Do Banking Regulations Affect the Competitiveness of Sri Lankan Banks by Limiting Cross-Ownership?

Ratnavadivel Thirucumaran

Senior Assistant Director – Bank Supervision Department

Central Bank of Sri Lanka

27 February, 2020

Motivation

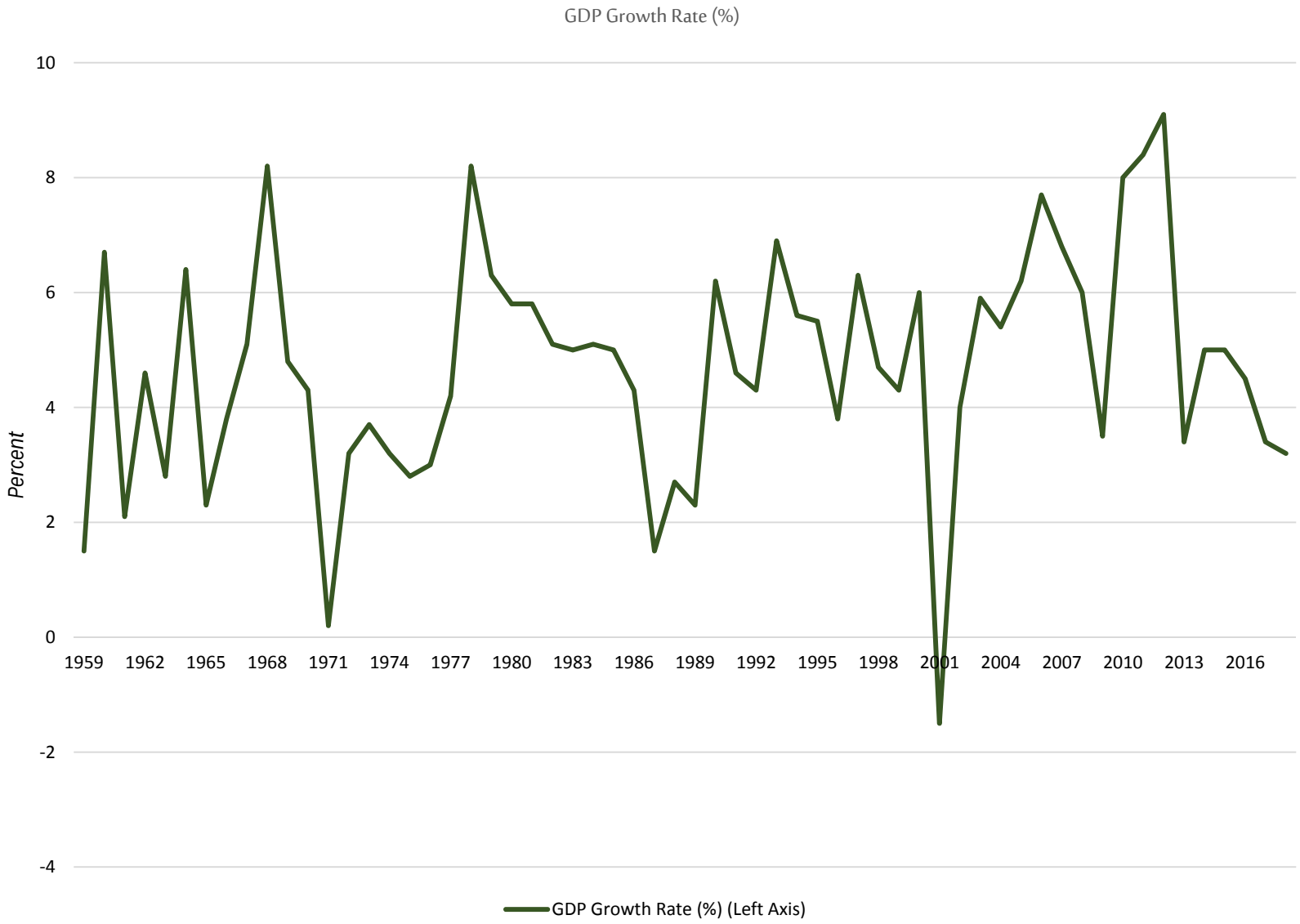
- Many investors (including the Government of Sri Lanka) own enough shares in banks, either directly or indirectly, to put themselves amongst the top 20 shareholders of such banks

- Regulatory directions issued by CBSL prohibits direct/indirect share ownership of more than 10% in a single bank. However, significant influence is exercised by nominations to the Board of Directors.

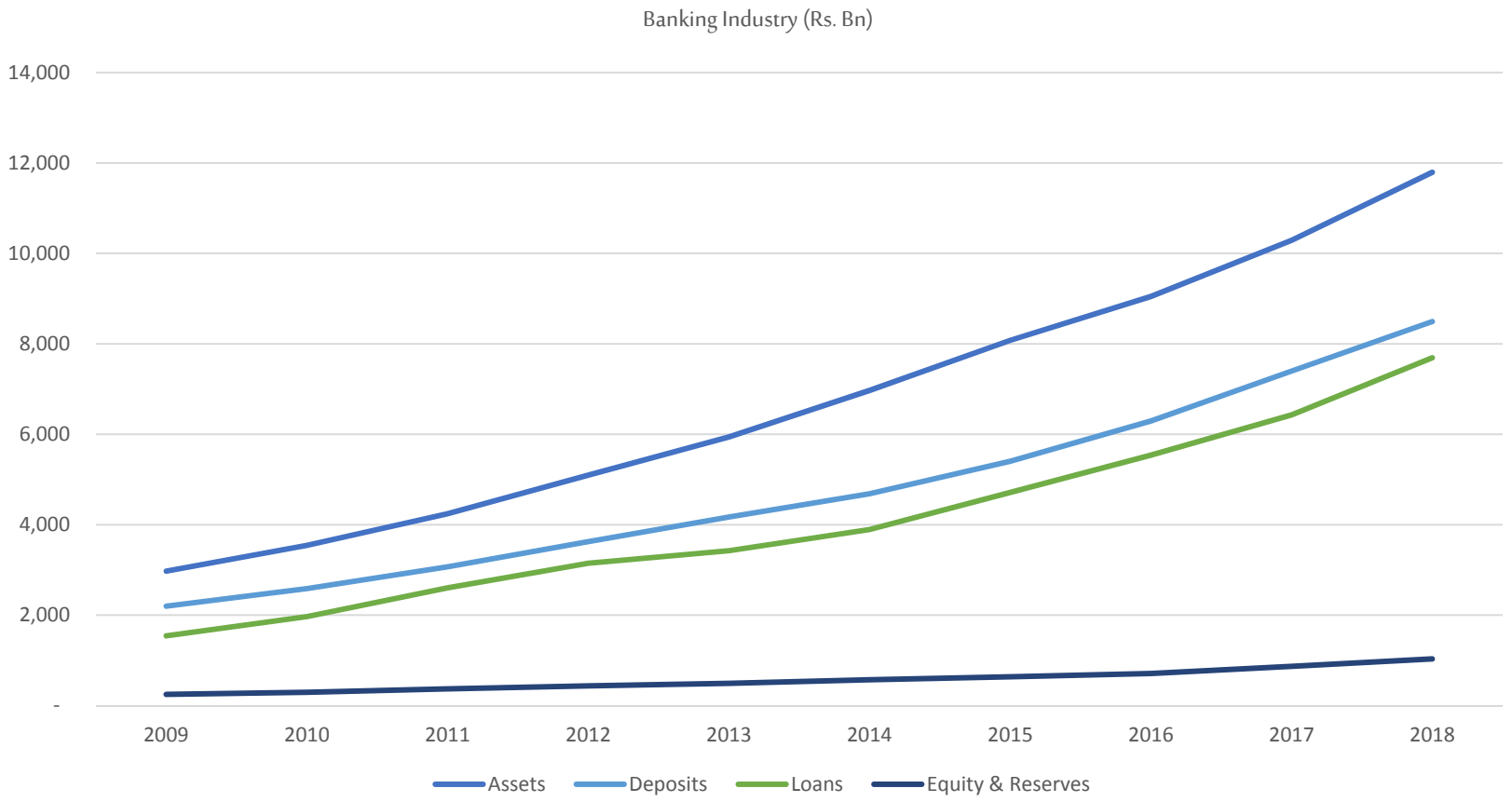
- Other regulations limit banks ownership in a single publicly listed companies to 10% of bank's capital and aggregate ownership of such shares to 30% of capital.

- This study assesses the impact of restrictions on ownership stakes in banks on their competitiveness by assessing the difference in competitiveness of banks affected by cross-ownership and those not affected by cross-ownership.

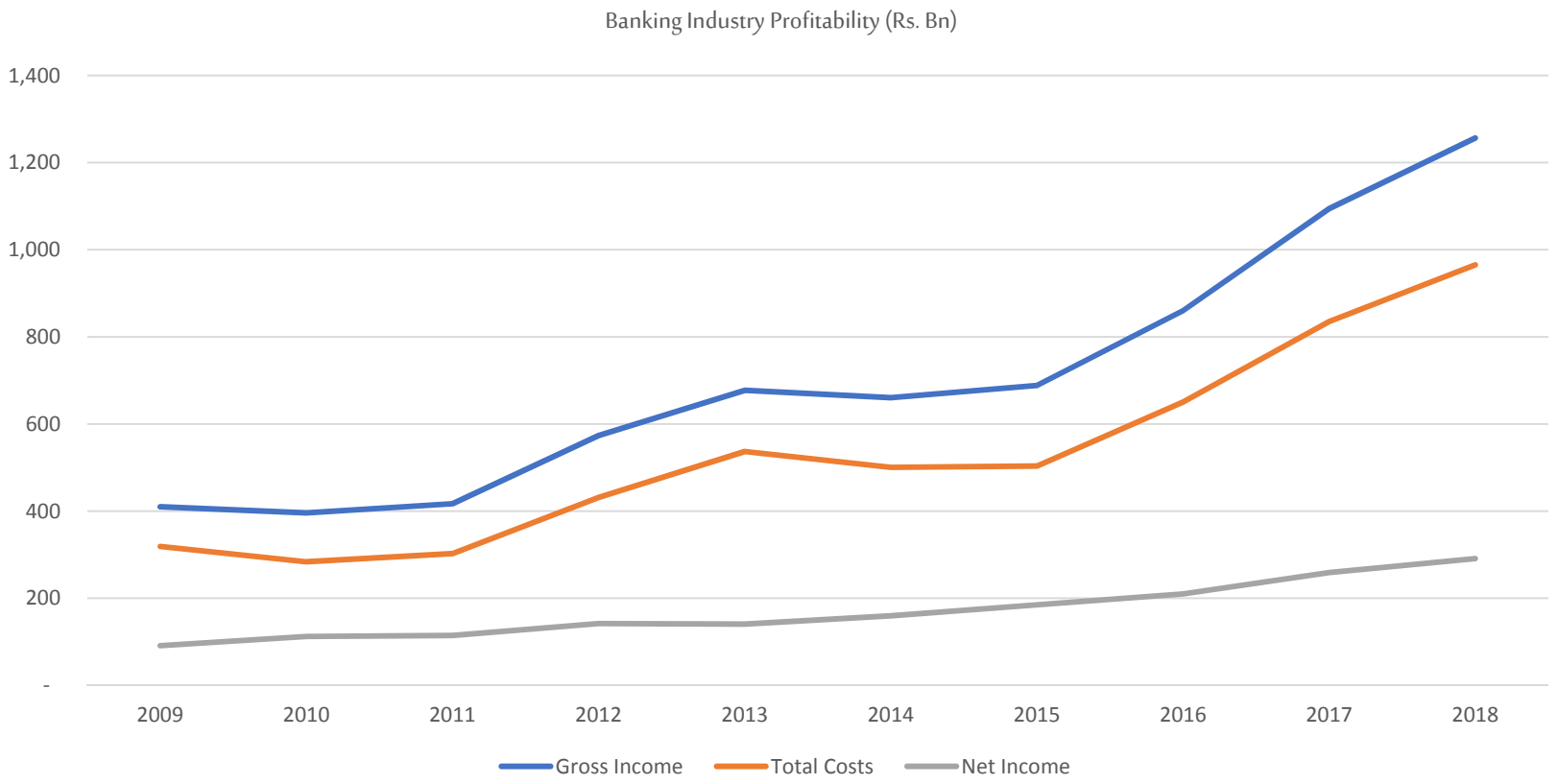
Overview of the Sri Lankan Economy



Overview of Banking Sector



Overview of Banking Sector



Competitive Markets

- There are four broad categories of competitive markets

- **Monopoly**

  Single dominant firm in the market, enabling it to earn supernormal profits in the long run.

- **Oligopoly**

  Few dominant firms in the market, leading to high barriers to entry.

- **Perfectly Competitive Market**

  No individual firm can influence the market due to homogeneity of products sold and because everyone is a price-taker.

- **Monopolistically Competitive Market**

  Non-price competitition since only differentiated products, which are directly non-substitutable, are sold.

Econometric Methodology

- Based on the test of competitiveness derived by Panzar and Rosse (1987) based on reduced form revenue equations of all players in the industry being studied

$$logR_{it} = \sum_{j=1}^{J} \alpha_j \, log \, W_{it}^{j} + \sum_{k=1}^{K} \beta_k \, log \, S_{it}^{k} + \sum_{n=1}^{N} \gamma_n \, log \, X_{it}^{n} + \varepsilon_{it} \qquad for$$

$$i = 1, ...I; \qquad t = 1, ...T;$$

- Above specification from De Bandt and Davis (2000) with modification for possible reverse causality
- Estimated using fixed effects panel regression
- Test for competitiveness measured by calculating an index known as the *H-Statistic*

$$H = \sum_{j=1}^{J} \left(\frac{\partial R_i}{\partial w_{j_i}} \frac{w_{j_i}}{R_i} \right)$$

- H ≤ 0 → Market is monopoly or perf
- H > 0 → Market is in perfect or mon long-run equilibrium)

Econometric Methodology

- *H-Statistic* is calculated using Return on Asset as the dependent variable to test whether market is in long-run equilibrium
- H < 0 → Market is not in long-run equilibrium
- H = 0 → Market is in long-run equilibrium
- Key assumption of the *H-Statistic* is that all banks are profit-maximising firms.
- *H-Statistic* will be calculated for following broad categorisations
    - The overall market;
    - Domestic banks;
    - Banks affected and not affected by cross-ownership;
    - Systemically important banks; and
    - Foreign banks.
- Regression is also run with interest income as the dependent variable to check for robustness of conclusions.

Diagnostic Tests

- **Model Test** – Are all the regressors jointly statistically significant?
- **F-test for Fixed Effects** – Is there a significant fixed group effect in the data used?
- **Lagrange Multiplier Test** – Are any individual or time-specific variance components zero?
- **Hausman Test** - Are the fixed effects or the random effects more significant and relevant in the panel data used?

Robustness Tests

- Specification by De Bandt and Davis (2000)
  - Dependent variable is not scaled
  - UCL 1 : Personnel expenses / No. of employees
  - UCL 2 : Personnel expenses / (Loans + Deposits)
  - UCF : Interest expenses / (Deposits + Other funding liabilities)

- Specification by Trivieri (2007)
  - Dependent variable is not scaled
  - UCL : Personnel expenses / No. of employees
  - UCF : Interest costs / Total funds
  - UCC 1 : Other expenses / Total assets
  - UCC 2 : Other expenses / Fixed assets

Results – Total Gross Income

	OI	DB	CO	NCO	SIB	FB
Number of observations	318	201	157	161	60	117
Labour	0.2582*** (0.0378)	0.3008*** (0.0477)	0.2911*** (0.0488)	0.2565*** (0.0553)	0.2188*** (0.0703)	0.2131*** (0.0634)
Funds	0.4265*** (0.0252)	0.5408*** (0.0292)	0.4941*** (0.0287)	0.3837*** (0.0381)	0.5753*** (0.0325)	0.3207*** (0.0427)
Capital	0.1114*** (0.0372)	0.1378*** (0.0522)	0.1754*** (0.0542)	0.1057** (0.0512)	0.0942** (0.0466)	0.1059* (0.0556)
H-Statistic[a]	0.7961[MC] (0.0483)	0.9794[PC] (0.0581)	0.9605[PC] (0.0623)	0.7459[MC] (0.0713)	0.8883[PC] (0.0804)	0.6397[MC] (0.0824)
Adjusted R^2	0.6009	0.6851	0.7260	0.5718	0.8916	0.5765

Results – Gross Interest Income

	OI	DB	CO	NCO	SIB	FB
Number of observations	318	201	157	161	60	117
Labour	0.2556^{***} (0.0348)	0.2534^{***} (0.0461)	0.2853^{***} (0.0504)	0.2426^{***} (0.0491)	0.1994^{***} (0.0726)	0.2173^{***} (0.0581)
Funds	0.4677^{***} (0.0232)	0.5326^{***} (0.0282)	0.4939^{***} (0.0297)	0.4459^{***} (0.0338)	0.6302^{***} (0.0336)	0.3998^{***} (0.0392)
Capital	0.1044^{***} (0.0342)	0.1133^{**} (0.0505)	0.2296^{***} (0.0560)	0.0822^{*} (0.0454)	0.1039^{**} (0.0481)	0.1117^{**} (0.0510)
H-Statistic[a]	0.8277^{MC} (0.0444)	0.8993^{MC} (0.0561)	1.0087^{PC} (0.0643)	0.7707^{MC} (0.0632)	0.9334^{PC} (0.0830)	0.7288^{MC} (0.0755)
Adjusted R^2	0.6741	0.6900	0.7162	0.6756	0.8901	0.6809

Discussion

- Cost of funds is the main driver of the *H-statistic* for all banks.
- *H-statistic* for the overall industry is significantly above 0 and significantly below 1.
- *H-statistic* for domestic banks:
    - Total Gross Income – *H-statistic* is close to 1.
    - Gross Interest Income – *H-statistic* is also close to 1.
    - Difference in *H-statistic* under either measure of revenue is low (0.0801).
- ***H-statistic* for banks affected by cross-ownership is HIGHER than that of the overall industry.**
- *H-statistic* for banks not affected by cross-ownership is significantly different from those affected by cross-ownership.
- *H-statistic* for SIBs is close to 1.
- *H-statistic* for Foreign Banks is the lowest amongst all sub-samples

Discussion

- Four banks commenced operations during the period under review.
    - No major deviations noted in conclusions made earlier even after excluding them.
- H_0 for both the F-test for Fixed Effects and the LM Test were not rejected in the case of SIBs under either specification. This meant that the use of a pooled OLS model would be more appropriate to model this subset of data.
    - Conclusions derived were the same as that arrived at from a fixed effects panel regression.
- H_0 for the Hausman Test was not rejected for D-SIBs when using Total Gross Income as a dependent variable. This meant that a random effects panel regression model might be more appropriate
    - Conclusions derived were the same as that arrived from a fixed effects panel regression.

Discussion

- None of the samples tested were considered as operating in monopolistic conditions.
- Tests were run to check whether these markets were in their long-run equilibrium.

	H-statistic	Standard Error	R^2
OI	0.1656	0.1602	0.0011
DB	0.1318	0.2619	0.0203
CO	0.4802*	0.2782	0.1869
NCO	0.1383	0.2053	0.0082
SIB	0.7697	0.5078	0.2722
FB	0.2686	0.2068	0.0002

- [illegible]
- Market is in long-run equilibrium and affirms our conclusion on the type of competition prevailing in the industry and the sub-categories.

Discussion – Robustness Testing (Total Gross Income)

- Trivieri (2007)
  - Banks affected by cross-ownership and systemically important banks are operating in monopolistically competitive markets. However, competitiveness of banks affected by cross-ownership is clearly more than those not affected by it.
  - Foreign banks are shown to be the least competitive sub-set.

- De Bandt & Davis (2000)
  - Cross-owned banks more competitive than those not cross-owned.
  - Banks not affected by cross-ownership interpreted as operating in a monopoly market
  - Foreign banks are shown to be operating in a oligopolistically competitive market (negative *H-statistic*)

Discussion – Robustness Testing (Gross Interest Income)

- Trivieri (2007)
  - Classification of the market in which the various sub-sets of banks operate are the same as in the original results.
  - *H-statistic* for the overall industry, banks not cross-owned and foreign banks is significantly lower

- De Bandt & Davis (2000)
  - Cross-owned banks and systemically important banks are considered to be operating in monopolistically competitive market conditions.
  - Banks which are not cross-owned, and foreign banks are operating in monopoly markets.
  - No change in overall conclusion regarding the various subsets

Conclusion

- Banking industry and sub-categories weren't operating under monopoly conditions.
- *H-statistic:*
  - Domestic banks – Perfect competition
  - Foreign banks – Monopolistic competition
  - Systemically important banks – Perfect competition
- Contrary to expectations, banks which were cross-owned returned the highest *H-statistic*, which was close to 1 under both measures of revenue.
- Not consistent with the empirical literature.
- Could be traced to regulatory directions on ownership of shares in banks.
- These regulations have had a positive impact on consumer welfare.

Conclusion

- This regulation doesn't apply to a bank established by an Act of Parliament.
- 7 such banks are present; 6 are 100% owned by the Government.
- Competitiveness has not been impacted by this majority cross-ownership.
- Could the motivation to invest in banks be purely due to the lucrativeness of such investments on a stand-alone basis, rather than a desire for collective pricing power?
- High level of competitiveness → Positive impact on consumer welfare.
- Can be concluded that cross-ownership don't give them the power to influence banks to collude on pricing.