



Nexus of Competition, Concentration, Financial Inclusion and Financial stability in banking industry of Asian Emerging economies

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Abstract:

Competition in banking sector has changed due to recent financial liberalization and restructuring in emerging countries. Although healthy competition is the pathway of continuous improvement, efficiency and greater financial inclusion, however, a fierce competition may be detrimental for financial stability. Therefore, this study aims to investigate the existence and nature of the impact of competition, concentration and financial inclusion on financial stability in banking industry of eleven emerging economies of Asia for a period from 2004 to 2014. Results of panel least squares with country fixed effect and time fixed effect model, system GMM (Blundell and Bond, 1998) estimator and robustness tests show that competition and financial inclusion significantly contribute to financial stability whereas concentration influences it negatively. Therefore, the study provides support to competition-inclusion-stability view and also contributes to empirical literatures of financial stability.

Keywords: Asian emerging economies, Competition, Concentration, Financial inclusion, Financial stability, Panel GMM estimator.

Introduction

Since the global financial crisis of 2007-2009, 'Financial stability' has been emerged as policy priority and thus gained attention of the researchers across the world. Despite the increasing importance, a widely accepted definition of financial stability is yet not established, as the interpretations of different academics and central banks vary from each other. However, after exploring different approaches and interpretations Anatolyevna and Ramilevna (2013) has defined financial stability as a situation where, financial shocks could be resisted by a financial system that consists of financial markets, intermediaries and infrastructures. This definition is aligned to the interest of

European Central Bank (ECB). Moreover, arguing the same Padoa Schioppa (2002) emphasizes further on allocation of savings to investment opportunities and the processing of payments in the economy.

However, for having underdeveloped capital markets, financial intermediation in transitional economies mostly depends on banks (Berglof and Bolton, 2002; De Nicolo et al., 2003; Siddik and Kabiraj, 2018) and failure of the banking sector may lead to economic crises (Llewellyn, 2007; Milne, 2009). For example the 2007-2009 world economic crises resulted from the failure of the big financial institutions, especially banks of USA. Furthermore, the consequences of 1997 Asian financial crisis, Global financial crises of 2007-2009, Euro zone crisis and others financial crises throughout the history of economic development insist on establishing a stable financial framework to prevent such disaster specially for Asia, which experiences some dramatic financial context since financial liberalization in 1980, crisis in 1997 and again a fast financial growth in 21st century (Soedarmono et al., 2013). Additionally the poor accounting standards, corrupt governance, endangered minority shareholders make Asian businesses vulnerable (Park, 2006), which in turn can jeopardize the banking stability (Stiglitz and Weiss, 1981). Therefore, policies regarding financial stability of banks should be the prime concern for an economic zone like emerging Asian economies, since, empirically banks are considered as the key pillar of financial and economic stability in developing economies (Popovska, 2014). Considering the essence, this study is an attempt to explore the relationship of bank's financial stability with competition, concentration and financial inclusion in emerging Asian economies.

Though it is essential to have competition in financial industry for many reasons, especially for accessing financial services, managing intermediaries efficiently, improving monetary policy transmission, ensuring proper functionality and stability in financial system and for overall economic growth (Amidu and Wolfe, 2013) however, Beck et al. (2013) argues that interaction of financial stability and competition is widely debated and inconclusive and suggest that competition-stability relationship varies depending on the regulatory frameworks, market structures and levels of institutional development. This debate leads to two different views. The competition-fragility view claims a negative relationship between bank

competition and stability, since competitive market impedes banks to earn monopoly profits, reduce earnings and weakens market power. Hence, to survive in competition bank will take more risks by disbursing loan to borrowers without proper screening (Marcus, 1984 and Keeley, 1990). Whilst, competition-stability view argues that competition contributes to greater stability by compelling banks to reduce interest rates, therefore reduces the loan default rates, which will lead to bank stability (Boyd and De Nicolo, 2005). Recently, Martinez-Miera and Repullo (2010) combine these two competing views and argue that a U-shaped relationship between competition and stability could exist.

On the other hand, though level of concentration may indicate the industry competitiveness however, the coexistence of concentration and competition together with their concurrent impact on stability or fragility as found by Berger et al. (2009) and the bidirectional causality of concentration-stability demands competition and concentration to be analyzed separately. Besides this the consolidation trend of Asian banks and the M&A growth rate which was 25% per year as of 2003 (Soedarmono et al., 2013) signify a higher concentration level that also makes it worthy to investigate its impact on financial stability with enough importance for this region.

In addition to the concern of financial stability, since the early 2000s financial inclusion has been regarded with attention as a development goal and following the recent global financial crisis it has been discussed with immense interest in academic and policy circle. Ahamed and Mallick (2017) mention financial inclusion as an important public policy priority and argue that inclusive finance and stability of banks are complementary, as the larger customer base through financial inclusion enables banks to reduce both the marginal cost and risk that help to improve performance and stability. Though the contribution of financial inclusion to achieve financial stability is yet not settled however, unidirectional positive relation between these two phenomena is found in research of Okpara (2011), Prasad (2010) and Cull et al. (2012). They also suggested that in presence of improved financial infrastructure, supervision and efficient resource intermediation financial inclusion can promote financial stability by ensuring better access and use of financial services by both privileged and disadvantaged people. Despite the fact found in

different literatures that financial inclusion can promote economic growth, few initiatives have been made to explore its impact on bank's financial soundness (Ahamed and Mallick, 2017) moreover, this findings are of mixed conclusion, which creates the scope to research the relationship between financial inclusion and stability further.

Though the competition-stability is a widely researched topic accompanied by few studies to analyze the relationship between financial inclusion and stability, however to our knowledge this paper is the first initiatives that consider the impact of both competition (boon indicator and concentration) and financial inclusion on financial stability of banking industry. In addition, the recent striking economic growth of emerging Asian countries compared to others makes this initiative a contemporary research.

Other than these strengths this study could consider a broader scope. Instead of settling the competition-stability debate, We only focus on the relationship between financial stability and chosen variables. Moreover, if necessary data were available, we could consider more countries and a longer time period for our research purpose. Although there are future scopes of extending the present research by considering other aspects of financial stability, however, the present findings are essential for the policy makers of Asian emerging economies and it also has important contributions to the exiting and still evolving literatures on financial stability.

The remainder of this paper is organized as follows. Section 2 discusses the review of relevant literatures on banking stability, section 3 explains the econometric methodology, section 4 presents the results and discussions and section 5 concludes.

Literature review

The global financial crisis taught the importance of financial stability, which is an apparent concern of all academics, economists and policymakers since the social and economic impact of this is pervasive. Therefore, it is very important to research the factors affecting financial stability to develop suitable strategies for defending against any future uncertainty.

In addition to the importance, financial stability is discussed by two major schools of thought with different interpretations, related to financial fragility and financial stability. However, the center of all these

explanations is functionality of financial intermediation, which can be found in the definition given by the representatives of both schools (Mishkin, 1999; Ferguson, 2003; Crockett, 1997; Padoa-Schioppa, 2002). Following the inherent spirit of all these notions analyzing financial stability of banks are crucial, since banks play the vital roles of financial intermediation as the key institutions.

While analyzing financial stability in terms of competition and concentration, the findings show some ambiguous conclusions. Schaeck et al. (2009) explain that in a competitive environment banks are found to maintain a buffer capital that decreases the propensity of financial crisis. Boyd and De Nicoló (2005) also suggest a positive relation between competition and stability and argue that in a competitive market the lower lending rates reduce the cost of borrowing and increase the entrepreneurial success that contributes to bank's stability by reducing exposure to credit risk, in contrast, small number of large banks in a concentrated or less competitive market can charge higher interest rates, which may increase the volume of non-performing loan, thereby can cause banking failure.

Alternatively the extension of the model of Boyd and De Nicoló (2005) by Martinez-Miera and Repullo (2010) shows that probability of higher profit from higher interest rates can make this relation non-linear (U-shaped).

However studies of Llewellyn (2007) and Milne (2009) held excessive competition responsible for the failure of financial sectors of US and UK. Beck et al. (2013) find the positive impact of competition on bank's fragility in an economy that has a developed and regulated financial framework. Moreover in a simulation they also see that variation of regulation changes the intensity of this relation. According to Allen and Gale (2000, 2004), in a competitive market banks have a motivation to reduce the effort of screening customers for selling more credits and earning higher profit, which may also raise the credit risk and banks' fragility.

To examine the interaction of banking soundness and competition as measured by Boone indicator Schaeck and Cihák (2008) has analyzed 3600 banks from ten European countries and more than 8900 US banks and found competition as favorable for banking soundness, whereas Kasman and Kasman, (2015)

found the opposite relation while analyzing Turkish banking industry.

The mixed findings of Berger et al. (2009) make this mysterious relationship even more interesting by supporting both the stability and fragility view, where they find strong positive and negative relation of market power with loan portfolio risk and overall risk exposure respectively and suggest their coexistence can influence stability or fragility at the same time.

On the other hand Boyd et al. (2006) and Fu et al. (2014) find a positive and strong relation between bank concentration and probability of failure. De Nicolo and Loukoianova (2006) also discover the same; moreover the relationship becomes stronger when ownership is controlled. Similarly, bank stability is found negatively related with concentration in the research of Uhde and Heimeshoff (2009) and Kasman and Kasman, (2015).

On the contrary, empirical findings of Beck et al. (2006) show that banking fragility does not increased due to increased concentration of banking industry. In addition, Allen and Gale (2000) find better financial stability for the concentrated banking industry that consists of few large banks, which are easy to monitor. Boot and Thakor (2000) suggest that larger banks have motivation for higher return on small number of quality investments, which can increases financial stability.

Another essential aspect of financial stability is financial inclusion, which is a concern of different policy issue from the last two decades. Financial inclusion is important for financial stability because it helps to reduce the problem of asymmetric information (Petersen and Rajan, 1995), promote greater saving (Aportela, 1999; Allen et al., 2016), increase overall supply of credit to firms (Beck and Demirgüç-Kunt, 2008) and to other firms that need external financing (Rajan and Zingales, 1998), reduce cost of credit disbursement, and risk, generate competitive advantage of well informed banking and watchful lending and pricing, while reducing moral hazard and poor investment (Sharpe, 1990; Petersen and Rajan, 1994; Buch et al., 2012) and improve performance (Ahamed and Mallick, 2017). In addition an efficient financial intermediation can be achieved through institutional quality in an inclusive environment that promote greater stability (Hawkins, 2006) by providing service to mass section of the society.

The empirical findings show that financial inclusion has positive impact on financial stability (Ahamed and Mallick, 2017; Siddik and Kabiraj, 2018; Okpara 2011; Prasad 2010; Cull et al., 2012; Morgan and Pontines, 2014; Han and Melecky, 2013; Khan, 2011; Hannig and Jansen, 2010). Whilst some other research argued that, expansion of credit recklessly (Mehrotra and Yetman 2015), and without proper supervision (Sahay et al., 2015) make financial inclusion detrimental to financial stability, and the benefit of inclusion in good time can turn into costs during crisis (De la Torre et al., 2013).

Beside only the interactions of financial inclusion and bank stability, the empirical research of Owen and Pereira (2018) and Cetorelli and Gambera (2001) find financial inclusion increases with bank's concentration, in the contrary Beck et al. (2003) finds concentration as obstacles for accessing bank finance. In some other research of Berger and Hannan (1998), Marin and Schwabe (2013), Claessens and Laeven (2005), Love and Pería (2012) competition is found to increases the availability of financial services and exerts positive influence. Alternatives views argue for a negative impact of competition on banking services and show that credit become more available when the market is less competitive (Petersen and Rajan, 1995; Dell'Araccia and Marquez, 2004).

Financial stability is critical for the economic development of a country and financial inclusion targets the same. Considering this imperatives there are ample researches on the contribution of financial inclusion for poverty alleviation and economic development and few researches on the impact of financial inclusion on financial stability are conducted.

Reviewing different findings, it is evident that, factors affecting stability also influence inclusion that makes this interplay more research worthy, however, to our knowledge, no such initiative is taken yet to analyze the nexus of competition, concentration, financial inclusion and banks stability, which keep these bidirectional relationship tangles still debated and gives us the unique opportunity to fill this gap. Therefore, the main objective of this paper is to provide new evidences on this nexus using data from Asian emerging economies over the period of 2004–2014.

Methodology of the study

Data source: We use country level macro data like Bank branches, concentration, Boone indicator, capital

to total assets ratio, Liquid assets to deposits and short term funding ratio which are collected from World Bank database and Private credit and Broad money as percentage of GDP which are collected from IMF database to test whether bank competition, concentration and financial inclusion influence bank stability. Although the database used is a very vast cross-country time-series database consisting on a large number of variables linked to financial stability, financial inclusion and market condition, however, for unavailability of data, we have excluded some countries. Thus to arrive at the final sample, first we have excluded those countries which have information on fewer than 11 bank-years and dropped those that do not possess data related to variables of interest for this tenure. Finally, 11 Asian emerging countries as suggested by IMF (2015) and EM Bond Index, J.P. Morgan (Wikipedia contributors, 2018) are selected, and data are collected for the period of 2004-2014 based on the availability. Additionally for having 25 missing values on Bank capital to total assets (%), we finally use 96 year-country observations for the study. After arranging the necessary data we use the following variables to conduct the present study.

Financial Stability: To measure banks financial stability a wide range of indicators were devised following the global financial crises of 1980s and 1990s, among which Z-score is very common and used by many researchers (Amidu and Wolfe, 2013; Fu et al., 2014; Kasman and Kasman, 2015; Beck, et al., 2013; Morgan and Pontines 2014; Siddik and Kabiraj, 2018; World bank, 2015a). Here we use the natural logarithm of the Z-score to measure banks' financial stability that account for skewness in the data (Laeven and Levine, 2009; Demirguc-Kunt and Huizinga, 2010; Houston et al., 2010; Beck et al., 2013). Z-score measure the insolvency risk of a bank (Boyd and Runkle, 1993), a larger value of it means lesser risk of bankruptcy and higher bank stability. The equation to obtain the value of Z-score is as follows:

$$Z\text{-score} = \frac{(\text{ROA} + \frac{\text{Equity}}{\text{Assets}})}{\sigma\text{ROA}} \quad (\text{eq. 1})$$

Competition: Competition can be measured by H-statistic, concentration ratios, Lerner index, Boone indicator and different other tools. However, structural measures like, HHI represents competition through level of concentration, and which is found as a delicate proxy of competition (Claessens and Laeven, 2004) therefore, could generate misleading outcomes. Moreover a high degree of industry concentration does not necessarily imply a less competitive market (Owen and Pereira, 2018). On the other hand, Lerner index is also criticized for not being able to confine the degree of product substitutability (Vives, 2008). Whereas Boone indicator, introduced by Boone (2001, 2008) is found to overcome these shortcomings and employed by some researchers like, Schaeck and Cihák (2014), Saif-Alyousfi et. al. (2018), Kasman and Kasman (2015), Shijaku, (2017). Following the relevance we also use Boone indicator to measure the competition. In principle Boone indicator argues that competition creates a negative relation between performance and marginal cost that becomes stronger at higher level of competition. The equation to obtain the value of competition through Boon indicator is as follows:

$$\ln(ms_{it}) = \alpha + \sum_{t=1, \dots, (T-1)} \beta_t D_t \times \ln(mc_{it}) + \sum_{t=1, \dots, (T-1)} \theta_t D_t + \varepsilon_{it} \quad (\text{eq. 2})$$

Here ms, mc, β , D and ε represent market shares, marginal costs, boon indicator, time dummies and the disturbance term respectively.

In addition to this contemporary measure, we also use concentration in this research, which is measured by 3-bank concentration ratio similarly used by Owen and Pereira (2018) and Beck et al. (2006).

Financial Inclusion: Though there are a variety of indicators (and measures) that reports financial inclusion, like access indicators (availability of bank branches or POS devices in rural areas), usages indicators (average savings balances, number of transactions per account, number of electronic payments made) and quality indicators (availability of products, services and other options that clients need, level of awareness and understanding of financial products), however We use the number of bank branches as an access indicator (World Bank 2015b) of financial inclusion, since it indicates the spreads and capacity of banking industry and ability to diversify the

risk, which is also found in the research of Iqbal and Sami, 2017. This indicator also allows gauging demographical availability and depth of financial services to clients. Moreover the data scarcity impedes the scope of analyzing impact of other indicators of financial inclusion on bank's stability.

Control Variables: We consider some other variables to control the influence of bank and country specific factors. We use Financial depth [$\log(M2/GDP)$] to control size differentials of financial sector as well as economic growth, which is used in many other studies. Additionally, to control the heterogeneity of country specific banking industry we use size and liquidity risk which are measured by natural logarithm of bank capital to total assets [$\log(SIZ)$] and ratio of liquid assets to deposits and short term funding (LIQ) respectively. The table below illustrates the tools of measurement and acronyms used for each of the specific variables.

Variables	Measurement	Acronym
Dependent Variables		
Financial Stability	Bank Z-score = $\frac{(ROA + \frac{Equity}{Assets})}{\sigma ROA}$	logZ
Independent Variables		
Competition	Boone Indicator (β) $\ln(ms_{it}) = \alpha + \sum_{t=1, \dots, (T-1)} \beta_t D_t \times \ln(mc_{it}) + \sum_{t=1, \dots, (T-1)} \theta_t D_t + \epsilon_{it}$	BI
Concentration	3- Bank Concentration Ratio	CON
Financial Inclusion	Bank branches per 100,000 adults	FI
Control Variables		
Industry size	Bank capital to total assets	$\log(SIZ)$
Industry liquidity	Liquid assets to deposits and short term funding ratio	LIQ
Financial depth	Broad money as percentage of GDP	$\log(M2/GDP)$

Table 1: Measures of variables

The model: Complying with the earlier findings on related field, we posit that there is no linear relationship of financial stability with competition, concentration and financial inclusion. To test the hypothesis and interactions among variables the following base line model using Panel pooled OLS estimation is developed.

$$\log Z_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 CON_{it} + \beta_3 FI_{it} + \sum \beta_j X_{i,j} + \epsilon_{it} \quad (\text{eq.3})$$

Where, $\log Z_{it}$ is a proxy for bank stability of country i in period t , BI_{it} is competition for the banking industry measured by Boon Indicator, CON_{it} is for concentration prevailing in the banking industry measured by 3-bank concentration, FI_{it} is the level of financial inclusion of a country measured by Bank branches per 100,000 adults and $X_{i,j}$ are a set of $\{k\}$ variables controlling for country specific and macroeconomic factors. β 's are the parameter vectors; and ϵ_{it} is the unobserved disturbance.

After developing the initial model, Panel least square with both time fixed effect and country fixed effect are conducted and tested for autocorrelation using the Durbin-Watson (DW) test and to account for the endogeneity bias in the model Panel Generalized Method of Moments (system GMM developed by Blundell and Bond, 1998) is also employed. Finally we check the robustness of the findings by using GDP growth instead of financial depth ($M2/GDP$) and private credit by deposit money banks and other financial institutions to GDP (PC) in the estimation model.

Result and Discussion

Descriptive statistics

Table 2, shows the descriptive statistics which provides some insights regarding the variables applied in this study. The maximum and minimum value of dependent variable $\log Z$ are 3.279 and 1.379 respectively, which show a less dispersion of financial stability among the Asian emerging economies for the study period. The maximum and minimum value of Boone Indicator is 0.037 and -0.148 respectively. The more negative it is, the higher is the level of competition in the market because of higher reallocation effect. However, a positive value is also feasible. All other variables except bank concentration show moderate variation for having several structural changes of banking industry in this particular region since the inception of liberalization of 1980.

	$\log Z$	FI	CON	BI	$\log(SIZ)$	$\log(M2/GDP)$	LIQ
Mean	2.465	9.564	54.446	-0.045	2.160	4.363	21.923
Median	2.638	9.055	45.863	-0.040	2.195	4.357	20.942
Maximum	3.279	18.443	100	0.037	2.546	5.251	44.988
Minimum	1.379	3.142	28.371	-0.148	1.459	3.584	6.750
Std. Dev.	0.545	3.313	21.843	0.042	0.197	0.449	8.605
Observations	96	96	96	96	96	96	96

Table 2: Descriptive Statistics

Correlations

Table 3, depicts correlations among variables that explain the highest correlation is 0.49 between Boone Indicator and Liquidity. These mild correlations among variables imply that there is low level of multicollinearity and which can be ignored for further analysis.

	$\log Z$	FI	CON	BI	$\log(SIZ)$	$\log(M2/GDP)$	LIQ
$\log Z$	1						
FI	-0.027	1					
CON	0.289	0.198	1				
BI	-0.383	0.308	0.178	1			
$\log(SIZ)$	-0.084	0.062	0.085	0.325	1		
$\log(M2/GDP)$	0.473	-0.087	0.319	-0.161	-0.228	1	
LIQ	0.073	-0.242	0.200	0.496	0.489	-0.021	1

Table 3: Correlation matrix

Empirical results

To test the intended relationship of competition, concentration and financial inclusion with financial stability, Panel ordinary least square models with country fixed effect (model 1) time fixed effect (model 2) and both country and time fixed effect (model 3) and Panel Generalized Method of Moments (model 4) are used. Overall results of all the models are found consistent except for Concentration. The values of adjusted R2 are 0.973, 0.418, 0.975 and 0.975 respectively for the four models, which implies the models' fit to explain these relationships. Durbin Watson statistic also confirms that there is no auto correlation in the estimation. Though the Durbin Watson statistic for model 2 indicates a presence of auto correlation ($DW \approx 0.3$), however this is not harmful for the time fixed effect estimation.

The estimation results of all the models show that Financial inclusion (FI) has significant positive association with Financial stability, measured by $\log Z$, which indicates financial inclusion contributes to financial stability. In contrast, Bank competition (BI) have significant negative relation with financial stability ($\log Z$) in all the estimations, implies that higher bank competition leads to higher bank stability as lower values of the Boone indicator signify more competition. This result is consistent with the findings of Schaeck and Cihák (2014) however, inconsistent with

the research of Kasman and Kasman (2015) on Turkish banking industry, where both the researches have used Z score and Boone indicator to measure financial stability and competition respectively. In addition financial stability is found positively related with concentration in only model 2, however negative relation between them found in rest of the models, which are more reliable as both the significance of the relationship and fitness of the model ($\bar{R}^2 \approx 97\%$) are quite higher compared to model 2.

Dependent Variable: LogZ

Variable	Model 1	Model 2	Model 3	Model 4
C	0.266	-0.592	1.206***	1.444***
FI	0.018***	0.044**	0.018***	0.016***
CON	-0.003***	0.005**	-0.003**	-0.002**
BI	-1.798***	-9.120***	-2.216***	-1.941***
Log(SIZ)	0.320***	-0.166	0.048***	0.043***
Log(M2/GDP)	0.297**	0.368***	0.007***	0.005***
LIQ	0.004*	0.032***	0.006**	0.005**
Country fixed effect	Yes	No	Yes	Yes
Time fixed effect	No	Yes	Yes	No
Total panel observation	96	96	96	96
Adjusted R2	0.973	0.418	0.975	0.975
Durbin-Watson stat	1.600	0.300	1.905	1.782

*, ** and *** indicates Statistical significance at the 10%, 5% and 1% level respectively

Table 4: Estimation result of Model 1, Model 2, Model 3 and Model 4

Among the selected control variables log(M2/GDP) has significant positive association with financial stability which confirm to our expectation that country with higher financial depth has higher financial stability that supports the findings of as King and Levine (1993) and Siddik and Kabiraj (2018). Likewise Han and Melecky (2013) and Morgan and Pontines (2014), Liquidity (LIQ) is also found significantly positive with financial stability in both country and time fixed effect models. However, the result of log (SIZ) is consistent in all the three models except for time fixed effect model. Overall our findings support the Competition- Inclusion –Stability view.

Robustness check:

To check the robustness of the estimations a new panel least square with country fixed effect model is constructed by GDP growth (GDP) instead of financial depth (M2/GDP) and another new variable- Private credit by deposit money banks and other financial institutions to GDP (PC) along with the other variables of the main model.

Dependent Variable: logZ


Variable	Coefficient	Prob.
C	1.310***	0.000
BI	-1.938***	0.001
CON	-0.002**	0.014
FI	0.013**	0.018
log(SIZ)	0.332***	0.002
GDP	0.001	0.874
LIQ	0.005**	0.022
PC	0.004***	0.001
R-squared		0.979
Adjusted R-squared	0.974	
Durbin-Watson stat	1.731	

*, ** and *** indicates Statistical significance at the 10%, 5% and 1% level respectively

Table 5: Result of Robustness check

Results indicate that this model is consistent with previous models of estimations and PC has significant positive impact on the bank's stability, whereas GDP growth is found insignificant to financial stability. Moreover no autocorrelation is found in this model and variables are co-integrated that confirmed by Kao Residual Co-integration test. Overall the test results show the robustness of estimation models and thus can be applied in broader perspective.

Conclusion

The mysterious interplay of competition, concentration and financial inclusion with financial stability and the unique opportunity to explore this motivate us to conduct this study on Asian emerging economies. Our study results imply that both competition and financial inclusion contribute to financial stability whereas, concentration is found to support the fragility view. However, our overall results support competition-inclusion –stability view and accordingly contribute to the existing literature of financial stability. Additionally, this study is useful to the policy makers as it insist them to make the accesses to finance easy and encourage competition of banking industry in order to maintain stability with a close eye on the level of concentration. The implication of this study is that though Asian economies seems to perform very well and developing promisingly however probability of banking fragility cannot be ignored, which can be brought by other environmental factors like, imperfect governance and financial framework, inefficient risk management and misconstruction of stability factors. In addition inclusion of foreign banks in to the regional economy could also be a threat, which Fu, et al.(2014) suggest to examine with care, since this can also makes the industry unstable by creating an uneven economic structure and bringing contagion from other economic region. Considering all these, to maintain the growth and financial stability of this promising part of world economy, it is essential to take the findings of this unique study into consideration and ensure the ideal alley of interaction among competition, concentration, inclusion and financial stability. 

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European Central Bank (ECB). Moreover, arguing the same Padoa Schioppa (2002) emphasizes further on allocation of savings to investment opportunities and the processing of payments in the economy.

However, for having underdeveloped capital markets, financial intermediation in transitional economies mostly depends on banks (Berglof and Bolton, 2002; De Nicolo et al., 2003; Siddik and Kabiraj, 2018) and failure of the banking sector may lead to economic crises (Llewellyn, 2007; Milne, 2009). For example the 2007-2009 world economic crises resulted from the failure of the big financial institutions, especially banks of USA. Furthermore, the consequences of 1997 Asian financial crisis, Global financial crises of 2007-2009, Euro zone crisis and others financial crises throughout the history of economic development insist on establishing a stable financial framework to prevent such disaster specially for Asia, which experiences some dramatic financial context since financial liberalization in 1980, crisis in 1997 and again a fast financial growth in 21st century (Soedarmono et al., 2013). Additionally the poor accounting standards, corrupt governance, endangered minority shareholders make Asian businesses vulnerable (Park, 2006), which in turn can jeopardize the banking stability (Stiglitz and Weiss, 1981). Therefore, policies regarding financial stability of banks should be the prime concern for an economic zone like emerging Asian economies, since, empirically banks are considered as the key pillar of financial and economic stability in developing economies (Popovska, 2014). Considering the essence, this study is an attempt to explore the relationship of bank's financial stability with competition, concentration and financial inclusion in emerging Asian economies.

Though it is essential to have competition in financial industry for many reasons, especially for accessing financial services, managing intermediaries efficiently, improving monetary policy transmission, ensuring proper functionality and stability in financial system and for overall economic growth (Amidu and Wolfe, 2013) however, Beck et al. (2013) argues that interaction of financial stability and competition is widely debated and inconclusive and suggest that competition-stability relationship varies depending on the regulatory frameworks, market structures and levels of institutional development. This debate leads to two different views. The competition-fragility view claims a negative relationship between bank

competition and stability, since competitive market impedes banks to earn monopoly profits, reduce earnings and weakens market power. Hence, to survive in competition bank will take more risks by disbursing loan to borrowers without proper screening (Marcus, 1984 and Keeley, 1990). Whilst, competition-stability view argues that competition contributes to greater stability by compelling banks to reduce interest rates, therefore reduces the loan default rates, which will lead to bank stability (Boyd and De Nicolo, 2005). Recently, Martinez-Miera and Repullo (2010) combine these two competing views and argue that a U-shaped relationship between competition and stability could exist.

On the other hand, though level of concentration may indicate the industry competitiveness however, the coexistence of concentration and competition together with their concurrent impact on stability or fragility as found by Berger et al. (2009) and the bidirectional causality of concentration-stability demands competition and concentration to be analyzed separately. Besides this the consolidation trend of Asian banks and the M&A growth rate which was 25% per year as of 2003 (Soedarmono et al., 2013) signify a higher concentration level that also makes it worthy to investigate its impact on financial stability with enough importance for this region.

In addition to the concern of financial stability, since the early 2000s financial inclusion has been regarded with attention as a development goal and following the recent global financial crisis it has been discussed with immense interest in academic and policy circle. Ahamed and Mallick (2017) mention financial inclusion as an important public policy priority and argue that inclusive finance and stability of banks are complementary, as the larger customer base through financial inclusion enables banks to reduce both the marginal cost and risk that help to improve performance and stability. Though the contribution of financial inclusion to achieve financial stability is yet not settled however, unidirectional positive relation between these two phenomena is found in research of Okpara (2011), Prasad (2010) and Cull et al. (2012). They also suggested that in presence of improved financial infrastructure, supervision and efficient resource intermediation financial inclusion can promote financial stability by ensuring better access and use of financial services by both privileged and disadvantaged people. Despite the fact found in

different literatures that financial inclusion can promote economic growth, few initiatives have been made to explore its impact on bank's financial soundness (Ahamed and Mallick, 2017) moreover, this findings are of mixed conclusion, which creates the scope to research the relationship between financial inclusion and stability further.

Though the competition-stability is a widely researched topic accompanied by few studies to analyze the relationship between financial inclusion and stability, however to our knowledge this paper is the first initiatives that consider the impact of both competition (boon indicator and concentration) and financial inclusion on financial stability of banking industry. In addition, the recent striking economic growth of emerging Asian countries compared to others makes this initiative a contemporary research.

Other than these strengths this study could consider a broader scope. Instead of settling the competition-stability debate, We only focus on the relationship between financial stability and chosen variables. Moreover, if necessary data were available, we could consider more countries and a longer time period for our research purpose. Although there are future scopes of extending the present research by considering other aspects of financial stability, however, the present findings are essential for the policy makers of Asian emerging economies and it also has important contributions to the exiting and still evolving literatures on financial stability.

The remainder of this paper is organized as follows. Section 2 discusses the review of relevant literatures on banking stability, section 3 explains the econometric methodology, section 4 presents the results and discussions and section 5 concludes.

Literature review

The global financial crisis taught the importance of financial stability, which is an apparent concern of all academics, economists and policymakers since the social and economic impact of this is pervasive. Therefore, it is very important to research the factors affecting financial stability to develop suitable strategies for defending against any future uncertainty.

In addition to the importance, financial stability is discussed by two major schools of thought with different interpretations, related to financial fragility and financial stability. However, the center of all these

explanations is functionality of financial intermediation, which can be found in the definition given by the representatives of both schools (Mishkin, 1999; Ferguson, 2003; Crockett, 1997; Padoa-Schioppa, 2002). Following the inherent spirit of all these notions analyzing financial stability of banks are crucial, since banks play the vital roles of financial intermediation as the key institutions.

While analyzing financial stability in terms of competition and concentration, the findings show some ambiguous conclusions. Schaeck et al. (2009) explain that in a competitive environment banks are found to maintain a buffer capital that decreases the propensity of financial crisis. Boyd and De Nicoló (2005) also suggest a positive relation between competition and stability and argue that in a competitive market the lower lending rates reduce the cost of borrowing and increase the entrepreneurial success that contributes to bank's stability by reducing exposure to credit risk, in contrast, small number of large banks in a concentrated or less competitive market can charge higher interest rates, which may increase the volume of non-performing loan, thereby can cause banking failure.

Alternatively the extension of the model of Boyd and De Nicoló (2005) by Martinez-Miera and Repullo (2010) shows that probability of higher profit from higher interest rates can make this relation non-linear (U-shaped).

However studies of Llewellyn (2007) and Milne (2009) held excessive competition responsible for the failure of financial sectors of US and UK. Beck et al. (2013) find the positive impact of competition on bank's fragility in an economy that has a developed and regulated financial framework. Moreover in a simulation they also see that variation of regulation changes the intensity of this relation. According to Allen and Gale (2000, 2004), in a competitive market banks have a motivation to reduce the effort of screening customers for selling more credits and earning higher profit, which may also raise the credit risk and banks' fragility.

To examine the interaction of banking soundness and competition as measured by Boone indicator Schaeck and Cihák (2008) has analyzed 3600 banks from ten European countries and more than 8900 US banks and found competition as favorable for banking soundness, whereas Kasman and Kasman, (2015)

found the opposite relation while analyzing Turkish banking industry.

The mixed findings of Berger et al. (2009) make this mysterious relationship even more interesting by supporting both the stability and fragility view, where they find strong positive and negative relation of market power with loan portfolio risk and overall risk exposure respectively and suggest their coexistence can influence stability or fragility at the same time.

On the other hand Boyd et al. (2006) and Fu et al. (2014) find a positive and strong relation between bank concentration and probability of failure. De Nicolo and Loukoianova (2006) also discover the same; moreover the relationship becomes stronger when ownership is controlled. Similarly, bank stability is found negatively related with concentration in the research of Uhde and Heimeshoff (2009) and Kasman and Kasman, (2015).

On the contrary, empirical findings of Beck et al. (2006) show that banking fragility does not increased due to increased concentration of banking industry. In addition, Allen and Gale (2000) find better financial stability for the concentrated banking industry that consists of few large banks, which are easy to monitor. Boot and Thakor (2000) suggest that larger banks have motivation for higher return on small number of quality investments, which can increases financial stability.

Another essential aspect of financial stability is financial inclusion, which is a concern of different policy issue from the last two decades. Financial inclusion is important for financial stability because it helps to reduce the problem of asymmetric information (Petersen and Rajan, 1995), promote greater saving (Aportela, 1999; Allen et al., 2016), increase overall supply of credit to firms (Beck and Demirgüç-Kunt, 2008) and to other firms that need external financing (Rajan and Zingales, 1998), reduce cost of credit disbursement, and risk, generate competitive advantage of well informed banking and watchful lending and pricing, while reducing moral hazard and poor investment (Sharpe, 1990; Petersen and Rajan, 1994; Buch et al., 2012) and improve performance (Ahamed and Mallick, 2017). In addition an efficient financial intermediation can be achieved through institutional quality in an inclusive environment that promote greater stability (Hawkins, 2006) by providing service to mass section of the society.

The empirical findings show that financial inclusion has positive impact on financial stability (Ahamed and Mallick, 2017; Siddik and Kabiraj, 2018; Okpara 2011; Prasad 2010; Cull et al., 2012; Morgan and Pontines, 2014; Han and Melecky, 2013; Khan, 2011; Hannig and Jansen, 2010). Whilst some other research argued that, expansion of credit recklessly (Mehrotra and Yetman 2015), and without proper supervision (Sahay et al., 2015) make financial inclusion detrimental to financial stability, and the benefit of inclusion in good time can turn into costs during crisis (De la Torre et al., 2013).

Beside only the interactions of financial inclusion and bank stability, the empirical research of Owen and Pereira (2018) and Cetorelli and Gambera (2001) find financial inclusion increases with bank's concentration, in the contrary Beck et al. (2003) finds concentration as obstacles for accessing bank finance. In some other research of Berger and Hannan (1998), Marin and Schwabe (2013), Claessens and Laeven (2005), Love and Pería (2012) competition is found to increases the availability of financial services and exerts positive influence. Alternatives views argue for a negative impact of competition on banking services and show that credit become more available when the market is less competitive (Petersen and Rajan, 1995; Dell'Araccia and Marquez, 2004).

Financial stability is critical for the economic development of a country and financial inclusion targets the same. Considering this imperatives there are ample researches on the contribution of financial inclusion for poverty alleviation and economic development and few researches on the impact of financial inclusion on financial stability are conducted.

Reviewing different findings, it is evident that, factors affecting stability also influence inclusion that makes this interplay more research worthy, however, to our knowledge, no such initiative is taken yet to analyze the nexus of competition, concentration, financial inclusion and banks stability, which keep these bidirectional relationship tangles still debated and gives us the unique opportunity to fill this gap. Therefore, the main objective of this paper is to provide new evidences on this nexus using data from Asian emerging economies over the period of 2004–2014.

Methodology of the study

Data source: We use country level macro data like Bank branches, concentration, Boone indicator, capital

to total assets ratio, Liquid assets to deposits and short term funding ratio which are collected from World Bank database and Private credit and Broad money as percentage of GDP which are collected from IMF database to test whether bank competition, concentration and financial inclusion influence bank stability. Although the database used is a very vast cross-country time-series database consisting on a large number of variables linked to financial stability, financial inclusion and market condition, however, for unavailability of data, we have excluded some countries. Thus to arrive at the final sample, first we have excluded those countries which have information on fewer than 11 bank-years and dropped those that do not possess data related to variables of interest for this tenure. Finally, 11 Asian emerging countries as suggested by IMF (2015) and EM Bond Index, J.P. Morgan (Wikipedia contributors, 2018) are selected, and data are collected for the period of 2004-2014 based on the availability. Additionally for having 25 missing values on Bank capital to total assets (%), we finally use 96 year-country observations for the study. After arranging the necessary data we use the following variables to conduct the present study.

Financial Stability: To measure banks financial stability a wide range of indicators were devised following the global financial crises of 1980s and 1990s, among which Z-score is very common and used by many researchers (Amidu and Wolfe, 2013; Fu et al., 2014; Kasman and Kasman, 2015; Beck, et al., 2013; Morgan and Pontines 2014; Siddik and Kabiraj, 2018; World bank, 2015a). Here we use the natural logarithm of the Z-score to measure banks' financial stability that account for skewness in the data (Laeven and Levine, 2009; Demirguc-Kunt and Huizinga, 2010; Houston et al., 2010; Beck et al., 2013). Z-score measure the insolvency risk of a bank (Boyd and Runkle, 1993), a larger value of it means lesser risk of bankruptcy and higher bank stability. The equation to obtain the value of Z-score is as follows:

$$Z\text{-score} = \frac{(\text{ROA} + \frac{\text{Equity}}{\text{Assets}})}{\sigma\text{ROA}} \quad (\text{eq. 1})$$

Competition: Competition can be measured by H-statistic, concentration ratios, Lerner index, Boone indicator and different other tools. However, structural measures like, HHI represents competition through level of concentration, and which is found as a delicate proxy of competition (Claessens and Laeven, 2004) therefore, could generate misleading outcomes. Moreover a high degree of industry concentration does not necessarily imply a less competitive market (Owen and Pereira, 2018). On the other hand, Lerner index is also criticized for not being able to confine the degree of product substitutability (Vives, 2008). Whereas Boone indicator, introduced by Boone (2001, 2008) is found to overcome these shortcomings and employed by some researchers like, Schaeck and Cihák (2014), Saif-Alyousfi et. al. (2018), Kasman and Kasman (2015), Shijaku, (2017). Following the relevance we also use Boone indicator to measure the competition. In principle Boone indicator argues that competition creates a negative relation between performance and marginal cost that becomes stronger at higher level of competition. The equation to obtain the value of competition through Boon indicator is as follows:

$$\ln(ms_{it}) = \alpha + \sum_{t=1, \dots, (T-1)} \beta_t D_t \times \ln(mc_{it}) + \sum_{t=1, \dots, (T-1)} \theta_t D_t + \varepsilon_{it} \quad (\text{eq. 2})$$

Here ms , mc , β , D and ε represent market shares, marginal costs, boon indicator, time dummies and the disturbance term respectively.

In addition to this contemporary measure, we also use concentration in this research, which is measured by 3-bank concentration ratio similarly used by Owen and Pereira (2018) and Beck et al. (2006).

Financial Inclusion: Though there are a variety of indicators (and measures) that reports financial inclusion, like access indicators (availability of bank branches or POS devices in rural areas), usages indicators (average savings balances, number of transactions per account, number of electronic payments made) and quality indicators (availability of products, services and other options that clients need, level of awareness and understanding of financial products), however We use the number of bank branches as an access indicator (World Bank 2015b) of financial inclusion, since it indicates the spreads and capacity of banking industry and ability to diversify the

risk, which is also found in the research of Iqbal and Sami, 2017. This indicator also allows gauging demographical availability and depth of financial services to clients. Moreover the data scarcity impedes the scope of analyzing impact of other indicators of financial inclusion on bank's stability.

Control Variables: We consider some other variables to control the influence of bank and country specific factors. We use Financial depth [$\log(M2/GDP)$] to control size differentials of financial sector as well as economic growth, which is used in many other studies. Additionally, to control the heterogeneity of country specific banking industry we use size and liquidity risk which are measured by natural logarithm of bank capital to total assets [$\log(SIZ)$] and ratio of liquid assets to deposits and short term funding (LIQ) respectively. The table below illustrates the tools of measurement and acronyms used for each of the specific variables.

Variables	Measurement	Acronym
Dependent Variables		
Financial Stability	Bank Z-score = $\frac{(ROA + \frac{Equity}{Assets})}{\sigma ROA}$	logZ
Independent Variables		
Competition	Boone Indicator (β) $\ln(ms_{it}) = \alpha + \sum_{t=1, \dots, (T-1)} \beta_t D_t \times \ln(mc_{it}) + \sum_{t=1, \dots, (T-1)} \theta_t D_t + \epsilon_{it}$	BI
Concentration	3- Bank Concentration Ratio	CON
Financial Inclusion	Bank branches per 100,000 adults	FI
Control Variables		
Industry size	Bank capital to total assets	$\log(SIZ)$
Industry liquidity	Liquid assets to deposits and short term funding ratio	LIQ
Financial depth	Broad money as percentage of GDP	$\log(M2/GDP)$

Table 1: Measures of variables

The model: Complying with the earlier findings on related field, we posit that there is no linear relationship of financial stability with competition, concentration and financial inclusion. To test the hypothesis and interactions among variables the following base line model using Panel pooled OLS estimation is developed.

$$\log Z_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 CON_{it} + \beta_3 FI_{it} + \sum \beta_j X_{i,j} + \epsilon_{it} \quad (\text{eq.3})$$

Where, $\log Z_{it}$ is a proxy for bank stability of country i in period t , BI_{it} is competition for the banking industry measured by Boon Indicator, CON_{it} is for concentration prevailing in the banking industry measured by 3-bank concentration, FI_{it} is the level of financial inclusion of a country measured by Bank branches per 100,000 adults and $X_{i,j}$ are a set of $\{k\}$ variables controlling for country specific and macroeconomic factors. β 's are the parameter vectors; and ϵ_{it} is the unobserved disturbance.

After developing the initial model, Panel least square with both time fixed effect and country fixed effect are conducted and tested for autocorrelation using the Durbin-Watson (DW) test and to account for the endogeneity bias in the model Panel Generalized Method of Moments (system GMM developed by Blundell and Bond, 1998) is also employed. Finally we check the robustness of the findings by using GDP growth instead of financial depth ($M2/GDP$) and private credit by deposit money banks and other financial institutions to GDP (PC) in the estimation model.

Result and Discussion

Descriptive statistics

Table 2, shows the descriptive statistics which provides some insights regarding the variables applied in this study. The maximum and minimum value of dependent variable $\log Z$ are 3.279 and 1.379 respectively, which show a less dispersion of financial stability among the Asian emerging economies for the study period. The maximum and minimum value of Boone Indicator is 0.037 and -0.148 respectively. The more negative it is, the higher is the level of competition in the market because of higher reallocation effect. However, a positive value is also feasible. All other variables except bank concentration show moderate variation for having several structural changes of banking industry in this particular region since the inception of liberalization of 1980.

	$\log Z$	FI	CON	BI	$\log(\text{SIZ})$	$\log(\text{M2}/\text{GDP})$	LIQ
Mean	2.465	9.564	54.446	-0.045	2.160	4.363	21.923
Median	2.638	9.055	45.863	-0.040	2.195	4.357	20.942
Maximum	3.279	18.443	100	0.037	2.546	5.251	44.988
Minimum	1.379	3.142	28.371	-0.148	1.459	3.584	6.750
Std. Dev.	0.545	3.313	21.843	0.042	0.197	0.449	8.605
Observations	96	96	96	96	96	96	96

Table 2: Descriptive Statistics

Correlations

Table 3, depicts correlations among variables that explain the highest correlation is 0.49 between Boone Indicator and Liquidity. These mild correlations among variables imply that there is low level of multicollinearity and which can be ignored for further analysis.

	$\log Z$	FI	CON	BI	$\log(\text{SIZ})$	$\log(\text{M2}/\text{GDP})$	LIQ
$\log Z$	1						
FI	-0.027	1					
CON	0.289	0.198	1				
BI	-0.383	0.308	0.178	1			
$\log(\text{SIZ})$	-0.084	0.062	0.085	0.325	1		
$\log(\text{M2}/\text{GDP})$	0.473	-0.087	0.319	-0.161	-0.228	1	
LIQ	0.073	-0.242	0.200	0.496	0.489	-0.021	1

Table 3: Correlation matrix

Empirical results

To test the intended relationship of competition, concentration and financial inclusion with financial stability, Panel ordinary least square models with country fixed effect (model 1) time fixed effect (model 2) and both country and time fixed effect (model 3) and Panel Generalized Method of Moments (model 4) are used. Overall results of all the models are found consistent except for Concentration. The values of adjusted R² are 0.973, 0.418, 0.975 and 0.975 respectively for the four models, which implies the models' fit to explain these relationships. Durbin Watson statistic also confirms that there is no auto correlation in the estimation. Though the Durbin Watson statistic for model 2 indicates a presence of auto correlation ($DW \approx 0.3$), however this is not harmful for the time fixed effect estimation.

The estimation results of all the models show that Financial inclusion (FI) has significant positive association with Financial stability, measured by $\log Z$, which indicates financial inclusion contributes to financial stability. In contrast, Bank competition (BI) have significant negative relation with financial stability ($\log Z$) in all the estimations, implies that higher bank competition leads to higher bank stability as lower values of the Boone indicator signify more competition. This result is consistent with the findings of Schaeck and Cihák (2014) however, inconsistent with

the research of Kasman and Kasman (2015) on Turkish banking industry, where both the researches have used Z score and Boone indicator to measure financial stability and competition respectively. In addition financial stability is found positively related with concentration in only model 2, however negative relation between them found in rest of the models, which are more reliable as both the significance of the relationship and fitness of the model ($\bar{R}^2 \approx 97\%$) are quite higher compared to model 2.

Dependent Variable: LogZ

Variable	Model 1	Model 2	Model 3	Model 4
C	0.266	-0.592	1.206***	1.444***
FI	0.018***	0.044**	0.018***	0.016***
CON	-0.003***	0.005**	-0.003**	-0.002**
BI	-1.798***	-9.120***	-2.216***	-1.941***
Log(SIZ)	0.320***	-0.166	0.048***	0.043***
Log(M2/GDP)	0.297**	0.368***	0.007***	0.005***
LIQ	0.004*	0.032***	0.006**	0.005**
Country fixed effect	Yes	No	Yes	Yes
Time fixed effect	No	Yes	Yes	No
Total panel observation	96	96	96	96
Adjusted R2	0.973	0.418	0.975	0.975
Durbin-Watson stat	1.600	0.300	1.905	1.782

*, ** and *** indicates Statistical significance at the 10%, 5% and 1% level respectively

Table 4: Estimation result of Model 1, Model 2, Model 3 and Model 4

Among the selected control variables log(M2/GDP) has significant positive association with financial stability which confirm to our expectation that country with higher financial depth has higher financial stability that supports the findings of as King and Levine (1993) and Siddik and Kabiraj (2018). Likewise Han and Melecky (2013) and Morgan and Pontines (2014), Liquidity (LIQ) is also found significantly positive with financial stability in both country and time fixed effect models. However, the result of log (SIZ) is consistent in all the three models except for time fixed effect model. Overall our findings support the Competition- Inclusion –Stability view.

Robustness check:

To check the robustness of the estimations a new panel least square with country fixed effect model is constructed by GDP growth (GDP) instead of financial depth (M2/GDP) and another new variable- Private credit by deposit money banks and other financial institutions to GDP (PC) along with the other variables of the main model.

Dependent Variable: logZ


Variable	Coefficient	Prob.
C	1.310***	0.000
BI	-1.938***	0.001
CON	-0.002**	0.014
FI	0.013**	0.018
log(SIZ)	0.332***	0.002
GDP	0.001	0.874
LIQ	0.005**	0.022
PC	0.004***	0.001
R-squared		0.979
Adjusted R-squared	0.974	
Durbin-Watson stat	1.731	

*, ** and *** indicates Statistical significance at the 10%, 5% and 1% level respectively

Table 5: Result of Robustness check

Results indicate that this model is consistent with previous models of estimations and PC has significant positive impact on the bank's stability, whereas GDP growth is found insignificant to financial stability. Moreover no autocorrelation is found in this model and variables are co-integrated that confirmed by Kao Residual Co-integration test. Overall the test results show the robustness of estimation models and thus can be applied in broader perspective.

Conclusion

The mysterious interplay of competition, concentration and financial inclusion with financial stability and the unique opportunity to explore this motivate us to conduct this study on Asian emerging economies. Our study results imply that both competition and financial inclusion contribute to financial stability whereas, concentration is found to support the fragility view. However, our overall results support competition-inclusion –stability view and accordingly contribute to the existing literature of financial stability. Additionally, this study is useful to the policy makers as it insist them to make the accesses to finance easy and encourage competition of banking industry in order to maintain stability with a close eye on the level of concentration. The implication of this study is that though Asian economies seems to perform very well and developing promisingly however probability of banking fragility cannot be ignored, which can be brought by other environmental factors like, imperfect governance and financial framework, inefficient risk management and misconstruction of stability factors. In addition inclusion of foreign banks in to the regional economy could also be a threat, which Fu, et al.(2014) suggest to examine with care, since this can also makes the industry unstable by creating an uneven economic structure and bringing contagion from other economic region. Considering all these, to maintain the growth and financial stability of this promising part of world economy, it is essential to take the findings of this unique study into consideration and ensure the ideal alley of interaction among competition, concentration, inclusion and financial stability. 

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