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Abstract

The paper aims to recover the critical role of banks in defining the relationship between Financial Development and growth. We hypothesize that Banks can positively motivate templatized GDP growth. A System GMM estimation of GDP growth in a sample of high growth emerging markets from Asia investigates if bank stocks contain information beyond the monetary and banking aggregates.

In a sample of emerging markets with 5% GDP growth, bank stocks create 0.22% of GDP growth for every 1 SD excess return in a weighted portfolio of bank stocks. The chosen emerging markets are homogenous based on WGI Indicators from World Bank. This coefficient is much higher than the recovered relationship presented by Cole, Moshirian and Wu (2008). Government ownership of banks and close monitoring of banks is found to be a positive for the overall economy while the market index is found to be not so informative about economic growth.

A relook at a GMM system study from Cole, Moshirian and Wu (2008) shows better growth for Emerging market investors without compromising quality. The research establishes the advantages of selecting emerging markets portfolios that reward better governance. A set of Homogenized emerging markets can engender higher causative effects between banks and GDP growth allowing investors to focus on investment opportunity.

1.   Introduction and Motivation

The recent financial crisis has polarized opinions about the banking sector and its contribution to economic growth. Empirical research has established their significant contribution to economic growth at firm, industry and country levels. A pre-crisis evaluation by Cole et al (2008) utilized specific bank stock returns to move away from aggregate macroeconomic measures in quantifying financial sector influence on future economic growth. Such an analysis combines the study of economic growth with conventional asset pricing theory with a focused investigation of the specific information content of individual bank stock returns independent of the information presented in market indices. This obviates the need for measuring financial market contribution in terms of indices and provides us with a greater level of detail. The differing nature of Institutional frameworks in Asia and its continuing growth memes reflect in an urgency to complete our understanding of growth mechanics in this region. Banks significantly contribute to economic growth and we show that this is not limited to the growth of private sector credit or money supply measures (Badaruddin, Ariff and Khalid, 2011).

Do Bank stocks even lead economic growth? While a study of macroeconomic factors shows the contribution of the financial sector in pushing economic growth, the study of stock markets is generally limited to a study of the relationship between economic growth and stock indices.

Cole et al (2008) studies 36 markets -- 18 developed markets and 18 emerging markets are included in the sample. It is one of the rare research studies in the literature that move away from macroeconomic aggregates of bank credit and financial markets representations by a general index to study the determinants of economic growth. While *ibid.* presents a positive relation between bank stocks and economic growth, Moshirian and Wu (2012) complete the analysis using the same dataset documenting the negative relationship of economic growth with

bank stock volatility. Both the studies affirm the direct impact of country specific Institutional, legal and regulatory frameworks including insider trading, government ownership and accounting disclosure standards. Macroeconomic aggregates and Financial sector development relating banking performance to growth in panels across both highly developed and developing countries (Al-Moulani and Alexio, 2017; Wallis, 2017; Diallo, 2017; Diallo and Koch, 2017; Fufa and Kim, 2017; Issahaku, Abor and Harvey, 2017) or country specific examples (Arize, Kalu and Nkwor, 2017; Pan and Mishra, 2018; Diallo and Zhang, 2017; Banerjee, Ahmed and Hossain, 2017; Kapingura, 2017). Some studies use these empirical results to build theoretical frameworks around bank models (Hamada, Kanako and Yanagihara, 2017; He and Niu, 2017) or trace the motivations of Foreign banks and their performance (Claessens and Horen, 2016; Bongini et al, 2017). Mishra and Narayan (2015) use Linear Panel data models to confirm the significant effect of Market capitalization and stock prices on the GDP.

This paper contributes to the literature in analyzing the bank stock returns' contribution to the GDP growth in a meaningful way in a sample of high GDP growth countries. We undertake a GMM estimator-based analysis of dynamic panel data using GDP growth rates and specific bank stock returns to isolate the growth effects of banks in ten emerging market economies, considered homogenous from a descriptive analysis of World Bank Governance indicators and geographically similar. We also find significant state monitoring in the banking sector in these ten regimes and factor in regulatory effectiveness as well as state ownership of banks. A contemporaneous data generating process underlies opportunity generation, identification, analysis and information enrichment as well as decision making and financing of growth. This data generating process along with common information processes feeds market information and macroeconomic aggregates. Banks possess superior private information on the economic opportunity universe and an analysis of specific bank stock portfolio returns shows that banks'

contribution to the processes that lead to generation of growth. However, this also explains an almost total lack of contemporaneous correlation as tested by us in a Structural VAR analysis available on request from the authors. (Pairwise correlations are reported in Table 2)

Our paper also contributes to the current findings in the literature about the lack of information in market indices in relation to GDP growth. Our sample includes Asian economies in India, China, Singapore, Hongkong, Taiwan, Korea, Malaysia, Indonesia, Philippines and Thailand. While we expect bank stocks in general to explain more about future growth expectations, we cannot neglect the effects of the global financial crisis in changing these expectations about growth materially. It can be seen that banks reacted differently and more intensely to the crisis, but stocks healed well to regulatory pronouncements and may have led the economy back with a bigger coefficient for their effect on economic growth during the crisis years compared with a negative effect of banks in the developed markets in the crisis period. We find that Asian stock market indices are not in tune with GDP growth measures allowing bank stocks to carry most of the GDP growth specific information in these countries. However, other studies with recent data have confirmed that the stock market index is no longer a significant informant or determinant of GDP growth memes. As found earlier in an 18-country emerging market sample by Cole, Moshirian and Wu(2008) a market capitalization weighted index of bank stocks in these countries contributes much higher though there is a limited bi-directional causality between bank stocks and GDP growth. We expect this to be the import of a contemporaneous data generating process which is enhanced by banks' using their private information. Given the systemically critical role of banks we find that while Stock Market indices do not specify GDP growth, there is a direct effect of bank portfolio returns on the high mean GDP growth.

We present literature that helps strengthen our understanding and revisit some other papers that have a different view of the interaction between bank and stock market in their contribution to economic development (Deidda and Fattouh, 2008).

We extend the analysis to ten countries in Asia that have retained the growth memes. Average GDP growth in the sample is over 5% (Table 1). 3-month Treasury Bill rates in each domestic regime are utilized to compute excess returns from quarterly returns to regress against quarterly GDP growth and its immediate lag. While economic aggregates and banking sector specific aggregates including Private sector credit are usually studied for bi-directional causality with GDP growth, we isolate the effective nature of government ownership of banks found in 7 of the 10 regimes studied. Also, we found that the ongoing global crisis only dented GDP growth by 30-40 basis points while bank stocks specify a higher than 2% contribution to GDP growth for 1% excess returns. We expect to also isolate the effects of bank mergers and bank stock volatility in a separate research to supplement these results.

Our research uncovers the critical interplay between Government ownership and effectiveness of government based on the dimension indices in the World Bank WGI Indicators. Instead of Insider trading Law and Accounting disclosure standards we employ a rule of law indicator also from another dimensional index of the World Bank WGI indicators.

The insignificance of market indices might denote the stable expectations of GDP growth marginalizing market indices' overall role in tracking GDP growth, while excess returns in the Bank sample retain significant information contribution to GDP growth over and above measures of Private sector credit, liquidity and the size of banking assets in relation to the central bank balance sheet.

This research explores relevant literature in Section 3. Section 4 and 5 discuss the data and the methodology in detail only in the main document. We end with our main results and discuss the future implications of this research.

2.   Literature Review

There is a rich recent literature around bank equities and Financial development as well as delineation of the recent Global Financial crisis. Gibson, Hall and Tavlas (2017) review the modeling of bank equity prices during the crisis deploying a three-equation model in Panel GMM (log-level of Prices) to recover a recursive impact of the crisis between sovereigns and banks. Our study of the crisis in Asia shows that such a recursive relationship was instrumental in extending the crisis in Asian markets. Allegret, Raymond and Rharrabti (2017) do a similar analysis and justify the period of extended crisis in Europe using an endogenous definition of crisis periods. They also point to delayed connections across sovereign swaps and bank equity markets.

Other considered estimators that connects Financial sector variables and GDP growth include mixed frequency sampling or MIDAS regressions. These are likely to measure banking sector growth as part of economic aggregates as in the macroeconomic literature.   Fufa and Kim (2017) look at some homogenous panels, continuing in the tradition of using Panel GMM to measure financial sector aggregates against economic development in high income and low-income countries.

Our research relates more to the literature corresponding to causation in individual bank level governance as well as regulation and growth. Diallo (2017) recover the important effect of better Corporate Governance levels at a country level on 34 external finance dependent manufacturing sectors, moderating the effect of bank concentration and economic growth. Mishkin (2009) points to the advantages of financial globalization and the critical role of property rights and a well-directed financial system to achieving high economic growth in emerging markets. Williams (2014) analyses the influence of national governance on bank level risk in Asia.

Beck and Levine (2004) established a dynamic panel and produced the first recent robust evidence that stock markets and banks influence economic growth controlling for omitted variables and unobserved country specific effects. They take into consideration various theories expecting financial development to harm growth and stability and explaining the role of banks in easing information frictions. Prior studies before them model aggregate variables like M3/GDP to model financial sector's impact on GDP growth but do not consider any enhancing role of the stock markets. Mishra and Narayan (2015) use a non-parametric model to match np financial system variables in measuring Economic growth and use Private Credit and Domestic credit to represent the Financial system and alternate with Market Capitalization(significant) and Volume of Stocks traded (insignificant). Ductor and Grechyna (2015) establish the relationship between Financial Development and Growth as non-linear heightening the chances of a negative relationship when Credit does not translate into growth in real output. Goes(2016) shows that institutional quality improvement by 1% leads to a 1.7% increase in GDP per capita. Thus, we analyze the impact of our domestic institutions on bank growth directly through their stock returns on growth memes. We find that the selected characteristics describe salience of the selected sample of countries along governance parameters and perceptible superior returns in weighted bank stock portfolios reflecting the advantage of private information of the growth generating processes.

However, Ma and Wohar(2014) caution against the indiscriminate specification of VAR models and use of expected returns in valuation models and also show the value impact of operating cash flow measures. We may incorporate later research using cash flows as well.

Du et al (2016) use a recent sample spanning the GFC in 37 countries to measure the information content in bank stock prices, resolving how banks with higher information disclosures reduce extreme negative returns, extending our results to the positive nature of transparent disclosure requirements in bank supervision regimes. Umar and Sun(2017) study

the different impact of leverage on stock liquidity for large (positive) and small (negative) banks in a BRICS sample. We however do not consider stock liquidity in our research. Similarly, Banerjee et al (2017) show the risk impact of off-balance sheet derivatives, primarily rate swaps while reflecting the impact of size, interest spreads and capital ratios. Shezaad and Haan (2013) show the quick bounce back of bank stocks in Emerging markets due to the crisis and continuing lower prices of banks in the developed world. Managerial efficiency and loan quality continue to be effective measures of value in the GFC and large bank stocks were more underpriced in the developed world during the crisis. Badaruddin et al (2011) use bank stock returns to support the endogeneity theory of money supply and the effect of money supply on stock prices.

Effects of international central bank cooperation and other expected spillovers from international markets, may be significantly transmitted by banks' stock prices to growth or vice versa. (Andries et al, 2017). The crisis also affected public discussions on bank stock ratings (Salvador, 2017) and meaningfully impacted bank stock returns as well as GDP growth. We do analysis to heighten any structure and magnitude differences during the crisis in the chosen Financial markets. Allegret et al (2017) do a similar analysis limited to the sovereign debt crisis period in Europe using a four-factor model enhanced with sovereign risk.

Bank governance issues reflect an important endpoint for readers of this research in affecting investor attractiveness. Pathan and Faff(2013) show the effect of important governance variables in recent data. Masulis and Zhang(2017), Banerjee, Masulis and Upadhyay(2018) and Liu et al (2017) represent a leading body of corporate governance literature closely examining issues of corporate governance and institutions.

3.   Hypothesis

A quickly deployed VAR system (available with the authors) specifying the inter relationships between bank stock portfolios, stock index and GDP growth shows no relationship between the three variables because of contemporaneous interplay of all three through investors, experts and industry on one hand and traders, investors and bankers on the other hand, as well as firm, sector and industry specific unobserved heterogeneity at play. Our intuition suggests banks possess superior private information about macroeconomic and microeconomic factors as well as the specific skills with entrepreneurs that can be gainfully employed in a given economic opportunity universe. Banks can harness this private information and will likely be rewarded for the same notwithstanding selfish motives of managers and other losses on the way to information production and consequent GDP growth based on real production and value added in the economy.

Hypothesis 1: Banks will produce superior market returns because of their private information and these superior returns will lead consequent economic growth

As GDP growth is higher in emerging markets, the likely relation of GDP growth to bank stock portfolios will be higher and consequent in choosing bank portfolios for superior returns in these markets.

Hypothesis 2: Markets proxied by stock indices will be unable to produce superior market returns because of their inability to reach bank specific private information.

This may prima facie be because industrials without unlisted Private equity / Venture Capital investments and apart from expert private information in banks, no longer possess any contemporaneous information advantages that lead GDP growth and rely on announcements

and public information and may thus lag GDP growth. Pan and Mishra(2018) and Banerjee, Ahmed and Hossain (2017) find that stock markets as providers of capital

4.   Experiment Design: Data and Methodology

We employ Arellano Bond (1991) GMM estimators using Dynamic panel data as in Cole (2008) but discover that only the System GMM estimator performs to expectations. The Difference GMM estimator fails because of the magnitude differences between the level and difference-based instrumentation requiring us to depend on the System GMM estimator. We also find that robustness tests employing the exogenous Instrumentation variables in a 2SLS GMM and the panel OLS estimation confirm our results using the System GMM estimator.

Gippel, Smith and Zhu (2015) review GMM estimators in resolving endogeneity. We create the dataset relying on Difference GMM and system GMM estimators for Dynamic panel data. We select quarterly bank stock returns as well as market capitalization of each included bank and retrieve the quarterly data for GDP growth for the selected 10 countries from Reuters Datastream. The portfolio of banks included in each of the 10 markets include at least the banks included in the broad-based market index in each domestic stock market and those engaged in transactions in the markets for corporate control. The resulting bank stock portfolio is thus weighted by the Market Capitalization and is not an equal weighted index. The market factor is retrieved from the broad-based market index's quarterly returns. We consider both IFS data from the IMF and the World Bank data for interest rates and GDP growth. We construct excess returns directly from the one-month risk free rate as in Cole et al (2008).

We then construct a structural model in the specification

$$g(t) = a + \lambda.g(t-1) + \beta_1.r_m(t) + \beta_2.r_b(t) + \beta_3.X(t) + \eta_i + \varepsilon_{it} \text{ where } r_b(t) = \Sigma r_i(t)/n$$

for each of the n banks included in the domestic market analyzed. To motivate the GMM Panel analysis we employ country specific impulse response functions (IRF) and a SVAR framework to discover the limitations of VAR frameworks in eliciting contemporaneous constructs. The same is available with the authors on request. We determine the importance of the underlying data generating process in missing correlations between bank stock portfolios and GDP growth and use GMM estimators in Dynamic Panel Estimation to isolate the coefficient of weighted bank stock portfolios on economic growth to establish a baseline for these countries and compare with the global environment, given the structural isolation of the developed world in USA and Europe as well as the various longer lasting influences of the crisis on emerging markets. The limited nature of correlations between the bank portfolio returns and GDP growth processes strengthens our belief in a common data generating process reliant on the banks' own private information. We attempt both one step and two step Dynamic panel data estimations using *xtabond2* in stata and confirm with Baum's *ivreg2* command (Baum, 2014) using highly correlated memes like Private Credit and Money supply as well as Government effectiveness and rule of law in the first stage instrumentation. Alternate instrumental variables and panel regression designs were employed using robust and newey west errors for comparison. The results of two step Dynamic panel data estimations are robust with the instrumental 2SLS design. The 2SLS design and other robustness tests compensate for the overidentification problem in the original formulation with 10 country panels and 71 time series observations. The GMM Difference specification of the Arellano Bond estimators used in Cole et al (2008) suffers from the problem of larger instruments using only the differences as instruments. The GMM System estimator can recover robust estimates using both the level and differences as instruments (Bond et al., 2001). The resulting overidentification as indicated in the Sargan test is mitigated by using instrumental variable regression for the same specifications. Additional variables and removal of various macroeconomic aggregates loads the Government's role in

GDP growth in the bank ownership parameter, thus underlining the importance of robust legal regulatory and Institutional frameworks in the homogenous sample selected by ourselves. This is especially true when panel regressions are attempted without the lag GDP growth variable. However, VAR analysis shows the structural measurement of GDP growth to be a near certainty and the same is retained. Bond and Söderbom (2009) elicits more information in structurally modelled parameters and GMM estimation. Stationarity restrictions are maintained in the model. Endogeneity between the variables is considered carefully in the use of Arellano and Bond estimators as the specification implies macroeconomic data generation processes raising issues of simultaneity, heterogeneity and omitted variables. As an example, our selection of governance indicators seems to be ceding a large magnitude of the effect to Government ownership of banks as the residual cause of regulatory governance in the GDP growth generation process. World Bank Data provides a comprehensive six-dimensional index of World Governance indicators which are highly correlated but each sub index measures a different dimension of Governance standards at the country level. The use of WGI indicators are therefore beneficial to the formulation and we replace rule of law dimension scores and Government effectiveness dimension scores from the WGI data in the original Cole et al (2008) formulation for insider trading law and accounting changes.

We consider a single panel of all the ten markets. The average growth rate for GDP is positive and expected market risk factors are in line for growth markets. The average bank excess return mapped to the Cole et al (2008) methodology is largely positive. The correlation between GDP and bank stock returns is less than 0.15. We experiment with other control variables to regress with weighted bank stock portfolio returns and include it in the vector of Xi (where only lagged returns are considered in the base specification as instruments).

Bank stocks may not reflect their true valuations because of the larger private information associated with sophisticated bank managers. Blau et al (2017) show this opacity adversely

affects banks' stock prices in delays and market inefficiency, yet we expect our analysis of stock prices to be more informative of banks' effects on GDP growth than macroeconomic measures of credit and/or deposits.

In the robustness tests we use the endogeneity theory of money supply and the seeming relation between Rule of Law and Government effectiveness (observed correlations of 70%) Trade and FDI impact on the variables were not required in the control set but may be grounds for future research especially for active investment professionals along with causation from higher moments including skew and kurtosis.

4.   Results and Discussion

The entire data series extends from 1999q1-2017q3 resulting in 71 observations for each country in the sample. 10 portfolios are constructed from individual banks using data from Reuters Datastream(Eikon). The series of banks is selected from Datastream , already adjusted for survivor bias till 1995. The corresponding macroeconomic aggregates are retrieved on a quarterly basis as Financial development measures including ratios of *Private credit*(Priv) to GDP and *Commercial-Central Bank*(CCB) asset ratios. The *Money supply aggregate ratios* (M2Liq) are directly retrieved from the World Bank data series. As emerging market data is available in depth as of 2018, this seems to be a doable task for any homogenous group of countries or in determining such a group of homogenous countries. We apply World Bank Governance indicators to verify the homogeneity of the group of countries as macroeconomic aggregate data from the group has different outliers in each series. Two out of the six WGI indicators, namely *Rule of Law* (Law) and *Government effectiveness*(Geff) are used in line with the research design and we drop Insider trading law and Bank accounting disclosure variables for the same. The *Dummy crisis indicator* (Dcris) is deployed as 1 for the period in 2009q1-

2012q2 in line with our analysis reflecting a late incidence of crisis in the emerging markets (The MSCI EM Index returns for 2008 are upwards of 35%) and the extensive overlap with the European sovereign debt crisis in 2011. The World Bank survey data on banks has three data points on bank ownership by the state, (*Govt*).

As in Cole(2008) our experiment shows that one standard deviation change in bank stock returns would increase economic growth by 10-15 basis points on average , and much higher for higher growth dispensations. The market factor may have a higher effect, but this also includes the growth effects engendered by the bank relationships and the bank equity returns' contribution is over and above the contribution from the market factor. However even the bank equity factor excludes cash flows to unlisted sectors /privately held firms that is increasing with the rise of venture capital and private equity funded service economy firms. Banks are significant harbingers of growth in emerging markets driven by growth. We find substantial contribution of public sector banks in the specification for India led by the State Bank of India. Serial acquirers such as ICICI Bank and Kotak are also significant contributors. Similarly, active acquirers are found to be significant in the sample in China, India and Singapore among others.

[Insert Table 1 here]

Table 1 presents the descriptive statistics of the sample. GDP growth in the chosen sample is a high 5.1% on average and government ownership of banks is a high 28%. The sample countries are homogenous on World Governance Indicators with Singapore and Hongkong city states , nearly 100% in both Rule of Law and Government Effectiveness. The mean for the sample is 71.7% rank in Rule of Law and 63.2% in Government effectiveness. In the chosen sample countries, we have chosen a contiguous period of the Global Financial Crisis and the European Sovereign Debt crisis in consultation with the various literature foregoing extensive Crises database references considering the extensive impact of the twin crises on the global economy. The crisis impacted the region late, incident from 2009 Q1 and lasted till mid 2012 (2012 Q2) lasting 14 quarters. The Market index returns may have been attenuated because of the higher short-term rates prevalent in the region, with a mean of just 0.56%. 213 banks contributed to bank portfolios from Datastream and quarterly Rb averages 2%.

(The Kuala Lumpur index data is only available from 2009 and similar restrictions reduce the data at the country level from the 71 quarters)

[Insert Table 2 here]

We deploy the GMM System estimator recommended in Cole , Moshirian and Wu (2008). The pairwise correlations (Table 2) also provide hints to motivate a well- formed response in Panel GMM estimation when Rm and Rb are considered endogenous in the specification.

[Insert Table 3 here]

Panel GMM results are shown in Table 3 for the complete specification in Model 6. Wald test holds for more sparse specifications wherein we found effective results for the unbalanced panel with just Rm and Rb , and consequently with the addition of each exogenous variable with quarterly of annual series data. The Sargan test shows overidentification as expected and we step on to the 2SLS to show the same results in an exactly identified specification. A high degree of heterogeneity is confirmed in the data, eliciting the most important cause for heterogeneity. The Hausman test confirms use of fixed effects in light of the heterogeneity. Government effectiveness may be highly correlated to Rule of Law and are also used in the, but the result is likely robust given the adopted methodology.

[Insert Table 4 here]

Bank stocks seem to contain contemporaneous information regarding macroeconomic success beyond banking aggregates in high growth emerging markets. This superior information in bank stock performance outperforms the market index which does not contain any valuable information regarding the expectedly high economic growth. A one SD shock to Bank stock returns can create a positive GDP growth shock of a further 22 basis points in the countries in the sample. The results also suggest increases in the Rule of Law variable and continued government ownership of banks create positive growth momentum in the region rewarding good governance. SVAR results available with the authors do show a significant variance component of Bank stock returns to GDP growth in Singapore, Malaysia and Hongkong where banks are privately owned. However, the economies of the area have largely benefitted from the closer monitoring of the banking sector and the capitalization/ ownership of banks by governments and in regressions without the lagged variables or Macroeconomic aggregates, *Govt* (Government ownership by banks) loads the coefficients showing its importance in the formulation and consequently lack of availability in the instrumentation. Table 4 presents the System GMM specification without the constant, confirming the same results. We find the crisis effect damped when t_qtr* is directly used in the specification but primary variables retain their significance and direction of effect.

4.2 Robustness

Table 5 presents alternate robustness tests using instrumentation in endogenous supply of money (*Priv* and *M2Liq*) and the correlations between sub-indices of WGI in *Law* and *Geff*. The appendix includes other specifications using ordinary regression (cluster) panel instrumental regression, and other instrumental variable regressions. They all reflect the superiority of the GMM Panel specification in mitigating endogeneity, thereby emphasizing

the impact of the Crisis even in emerging country panels and sometimes eliciting false effects especially of Commercial credit and overall market indices (reduced by the uniform higher risk-free rates in the region)

[Insert Table 5 here]

4.3 Other significant results

Al-Moulani and Alexiou(2017) use GMM estimators for Dynamic panel data models used here to investigate the overall relationship between banking sector depth and economic growth in 194 countries confirming some of our findings and providing insight into the negative relation between Private Credit measures and GDP growth. The negative effect of Private credit is uniform in the sample based on the observed inflection point of 80-100% ratio of Private sector credit to GDP.

Soedarmano, Sitorus and Tarazi (2017) point out significant deterioration in bank systemic risk from abnormal loan growth using credit standards during a crisis. This partly explains the important effects of Governance and resulting premium on sustained GDP growth that can be further improved with increase in governance standards.

We also expect stock market returns to be consistently motivated by the same data generating process as the GDP growth and based in generated private information on the state of the economy and opportunities and avenues for investment and growth including external finance dependent firms that do well in crises, the bank stocks easily outperform the market index and provide such additional information through prices of bank equities. Though restricted to single non-representative stock markets Pan and Mishra(2018) and Banerjee, Ahmed and Hossain

(2017) also confirm that stock market indices do not contain similar information thus negating earlier results till the early 2000s.

5.   Future Implications

Bank stocks are significant determinants of GDP growth in strong emerging market economies and stronger institutional characteristics shown by acquisition active firms and stronger corporate governance banks can lead to deepening and consistency of growth memes for the broader industry and the larger public economy in these markets. Even during the crises GDP growth and bank stock returns remain highly positive for these economies. None of the selected economies is significantly affected by dollarization. Risk and Investment managers can significantly extract value from the away shares of their portfolios and gainfully achieve the objectives of meaningfully increasing the away share of larger closed and open-ended funds by choosing emerging markets with better and consistent governance memes. An investment in national bank portfolios can gainfully mark entry into unknown investment destinations if supported by minimum institutional frameworks. The analysis establishes that portfolio managers can extract benefits intelligently by grouping similar country sets on better governance and parameters available in contemporary data for a large set of emerging markets. This may follow both geographically contiguous outlines or noncontiguous country sets defined by similar institutional frameworks.

Stock returns of banks can meaningfully predict vital economic growth and markets for corporate control significantly impact this growth accretion positively.

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TABLE 1

Table 1: Descriptive Statistics of Performance and control variables.

The entire data series extends from 1999q1-2017q3 resulting in 71 observations for each country in the sample. 10 portfolios are constructed from individual banks using data from Reuters Datastream for India, China, Hongkong, Taiwan, Korea, Singapore, Malaysia, Thailand, Indonesia and the Philippines. Control measures (Financial Development) are used as ratios of GDP (Priv, M2Liq) and Central Bank assets (CCB). World Bank Governance Indicators (Law, Geff) and Govt ownership of banks (Govt) while Crisis Dummy is binary 0 or 1. The Quarterly returns of the Market index in each case is netted by the three-month Risk-free rate. All data is referenced from Reuters Eikon/Datastream including the IMF Economic Series. Annual data from World Bank Statistics is used where aggregate data is required only as an exogenous regressor as the series does not have any missing data. World Governance Indictors series provide data for Rule of Law (Law) and Government effectiveness (Geff) from among the six dimensions available for these indicators.

VARIABLES	(1) N	(2) Mean	(3) Sd	(4) Min	(5) max	(6) Var	(7) skewness	(8) kurtosis	(9) p25	(10) p75
Growth (Dyg)	624	0.0510	0.0352	-0.0946	0.249	0.00124	0.0269	6.490	0.0315	0.0687
Market index Returns (Rm)	624	0.00568	0.118	-0.466	0.419	0.0140	-0.281	4.321	-0.0474	0.0741
Bank Portfolio Returns (Rb)	624	0.0211	0.141	-0.470	0.637	0.0200	0.320	5.631	-0.0503	0.0924
Crisis Dummy (Dcris)	624	0.212	0.409	0	1	0.167	1.413	2.996	0	0
Govt ownership of banks (Govt)	624	0.284	0.294	0	1	0.0862	1.079	3.131	0	0.385
Private Credit (Priv)	624	1.499	1.654	0.182	6.338	2.735	2.051	5.907	0.446	1.417

Money Supply (M2Liq)	624	2.286	2.686	0.196	10.29	7.213	1.758	4.821	0.655	2.517
Commercial-Central Bank (CCB)	624	3.165	4.937	0.146	28.05	24.38	2.958	11.97	1.001	2.670
Rule of Law (Law)	624	0.717	0.186	0.382	1	0.0345	0.0687	1.640	0.555	0.877
Governance Effectiveness (Geff)	624	0.632	0.227	0.198	0.962	0.0517	-0.0848	1.533	0.407	0.841

TABLE 2

Table 2: Correlation between the three primary variables, GDP growth, Returns to market Index (Rm) and Returns to Bank portfolios (Rb) and the exogenous regressors in the control variables

	Dyg	Rm	Rb	Govt	Dcris	Geff	Law	CCB	Priv	M2Liq
Dyg	1									
Rm	0.0478	1								
Rb	0.0939*	0.713***	1							
Govt	0.373***	0.0225	0.0936*	1						
Dcris	-0.0146	0.132***	0.0976*	0.0303	1					
Geff	-0.243***	-0.0286	-0.0786*	-0.541***	-0.0278	1				
Law	-0.232***	-0.0336	-0.0962*	-0.599***	-0.00384	0.949***	1			
CCB	-0.158***	-0.0505	-0.0653	-0.403***	-0.0546	0.460***	0.474***	1		
Priv	-0.204***	-0.0291	-0.0610	-0.155***	-0.0127	0.451***	0.430***	0.0671	1	
M2Liq	-0.189***	-0.0251	-0.0601	-0.204***	-0.00109	0.437***	0.425***	0.141***	0.941***	1

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

TABLE 3

Table 3:Dynamic panel data using System GMM estimators.

The final specification confirming the use of all control variables is in Model 6.

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
Market Index returns (Rm)	-0.00966 (0.00800)	0.00231 (0.00794)	0.00166 (0.00792)	0.00121 (0.00794)	0.000961 (0.00797)	0.000311 (0.00794)
Bank Portfolio returns (Rb)	0.0277*** (0.00671)	0.0109 (0.00667)	0.0115* (0.00665)	0.0129* (0.00667)	0.0141** (0.00670)	0.0134** (0.00667)
Dummy variable for crisis (Dcris)		-0.00278* (0.00161)	-0.00301* (0.00161)	-0.00308* (0.00161)	-0.00357** (0.00162)	-0.00395** (0.00162)
Govt ownership of banks (Govt)		0.0416*** (0.00226)	0.0431*** (0.00229)	0.0462*** (0.00284)	0.0481*** (0.00283)	0.0475*** (0.00290)
Private Credit to GDP (Priv)		-0.00314*** (0.000400)	-0.00741*** (0.00118)	-0.00386*** (0.000447)	-0.00345*** (0.000448)	-0.00842*** (0.00125)
Commercial-Central Bank (CCB)				-0.000253 (0.000154)		-0.000423*** (0.000162)
Rule of law(Law)				0.0186*** (0.00518)	0.0672*** (0.0118)	0.0634*** (0.0121)
Money supply to GDP (M2Liq)			0.00282*** (0.000731)			0.00321*** (0.000752)
Government effectiveness (Geff)					-0.0443*** (0.00928)	-0.0393*** (0.00945)
Constant	0.0505***	0.0443***	0.0438***	0.0315***	0.0229***	0.0241***

	(0.000671)	(0.00119)	(0.00120)	(0.00390)	(0.00436)	(0.00448)
Observations	624	624	624	624	624	624
Number of ctry	10	10	10	10	10	10

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The lag GDP term is included in all specifications but suppressed (the coefficient is always more than 70-75%)

TABLE 4

Table 4: Dynamic panel data using System GMM estimators.

The specifications below refit the system without the constant growth which is shown to be improbable in Table 3. The final specification confirming the use of all control variables is in Model 7.

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6	(7) Model 7
Market Index returns (Rm)	-0.00966	-0.0561***	-0.00920	-0.0102	-0.000620	-0.000227	-0.00136
	(0.00800)	(0.00965)	(0.00816)	(0.00812)	(0.00796)	(0.00800)	(0.00797)
Bank Portfolio returns (Rb)	0.0277***	0.110***	0.0250***	0.0258***	0.0153**	0.0163**	0.0169**
	(0.00671)	(0.00801)	(0.00685)	(0.00682)	(0.00668)	(0.00671)	(0.00668)
Dummy variable for crisis (Dcris)			0.0133***	0.0126***	-0.00241	-0.00344**	-0.00392**
			(0.00160)	(0.00159)	(0.00162)	(0.00163)	(0.00163)
Govt ownership of banks (Govt)			0.0917***	0.0937***	0.0618***	0.0580***	0.0581***
			(0.00187)	(0.00188)	(0.00210)	(0.00211)	(0.00221)
Private Credit to GDP			0.00562***	-0.00259**	-0.00478***	-0.00379***	-0.00915***
(Priv)			(0.000332)	(0.00120)	(0.000433)	(0.000445)	(0.00125)
Commercial-Central Bank (CCB)				0.00531***			0.00339***
				(0.000747)			(0.000753)
Rule of law(Law)					-0.000435***		-0.000420***
					(0.000153)		(0.000159)
Money supply to GDP					0.0577***	0.115***	0.112***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(M2Liq)					(0.00187)	(0.00763)	(0.00764)
Government						-0.0668***	-0.0610***
effectiveness (Geff)						(0.00827)	(0.00837)
Constant	0.0505***						
	(0.000671)						
Observations	624	624	624	624	624	624	624
No.of ctry	10	10	10	10	10	10	10

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The lag GDP term is included in all specifications but suppressed (the coefficient is always more than 70-75%)

TABLE 5

Table 5: Dynamic panel data using System GMM estimators.

The specifications below refit the system without the constant growth which is shown to be improbable in Table 3. Models 6 and 7 represent the 2sls using endogeneity on supply of money and Private credit.

VARIABLES	(1) Model 1 OLS Cluster Id	(2) Model 2 Newey Geff=Law	(3) Model 6 IV 2SLS Geff = Law	(4) Model 8 IV 2SLS Geff= Law robust	(5) Model 9 IV 2SLS M2Liq = Priv + CCB, robust	(6) Model 6 IV 2SLS GMM M2Liq=Priv	(7) Model 7 IV 2SLS GMM Priv=M2Liq	(8) Model 8 IV 2SLS GMM Law=Geff	(9) Model 9 IV 2SLS GMM Geff=Law
Rm	0.0129*	-0.00286	0.0132**	0.0132**	0.0135**	0.0137	0.0137	0.0130	0.0132
	(0.00649)	(0.0202)	(0.00659)	(0.00659)	(0.00596)	(0.0107)	(0.0107)	(0.0103)	(0.0107)
Rb	0.0202***	0.0164	0.0200***	0.0200***	0.0199***	0.0194**	0.0195**	0.0203**	0.0200**
	(0.00571)	(0.0169)	(0.00574)	(0.00574)	(0.00512)	(0.00877)	(0.00875)	(0.00864)	(0.00878)
Dcris	0.00140	-0.00177	0.00187**	0.00187**	0.00155	0.00155	0.00153	0.00168	0.00187
	(0.00116)	(0.00498)	(0.000868)	(0.000868)	(0.00110)	(0.00239)	(0.00239)	(0.00209)	(0.00242)
Geff	-0.00459	0.0659***	0.0150***	0.0150***	-0.00479	-0.000463	-0.000901		0.0150***
	(0.0101)	(0.00606)	(0.00409)	(0.00409)	(0.00981)	(0.0152)	(0.0151)		(0.00453)
Law	0.0146				0.0102	0.00281	0.00233	0.0130***	
	(0.00913)				(0.0103)	(0.0192)	(0.0192)	(0.00301)	
Govt	0.0121***	0.0677***	0.0143***	0.0143***	0.0108***	0.00884**	0.00889**	0.0136***	0.0143***
	(0.00336)	(0.00595)	(0.00178)	(0.00178)	(0.00303)	(0.00382)	(0.00385)	(0.00321)	(0.00474)
L.Dyg	0.754***		0.763***	0.763***	0.759***	0.755***	0.756***	0.759***	0.763***
	(0.0436)		(0.0411)	(0.0411)	(0.0409)	(0.0582)	(0.0581)	(0.0264)	(0.0551)
M2Liq	0.00124*	0.00453***		-0.000566***	-0.000612***	-0.000551		0.00138	0.00151***
	(0.000552)	(0.000993)		(0.000205)	(0.000213)	(0.000465)		(0.000982)	(0.000560)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Priv	-0.00289**	-0.0126***	-0.00360***	-0.00360***			-0.000571	-0.00315*	-0.00360***
	(0.000897)	(0.00209)	(0.000786)	(0.000786)			(0.000714)	(0.00163)	(0.00125)
CCB	-0.000242**	-0.000789*	-0.000326***	-0.000326***		-0.000144	-0.000154	-0.000262	-0.000326*
	(9.67e-05)	(0.000476)	(0.000123)	(0.000123)		(0.000184)	(0.000187)	(0.000209)	(0.000187)
t_qtr	1.27e-05				2.52e-05				
	(1.94e-05)				(1.72e-05)				
Constant						0.00883*	0.00902*		
						(0.00494)	(0.00501)		
Observations	614	624	614	614	614	614	614	614	614
R-squared	0.885					0.645	0.646	0.885	0.884

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The lag GDP term is included in all specifications but suppressed (the coefficient is always more than 70-75%)