diversification, and Efficiency* 170
*Empirical Studies on Bank Competition and Efficiency* 171
*Bank Competition and Bank Efficiency in the Philippines* 173
*Bank Competition, Diversification, and Efficiency: Theoretical and Practical Underpinnings of Diversification* 173
*Empirical Studies on Bank Diversification and Efficiency* 176
*Diversification and Risk-Taking* 176
*Theoretical Framework and Empirical Methodology* 177
*Hypotheses* 177
*Theoretical Framework* 178
*Conceptual Framework* 184
*Empirical Methodology: Computing for Liquidity as a Substitute for Total Output* 186
*Estimation of Cost and Profit Efficiency Using the Stochastic Frontier Approach* 190
*Computation of Lerner Index as a Measure of Individual Bank's Market Power* 191
*Estimating the Effect of Bank Competition on Cost and Profit Efficiency of the Top 20 UKBs in the Philippines* 195
*Presentation, Interpretation, and Analysis of Results* 199
*Market Power and Efficiency* 200
*Market Power and Income Diversification* 208
*Market power, Income Diversification, and Stability* 216
*Summary, Conclusion, and Recommendations* 224
*Appendix* 230

**5 Macro Stress Testing of the Philippines' Top 10 UKBs: An Analysis of the Effect of Economic Distress on the Bank's Credit Quality** 235
*Background* 235
*Review of Related Literature* 239
*Typology of Macro Stress Testing* 239
*Formulation of Hypothesis* 246
*Theoretical Foundations* 251
*Theoretical and Conceptual Framework* 255
*Hypotheses* 255
*Theoretical Framework* 256

*Theoretical Model* 259
*The Bank in the Partial Equilibrium Model* 259
*The Goods-Producing Firm in the Partial Equilibrium Model* 261
*Partial Equilibrium Model* 262
*Conceptual Framework* 263
*Empirical Methodology* 265
*Model Specification* 266
*Herfindahl–Hirschman Index (HHI)* 267
*Vector Autoregressive (VAR) Model* 267
*Impulse Response Functions (IRF)* 268
*Generalized Method of Moments (GMM)* 269
*Data Description* 270
*Dependent Variable* 270
*Independent Variables* 270
*Results* 270
*Objective 1: Review of the Historical Influence of Macroeconomic Variables and Bank Competition on the Credit Quality of the Top 10 Universal and Commercial Banking Industry of the Philippines* 273
*Objective 2: Macroeconomic Model* 285
*Objective 3: Macroeconomic Scenarios* 292
*Objective 4: Credit Satellite Models* 296
*Summary, Conclusion, and Recommendations* 302
*Summary* 302
*Conclusion* 309
*Recommendations and Limitations of the Study* 311
*Appendix* 312
*Top 10 Banks Based on Total Assets from 2005 to 2020* 312

**Epilogue** 313

**Glossary** 315

**References** 325

**Index** 349

# List of Figures


Fig. 2.1 Gross domestic product per capita in current US$ of selected low-to-upper-middle-income countries in ASEAN (*Source* The Global Economy Data https://www.theglobaleconomy.com/) 9
Fig. 2.2 Scatterplot of bank stability, market power, and capitalization (*Source* World Bank) 24
Fig. 2.3 Scatterplot of efficiency, market power, and capitalization (*Source* World Bank) 27
Fig. 2.4 Scatterplot of non-interest income vs market power and capitalization (*Source* World Bank) 30
Fig. 2.5 Return-on-equity of the ASEAN 7 (*Source* World Bank) 31
Fig. 2.6 Bank Z-Score of the ASEAN 7 (2000–2027) (*Source* World Bank and the Global Economy Database. *Note* Actual data from 2000 to 2022, forecasts for RGDP growth rate, and inflation rate from 2023 to 2027 are based on IMF forecasts, as reported in The Global Economy Database) 35
Fig. 3.1 Overlapping dimensions of financial stability: the macroeconomy, financial institutions, and financial markets (*Source* Moenjak 2014, p. 211, and Author's Framework) 53
Fig. 3.2 Short-run implications of a binding risk-based capital requirement among perfectly competitive banks (*Source* VanHoose 2022, p. 165) 64

Fig. 3.3 Long-term effects of a binding risk-based capital ratio with representative competitive banks (*Source* VanHoose 2022, p. 166) 64
Fig. 3.4 Effects of a binding risk-based capital ratio with heterogeneous competitive banks (*Source* VanHoose 2022, p. 175) 66
Fig. 3.5 The structure-conduct-performance hypothesis: a loan market with a dominant bank and a competitive fringe (*Source* VanHoose 2022, p. 43) 81
Fig. 3.6 **a** and **b** The effects of capital regulation and competition on stability (*Source* Schliephake 2016, p. 1789 and the author's theoretical framework) 90
Fig. 3.7 Relevant literature linking capital regulation and competition with market power on stability (*Source* Schliephake 2016, p. 1789 and the author's theoretical framework) 93
Fig. 3.8 The effect of capital regulation and competition with market power on stability (*Source* Schliephake 2016, p. 1789 and the author's theoretical framework) 94
Fig. 3.9 Objectives of the study in the context of capitalization, bank competition and concentration, and bank stability nexus (*Source* Schliephake 2016, p. 1789 and the author's theoretical framework) 102
Fig. 3.10 Return-on-Equity and market concentration (*Source* BSP for basic data and the author's regression results) 110
Fig. 3.11 Herfindahl–Hirschman Index of the 46 BSP-Listed UKBs (*Source* BSP https://www.bsp.gov.ph/SitePages/Statistics/BSFinancialStatements.aspx?TabId=1) 117
Fig. 3.12 Financial Stability and Market Structure using the HHI for Loans and Deposits (*Source* BSP https://www.bsp.gov.ph/SitePages/Statistics/BSFinancialStatements.aspx?TabId=1 for basic data and Author's Regression Results. *Note* HHI < 1000 Unconcentrated and HHI > 1800 Highly Concentrated [Salop 1987]) 118
Fig. 3.13 Bank Capitalization and Market Structure using the HHI for Loans and Deposits (*Source* BSP for basic data) 119
Fig. 3.14 Estimated Equity-to-Assets and Estimated $Z_{\text{ROE}}$ with Actual Loans-to-Assets Ratio (2008 Q4 to 2019 Q4) (*Source* BSP for basic data, and Author's estimates) 155
Fig. 3.15 $Z_{\text{ROA}}$ and Bank Capitalization Coordinates for the Top 20 Banks (*Source* BSP for basic data, and the author's framework) 156

Fig. 3.16 Equity-to-Assets Ratio and Adjusted Lerner Index of the Top 20 UKBs (2005Q1 to 2019Q4) (*Source* BSP for basic data and the author's regression results) 157
Fig. 4.1 Summary of the theoretical framework (*Source* Author's theoretical framework) 184
Fig. 4.2 Conceptual framework: market power, income diversification, and bank efficiency (*Source* Author's framework) 185
Fig. 4.3 Mean profit efficiency scores (*Source* Author's framework) 185
Fig. 4.4 Mean cost efficiency scores (*Source* Author's framework) 186
Fig. 4.5 Conventional Lerner index (*Source* Author's framework) 201
Fig. 4.6 Adjusted Lerner index (*Source* Author's framework) 201
Fig. 4.7 Scatterplot of cost and profit efficiency vs. conventional Lerner index (*Source* Author's framework) 206
Fig. 4.8 Scatterplot of cost and profit efficiency vs. adjusted Lerner index (*Source* Author's framework) 207
Fig. 4.9 Income diversification index (*Source* Author's framework) 208
Fig. 4.10 Objectives 1 and 2: Relationship of Lerner index, income diversification, and bank efficiency (*Source* Author's framework, **Note* Numbers inside the square brackets are coefficients of the regressions) 213
Fig. 4.11 HHI deposits, loans, and assets of the entire banking industry throughout the sample period (*Source* BSP) 217
Fig. 4.12 Summary of the relationships of the Lerner index, income diversification, and bank stability variables for Objective 3 (*Source* Author's framework, **Notes* Numbers inside the square brackets are coefficients of the regressions) 222
Fig. 5.1 Complete Keynesian model (*Source* Bernard Felderer and Stefan Homburg [1992]) 253
Fig. 5.2 Conceptual map (*Sources* Author's theoretical framework, Vu et al. [2018]) 265
Fig. 5.3 Revised conceptual map (*Sources* Author's theoretical framework, Vu et al. [2018]) 266

Fig. 5.4 Market concentration using the Herfindahl–Hirschman Index (Top 46 UKBs) and Non-performing loans ratio of the entire universal and commercial banks (UKBs) (*Sources* Author's calculations, Bangko Sentral ng Pilipinas (BSP). *Note* Gray portion highlights the movement during the Global Financial Crisis (2008–2009) and the COVID-19 pandemic which started on March 6, 2020, for the Philippines with its first reported COVID-19 case) 277
Fig. 5.5 Non-performing loans ratio of the top 5 universal and commercial banks (*Source* Bangko Sentral ng Pilipinas (BSP). *Notes* (1) Gray portion highlights the movement during the Global Financial Crisis (2008–2009), (2) The NPL ratio of the Philippine National Bank (PNB) is plotted on the right-hand side since it is the only bank from the Top 5 that had NPL higher than 40%) 279
Fig. 5.6 Non-performing loans ratio of the next 5 universal and commercial banks (*Source* Bangko Sentral ng Pilipinas (BSP). *Note* Gray portion highlights the movement during the Global Financial Crisis (2008–2009)) 279
Fig. 5.7 Market shares of the top 46 universal and commercial banks (*Source* Bangko Sentral ng Pilipinas (BSP)) 284
Fig. 5.8 Impulse response function (IRF) results (*Source* Author's Calculations. *Notes* (1) The magnitude of the shock: one standard deviation of $x$; (2) Red dots represent the standard error (SE) confidence bands. The confidence intervals are computed as +/− 2 SE confidence bands; (3) $X$ axis represents the periods in quarters; $Y$ axis shows the percentage variation) 287
Fig. 5.9 GDP trend in 2019–2021(*Sources* Author's calculations. *Notes* (1) Data for 2021 is computed using VAR; (2) Simulation type: Deterministic, dynamic solution) 289
Fig. 5.10 Inflation Trend in 2019–2021 (*Sources* Author's calculations. *Notes* (1) Data for 2021 is computed using VAR; (2) Simulation type: Deterministic, dynamic solution) 290
Fig. 5.11 Interest rate trend in 2019–2021 (*Sources* Author's calculations. *Notes* (1) Data for 2021 is computed using VAR; (2) Simulation type: Deterministic, dynamic solution) 291

Fig. 5.12 Exchange rate trend in 2019–2021 (*Sources* Author's calculations. *Notes* (1) Data for 2021 is computed using VAR; (2) Simulation type: Deterministic, dynamic solution) 292
Fig. 5.13 Remittances trend in 2019–2021 (*Sources* Author's calculations, Bangko Sentral ng Pilipinas (BSP). *Notes* (1) Data for 2021 is computed using VAR; (2) Simulation type: Deterministic, dynamics: Dynamic solution) 293

# List of Tables


| | | |
|---|---|---|
| Table 2.1 | Growth projections for ASEAN and the world | 10 |
| Table 2.2 | Growth projections for ASEAN 10 and the world | 12 |
| Table 2.3 | Projected share of global growth for 2023 | 13 |
| Table 2.4 | Banking industry variables per country of the ASEAN 7 | 21 |
| Table 2.5 | Bank stability, efficiency, and capitalization | 25 |
| Table 2.6 | Cost efficiency and capitalization for ASEAN 7 | 28 |
| Table 2.7 | Profitability and bank stability | 32 |
| Table 2.8 | Banking industry variables per country | 36 |
| Table 2.9 | Descriptive statistics relevant indicators | 45 |
| Table 2.10 | Correlation matrix of relevant indicators | 46 |
| Table 2.11 | Forecasts: economic growth and inflation | 47 |
| Table 3.1 | Comparison of Basel III guidelines and proposed BSP regulations | 59 |
| Table 3.2 | Variable definition | 104 |
| Table 3.3 | Effect of market power on various dependent variables *i* | 108 |
| Table 3.4 | Effect of market power on bank capitalization in compliance with Basel III (Competition-Fragility Nexus) | 109 |
| Table 3.5 | Competition, market concentration, and stability empirical tests: which factors make banks less fragile? | 112 |
| Table 3.6 | Market power behavior of the Top 20 Top 20 UKBs (2005Q1 to 2019Q4) | 121 |
| Table 3.7 | Market power behavior of the Top 10 UKBs vs the Next 10 (2005Q1–2019Q4) | 122 |

| | | |
|---|---|---|
| Table 3.8 | Comparison of market power behavior: Top 10 vs Next 10 UKBs (2008Q4–2019Q4) | 123 |
| Table 3.9 | Market concentration and markups of dominant vs fringe UKBs (2005Q1–2019Q4) | 124 |
| Table 3.10 | Mark-up elasticity of total loans vs total deposits (2005Q1–2019Q4) | 125 |
| Table 3.11 | Net income of dominant and fringe banks vs market power (2005Q1–2019Q4) | 126 |
| Table 3.12 | Results of the empirical verification of an imperfectly UKBs industry using the Monti-Klein and the dominant and fringe models for the Top 20 UKBs | 127 |
| Table 3.13 | Financial stability using $Z_{\text{ROA}}$ of the Top 20 UKBs (2005Q1–2019Q4) | 132 |
| Table 3.14 | Financial stability using $Z_{\text{ROE}}$ of the Top 20 UKBs (2005Q1–2019Q4) | 137 |
| Table 3.15 | Financial stability using $Z_{\text{ROA}}$ of the Top 10 and next 10 UKBs (2005Q1–2019Q4) | 138 |
| Table 3.16 | Financial stability using $Z_{\text{ROE}}$ of the Top 10 and Next 10 UKBs (2005Q1–2019Q4) | 139 |
| Table 3.17 | Financial Fragility using Equity-to-Assets of the Top 20 | 142 |
| Table 3.18 | Financial fragility using equity-to-assets of the Top 20 UKBs (2005Q1–2019Q4) | 143 |
| Table 3.19 | Financial fragility using equity-to-assets of the Top 10 and next 10 UKBs (2005Q1–2019Q4) | 144 |
| Table 3.20 | Financial fragility using the NPL ratio of the Top 20 UKBs (2005Q1–2019Q4) | 145 |
| Table 3.21 | Financial fragility using non-performing loans ratio of the Top 10 and next 10 UKBs (2005Q1–2019Q4) | 147 |
| Table 3.22 | Financial stability using $Z_{\text{RCAR}}$ of the Top 10 and next 10 UKBs (2007Q3–2019Q4) | 148 |
| Table 3.23 | Financial stability using $Z_{\text{TIER1}}$ of the Top 10 and next 10 UKBs (2007Q3–2019Q4) | 149 |
| Table 3.24 | Buffer, risk-shifting, and profit-margin effects on the risk-based capital adequacy ratio of the Top 10 and next 10 UKBs (2007Q3–2019Q4) | 150 |
| Table 3.25 | Inflection Points Estimated from the GMM Regressions (2005Q1–2022Q3) | 152 |
| Table 3.26 | Bank competition, concentration and financial stability findings | 158 |
| Table 3.27 | Basis for the dominant and fringe bank grouping | 161 |
| Table 3.28 | Market share of the Top 46 UKBs (2005–2022) | 162 |

Table 3.29 GMM regression on return-on-equity for the Top 20 UKBs (2005Q1 to 2007Q4) 163
Table 3.30 GMM regression on return-on-equity for the Top 20 UKBs 164
Table 3.31 Descriptive statistics for the Top 20 UKBs (2005 Q1–2019 Q4) 165
Table 3.32 Descriptive statistics for the Top 10 and Next 10 UKBs (2005 Q1–2019 Q4) 166
Table 4.1 Classified accounts with assigned weights 188
Table 4.2 Summary of variables 192
Table 4.3 Regression results for Objective 1: The top 20 banks' profit and cost efficiency as dependent variables 204
Table 4.4 Regression results for Objective 2: The top 10 banks profit and cost efficiency as dependent variables 205
Table 4.5 Regression results for Objective 2: The fringe banks (next 10) profit and cost efficiency as dependent variables 210
Table 4.6 Summary of variables determining bank efficiency using conventional and adjusted lerner index for dominant and fringe banks 215
Table 4.7 Regression results for Objective 3 for dominant banks with $Z_{ROA}$ and $Z_{ROE}$ as dependent variables 219
Table 4.8 Regression results for Objective 3 for fringe banks with $Z_{ROA}$ and $Z_{ROE}$ as dependent variables 221
Table 4.9 Summary of variables determining bank stability using conventional and adjusted Lerner index for dominant and fringe banks 223
Table 4.10 Summary of results 225
Table 4.11 Top 20 banks in terms of assets as of December 2019 230
Table 4.12 Descriptive statistics 231
Table 4.13 Average cost and profit efficiency of the top 20 UKBs in the Philippines from Q1 2005 to Q4 2019 233
Table 5.1 Summary of the developments in macro stress testing (MST) 240
Table 5.2 Summary of the formulation of Hypothesis 1 241
Table 5.3 Summary of the formulation of Hypothesis 2 and 3 243
Table 5.4 List of independent variables 245
Table 5.5 Summary of the empirical methodology 271
Table 5.6 GDP growth rate forecasts of organizations in 2021 294
Table 5.7 Result of GDP shocks using percentile function 294
Table 5.8 Computed GDP growth rate quarterly forecasts for 2021 295
Table 5.9 GMM results of the top 10 UKBs under mild scenario 299

Table 5.10 GMM results of the Top 10 UKBs under moderate scenario 300
Table 5.11 GMM results of the UKB industry under mild and moderate scenarios 301
Table 5.12 Computed results using the forecasted values in 2021 under mild scenario versus actual 2020 data 301
Table 5.13 Computed results using the forecasted values in 2021 under moderate scenario versus actual 2020 data 302
Table 5.14 Results using the forecasted values in 2021 under mild and moderate scenario versus actual 2019 and 2020 data 302
Table 5.15 Summary table of objectives, method and indicators, and results 303


CHAPTER 1

# Growing Literature

The five chapters of this book bring together three different studies whose authors worked as an academic team tasked to delve into the industrial organization of the Philippine banking industry, using this structure as a lever to consider the local banking industry as an emerging capital market. All three authors mentored one another, witnessing the reaction and behavior of the universal and commercial banking (UKB) industry to a COVID-19 environment. This study aims to show readers that the Philippine UKB industry demonstrated resilience to this unprecedented economic shock and will continue to withstand the global headwinds affecting the emerging countries of Asia.

The researchers intentionally covered data from 2005 to 2019 due to the irregularity of data pertinent to measure the market power and efficiency indexes from 2020 to 2021. However, the presence of open access data from the Bangko Sentral ng Pilipinas (BSP) website shows that the banking industry is on its way to pre-COVID levels due to their aggressive move to improve capitalization and so withstand anything that would challenge their stability.

First, this book aims to provide empirical verification that market competition and market concentration lead to the financial stability of Philippine UKBs and of the emerging markets in the ASEAN. Second, cost efficiency contributed to the market power of the Top 20 UKBs. In



J. C. Dacanay et al., *Bank Competition and the Effects on Financial Stability*, Palgrave Macmillan Studies in Banking and Financial Institutions, https://doi.org/10.1007/978-3-031-59599-8_1

fact, a Lerner index that is adjusted for cost efficiency strongly explains bank stability. Third, with macro stress testing, one can verify that the Top 10 Philippine UKBs remained stable in spite of the economic distress caused by the pandemic and the regulations regarding the extension of loan payments.

Chapter 2, entitled "Bank Stability and Market Concentration in the Emerging Capital Markets of Southeast Asia," discusses the similarities of macroeconomic policies among the seven selected nations of the Association of Southeast Asian Nations (ASEAN) with regard to achieving financial and economic stability. Sound macroeconomic fundamentals, resilience of financial systems, and bank stability constitute the core of the emerging capital markets of the upper middle-income and low-middle-income countries of the ASEAN. For a region that is vulnerable to external shocks, bank stability arising from the interdependence of the banking sector and the overall health of the capital markets usually characterizes a resilient financial system. This study focuses on the market concentration and stability nexus which signifies that more market concentration leading to higher capitalization in the banking industry of the low-middle countries of the ASEAN leads to more stable banks. One can therefore observe that small developing countries of the ASEAN whose banking industries vary in size and market concentration all manifest stability before and during the pandemic period even if they remained vulnerable to various global headwinds.

Chapter 3, entitled "Does Market Competition and Market Concentration Lead to Financial Stability?" focuses on "competition-stability," a strand of banking literature that affirms that greater market power boosts stability. Martinez-Miera and Repullo (2010) argue that a nonlinear, inverted U-shaped relationship between competition and financial stability, and financial stability and fragility can happen at the same time. This study verifies the "competition-stability" view in the context of imperfect competition and a binding bank capitalization regulatory constraint in the banking industry of the Philippines.

With this current environment, does bank competition and concentration lead to financial stability?

Using the techniques of traditional and the new empirical industrial organization literature, the study verified the occurrence of competition-stability in an imperfectly competitive and loans market-concentrated UKB industry under a binding regulatory bank capitalization environment. In a banking industry with dominant and fringe banks, the sampled

Top 20 banks of the Philippines are expected to exercise market power by charging higher loan rates to improve their profit margins and monitoring technology. According to Schliephake (2016), banks resort to this practice to acquire sufficient earnings and so increase their capital buffer.

To test the competition-fragility and competition-stability views, the Z-index (indicator for financial stability vis-à-vis overall bank risk exposure and insolvency), non-performing loans (NPL) to total loans ratio (indicator for portfolio risk), and, the equity to total assets ratio (indicator for bank capitalization) were used as dependent variables and regressed, using the generalized method of moments (GMM). Market power, on the other hand, was measured by the adjusted Lerner index, Herfindahl–Hirschman Index or HHI (for deposits and loans), and other bank-specific control variables, following the methodology used by Berger et al. (2009).

The GMM regression method allows for correction for heteroscedasticity, weak serial correlation, and endogeneity via robust estimators and assumes a non-normal but asymptotic to zero probabilistic distribution for the means of the dependent and independent variables. Varying methods of the financial stability indicator, the Z-index, were used to test resilience from bank insolvency and regulatory distress, i.e., using return-on-assets, return-on-equity, BSP-proposed risk-weighted capitalization ratios.

The results show that in an environment of imperfect competition, dominant banks experience an increase of profit margins through higher markups and a decline in NPL. These combined occurrences lessen the probability of insolvency thereby increasing the stability of the larger banks. However, the strategy of increasing their loans and deposits market shares also exposes them to higher default and market risks, or financial or economic shocks which cause significantly higher equity returns volatility, thereby increasing bank fragility.

The empirical results verify that the profit margin and risk-shifting effects among the Top 10 banks outweigh the buffer effect. On the other hand, the Next 10 banks achieved higher profit margins that were channeled to bigger capitalization ratios. One can therefore hope that as greater market concentration continues, dominant banks will promote a market environment that pursues higher capital ratios to boost stability in the UKB industry.

Chapter 4 "Does Income Diversification Contribute to Achieving Bank Efficiency and Stability in periods of Increased Competition?" tackles how empirical studies churn out ambiguous results regarding the effects of bank competition and income diversification on performance in terms of

cost and profit efficiency and stability. This is despite literature that elucidate the importance of cost and profit efficiency to determine a bank's performance. Using the Lerner index as a measure for bank market power and Stochastic Frontier Analysis to estimate bank cost and profit efficiency scores, this study aims to verify whether a high level of income diversification contributes to the efficiency and stability of the Philippines' Top 20[1] UKBs in periods of increased competition.

The GMM panel estimation has shown that competition is negatively related to cost and profit efficiency and stability, which supports the information generation hypothesis and competition-fragility view. The results also show that a high level of income diversification alone is detrimental to bank efficiency and stability. However, when a high level of income diversification comes with a high level of market power, banks improve in efficiency and stability. Due to this, domestic banks, particularly the dominant ones, thrive in an imperfectly competitive market despite their diverse income sources. The erosion of market power adversely affects bank performance, which is more evident in those with highly diversified income. These results imply that a high level of income diversification can intensify the negative impact of market competition on cost and profit efficiency and bank stability.

Chapter 5 "Macro Stress Testing of the Philippines' Top 10 UKBs: An Analysis of the Effect of Economic Distress on the Bank's Credit Quality" intends to address financial instability in emerging markets. A growing share of NPLs in the loan portfolio of banks in developing economies signifies greater risks for banking stability. In the wake of continuing global economic uncertainty, one must understand the importance of macro stress testing to gauge a bank's level of preparedness to manage risks in the financial system. Stress testing, a key technique for quantifying risks, constitutes a series of tests to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks. Thus, this paper aims to answer the question, "Does increased economic distress, in the context of lower bank competition, lead to lower credit quality?".

[1] From 2005 to 2021, the BSP reports a total of 46 UKBs. The authors consider this as the total number of UKBs in the Philippines. Some failed to submit their records to the BSP from 2020 to 2021, thus list in the BSP database totaled to only 41. As of the first quarter of 2022, 45 UKBs submitted their balance sheets to the BSP. The reduced number was due to the merger of Landbank and United Coconut Planters Bank in 2021.

The research will undertake four different stages that correspond to the following objectives: (1) to review the historical influence of macroeconomic variables and bank competition on the credit quality of the Top 10 Philippine UKBs; (2) to measure the relationship between macroeconomic variables, namely output growth, interest rates, inflation, exchange rate, and remittances; (3) to forecast the macroeconomic indicators under mild and moderate stress scenarios; and (4) to quantify the effect of economic distress on the credit quality of the Top 10 UKBs and the entire industry. The study used the NPL ratio as the empirical measure for credit quality. In terms of scope, it focuses on assessing the relationship between credit quality and the interested macroeconomic variables and does not attempt to predict the probability of a bank failure under stress scenarios.

Given the presence of the top 10 UKBs and bank behavior under the indicated macroeconomic stress scenarios, this chapter shows that lower remittances, GDP growth rate, and inflation, together with an increase in the interest rate and a level of exchange rate, contribute to forecasting an NPL ratio of 1.8%. This is in the scenarios of below 5% forecasts of credit rating agencies and Basel III regulation amidst the pandemic. Considering that the NPL ratio is well within the Basel III regulation of 5%, the UKB industry will continue to be stable.

The chapters look to convince monetary authorities of the emerging markets of the ASEAN to maintain macroeconomic policies that effectively foster financial stability. Such markets are conducive to bank stability resulting from cost-efficient and well-capitalized dominant banks.


CHAPTER 2

# Bank Stability and Market Concentration in the Emerging Capital Markets of Southeast Asia

## Introduction

Emerging capital markets refer to financial markets in developing countries that are experiencing growth and rapid economic development. Robust capital markets and financial systems, increased foreign investments, improved regulatory frameworks, enhanced financial infrastructure and institutions, and a growing middle class and high-risk and return profiles often characterize these markets. Moreover, they offer investment opportunities in sectors, such as technology, manufacturing, infrastructure, and services.

Governments of emerging market economies often implement economic reforms to attract foreign investments. These reforms may involve deregulation, the privatization of state-owned enterprises, and the opening up of financial markets to foreign investors. The regulatory environment of emerging capital markets may still be evolving, as authorities strive to establish effective regulations and frameworks to support fair and transparent markets. These include regulations on securities offerings, investor protection, corporate governance, and disclosure requirements. Emerging capital markets develop financial institutions, such as stock exchanges, bond markets, and commodity exchanges, to



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facilitate capital flows and investment. They may also establish regulatory bodies to oversee and enforce transparency and investor protection measures.

Likewise, the rise of a middle class with increased purchasing power is a key characteristic of emerging markets. Such is the case of Malaysia, Thailand, and, recently, Indonesia whose GDP per capita reached at least US$ 4256 in 2004, 2008, and 2021, respectively, enabling them to achieve upper middle-income status.[1] Figure 2.1 shows per capita GDP of the six selected countries of the Association of Southeast Asian Nations (ASEAN). The selected ASEAN countries in this study have complete databases from 2000 to 2022. In order to see the trend line of the other six ASEAN member countries, high-income Singapore was excluded from the graph as its GDP per capita is double that of Malaysia.

The expanding consumer base creates opportunities for businesses and attracts foreign companies looking to tap into new markets. Emerging capital markets often entail higher risks compared to more developed markets due to factors, such as political instability, currency volatility, and less mature regulatory frameworks. Examples of these are Brazil, Russia, India, China, Mexico, South Africa, and Turkey. However, they also offer possibly higher returns on investment, attracting investors seeking growth opportunities. These markets present opportunities for domestic and international investors looking to diversify their portfolios and participate in the growth of these economies. In particular, Asia is expected to surpass the projected growth of other regions (See Table 2.1).

The emerging capital markets, also referred to as emerging markets in ASEAN, differ from the above-mentioned countries in terms of economic development, regulatory framework, market size, and regional dynamics. Rapid economic growth, an expanding middle class, and increased urbanization typically characterize the markets of Indonesia, Thailand, Malaysia, the Philippines, and Vietnam (see Table 2.2). As of 2022, ASEAN contributed 9.9% to the global economy, much more than Europe (See Table 2.3). ASEAN's emerging markets primarily attract regional and international investors seeking exposure to high-growth economies in Southeast Asia. Emerging capital markets in the ASEAN have been the

[1] In this regard, please refer to the following World Bank classification: less than US$1035 GNI per capita (low-income); $1036–$4085 GNI per capita (lower middle-income); US$4086–$12,615 (upper middle income); over US$12,615 (high income). Upper middle-income countries have a GDP of US$4256–$13,205.