

Measuring bank competitiveness: Has financial liberalization increased competition?

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The 1990s ushered in major changes in the Philippine banking sector. Landmark legislations that altered the regulations of the financial sector, financial technology that advanced at a dizzying pace, and bank consolidations and entry of new participants, especially foreign banks, all changed the face of the industry.

These developments are expected to leave their mark on cost efficiency, profitability, and competitive behavior among industry participants. In particular, for instance, what has been the impact of bank liberalization on competition? This short *Policy Notes* makes a preliminary assessment of this and draws policy implications for the Bangko Sentral ng Pilipinas' (BSP) policy of encouraging more bank mergers and consolidations.

What some studies tell us

Why are we interested in increased bank competition?

Basic microeconomic theory indicates that competitive behavior provides consumers better prices for the goods that they buy and creates less economic cost to society. Many empirical studies have established that an increase in the number of market participants in the industry lessens market concentration, increases competition, and helps improve efficiency, thus leading to lower cost and lower market prices. In contrast, meanwhile, certain studies such as that of Berger and Hannan (1989), which is based on an analysis of US bank data, show that non-competitive behavior is positively associated with high profits. Not that high profit is necessarily bad, especially if it is a result of a high level of firm efficiency. What is bad is if high profits are brought about only by monopolistic or oligopolistic structure because the huge economic rents enjoyed by banks are almost likely made at the expense of consumers.

Of course, it may be possible that the monopolistic or oligopolistic firms are also more efficient. But studies show that this is not always the case. In fact, heavily concentrated markets are also found to exhibit low lev-

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This *Notes* is heavily based on the paper titled "Effect of liberalization on banking competition" by G. Pasadilla and M. Milo. The views expressed are those of the author and do not necessarily reflect those of PIDS or any of the study's sponsors.

The financial liberalization in the 1990s, which allowed entry of foreign banks and eased restrictions on bank branching, appears to have aided the increase in competition among Philippine banks despite the increasing trend in concentration from bank mergers. The finding that Philippine banking industry is close to being perfectly competitive means that further consolidation in the banking sector, which is encouraged by the BSP, would not severely undermine market competition.

els of efficiency. What is telling is that in rich countries which have more developed financial systems, high levels of bank concentration are positively correlated with efficiency while in developing countries where there is a low level of bank competition and high degree of concentration, banks earn high profits not because they are efficient but because they have the entire market to only a few of them.

In terms of government regulation, some studies also assert that in countries where banking authorities have tight entry regulation, banks enjoy high interest margins but have high overhead costs and low levels of efficiency. These findings affirm the need for a policy of freer market entry and greater contestability in developing countries to overcome the monopoly power of domestic banks, foster greater competition, lower costs, and improve bank efficiency.

In this regard, what is the actual experience of allowing foreign banks to enter the domestic banking market? Using cross-country analysis, Claessens, Demirguc-Kunt and Huizinga (2001) found that foreign bank entry has helped reduce interest margins and made domestic banking systems more efficient. The results of similar studies demonstrate how foreign bank entry can improve the functioning of national banking markets and improve national welfare, even as it reduces domestic bank profits.

A few studies using Philippine data have reached similar conclusions that the entry of foreign banks lessened industry concentration and reduced interest spreads. The impact on efficiency, however, has been fairly small due to the limited scope of liberalization that the country has undertaken so far.

Pinpointing the shift: alternative measurement of competitiveness

But how do we know whether—and when—there has indeed been a shift from a monopolistic or oligopolistic banking industry to a perfect competition in the Philippines as brought about by bank liberalization? Unfortunately, previous country and cross-country studies do not allow for a determination of the exact degree of competition. While they point some relationship between firm concentration and returns, they do not draw a sharp benchmark for competitive returns (Shaffer 1993). How much drop in interest margins, for instance, would qualify as signifying a shift from an oligopolistic or monopoly industry structure to perfect competition. Moreover, many other factors like macroeconomic variations, tax policies, quality of information and judicial systems as well as bank-specific characteristics like risk preferences or scale of operations, affect bank profitability and margins. For example, during the 1997 Asian crisis, bank profits declined. But was it the result of earlier liberalization or merely of adverse macroeconomic condition? Thus, these indicators are deemed inadequate to derive conclusions on change in competition in the banking market system (Claessens and Laeven 2003).

In view of this, Pasadilla and Milo (2004), whose results are summarized in this *Notes*, venture on a different methodology, the Panzar-Rosse (PR) method, to measure the competitiveness in the banking sector. The method uses the structural, contestability approach along the lines pursued in the industrial organization literature and uses highly disaggregated bank-level data.

The PR method measures market power by the extent in which changes in factor or input prices are reflected in

revenues. The theory is that under monopoly, an increase in input prices will increase marginal cost,¹ reduce output, and consequently reduce total revenue or leave it unchanged. Under perfect competition, and when banks are in their long-run equilibrium, a proportional increase in factor prices induces equiproportional changes in gross revenues, no change in output volume, and a price rise in the same extent as the input price.

Meanwhile, monopolistically competitive firms, like a monopoly firm, face immediate output reduction from an input price increase. The resulting losses and exit by some firms, however, shift the demand curve of the representative firm upwards until equilibrium (tangency of average cost curve with demand curve) is re-established. Thus, total revenue may decrease or increase less than proportionally to unit change in all factor inputs.

The implementation strategy for the PR method is to compute for an index called the H-statistic. The corresponding H value under monopoly condition is negative or zero; under perfect competition, it is one; and in monopolistic competition, strictly between zero and one. The H-stat value can also be directly interpreted as an inverse measure of the degree of monopoly power, with higher values (closer to 1) implying greater competition.

Is there increased competition?

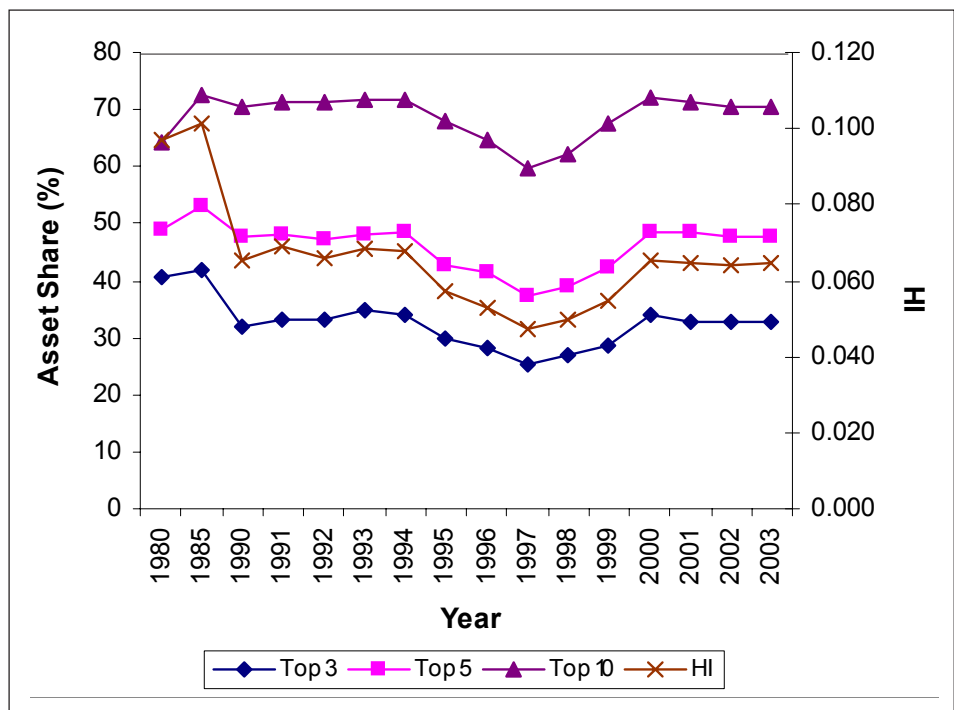
This author's study finds that the financial liberalization in the

1990s, which allowed entry of foreign banks and eased restrictions on bank branching, appears to have aided the increase in competition among Philippine banks despite the increasing trend in concentration resulting from bank mergers.

The industry market structure remains characterized by the presence of a few very large expanded commercial or universal banks and a lot of very small banks in the fringe. Yet, the computation of herfindahl index, a measure of industry concentration showing values far below one, does not point to any undue banking concentration (Figure 1). However, an increase in concentration can be noted in the latter part of 1990s as a result of mergers of several big commercial banks.

In analyzing a market from a structure-conduct-performance perspective, the decrease and subsequent rise in market concentration should result in a corresponding change in the degree of competition, i.e., toward less

Figure 1. Measures of commercial bank asset share and concentration, 1980-2003



¹ In fact, a 1 percent change in all factor prices will result to a 1 percent upward shift in *all* of the firm's cost curves: average, total, marginal.

competition. However, this does not seem to always hold because alternative conditions that can undermine the market structure and competition link exist. One such condition is market contestability. The threat of entry present in contestable markets can enforce competitive conduct without regard to the number of firms or market concentration. On the other hand, collusive actions can be sustained even when there are many firms. This explains why, despite the increase in concentration from the mergers, competition seems not to have declined but rather improved, as discussed below.

The PR method computation yields fairly high values of H-statistics that imply the behavior of Philippine banks to be close to being perfectly competitive. Despite the presence of few large commercial banks, the method discloses no monopoly or oligopolistic behavior. Furthermore, it can be noted that, if the dependent variable is the income from loans and not total income of banks, the H-stat values are generally even higher, implying that there

is steeper competition among banks in the loan granting business than in fee-generating ones.

As to the trend in the H-statistics, Figure 2 shows that H-stat value increased in the latter half of 1990s, implying that competition has increased during this period. Dividing banks into different subgroups, however, shows a different trend in competition. First, if banks were divided into those that belong in the top 10 in terms of assets, and those that are not in the top 10, the biggest banks, as seen in Figure 3, tend to exhibit a decline in competition (with inverted U shape) and are more monopolistically competitive, shown in H-statistic values that are positive but are significantly less than one. In contrast, small banks are highly competitive (h-stats are close to one) and are shown with increasing competition in the latter half of 1990s.²

² However, when we use income from loans as dependent variable, even big banks show perfectly competitive behavior.

Figure 2. Time varying H-statistic, full sample

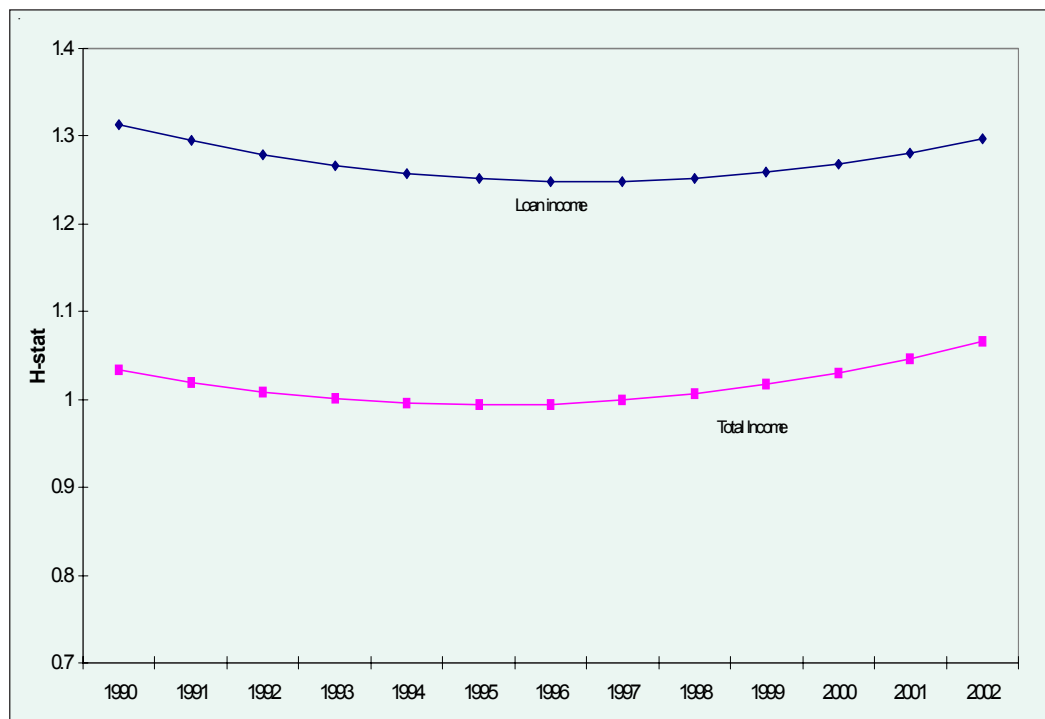


Figure 3. H-statistics of top 10 vs. nontop 10

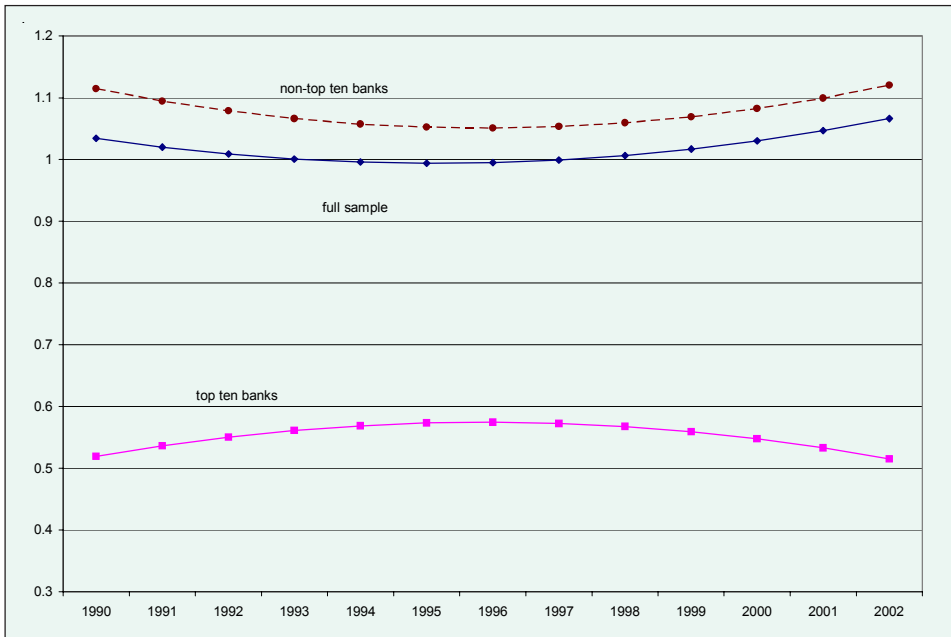
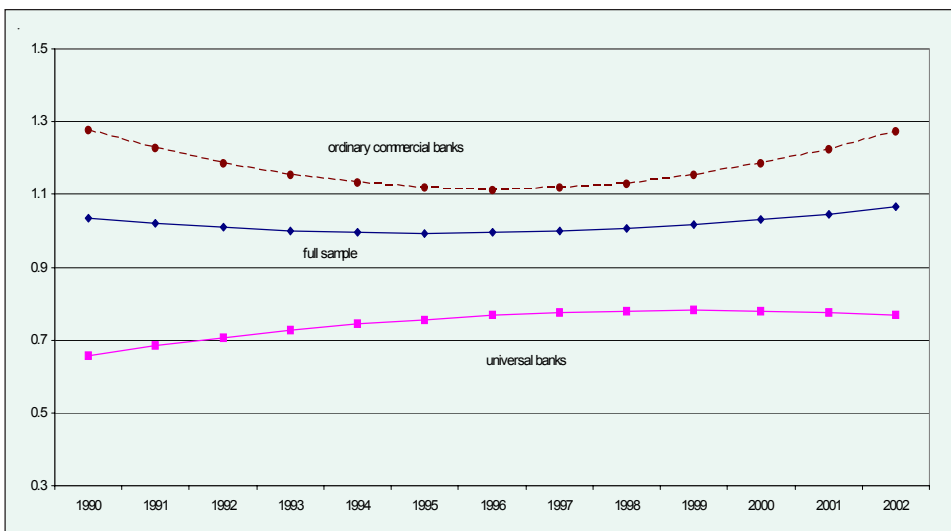


Figure 4. H-statistics of universal vs. commercial banks



Similarly, dividing banks into universal and ordinary commercial banks shows a behavior of monopolistic competition for universal banks and of perfect competition for the ordinary ones. Moreover, while universal banks decreased competition in the latter half of the 1990s, ordi-

can reduce competition, the level of competition would still remain high, albeit somewhat smaller.

Thus, from an industry competition standpoint, there is nothing to fear from bank consolidation. However, whether

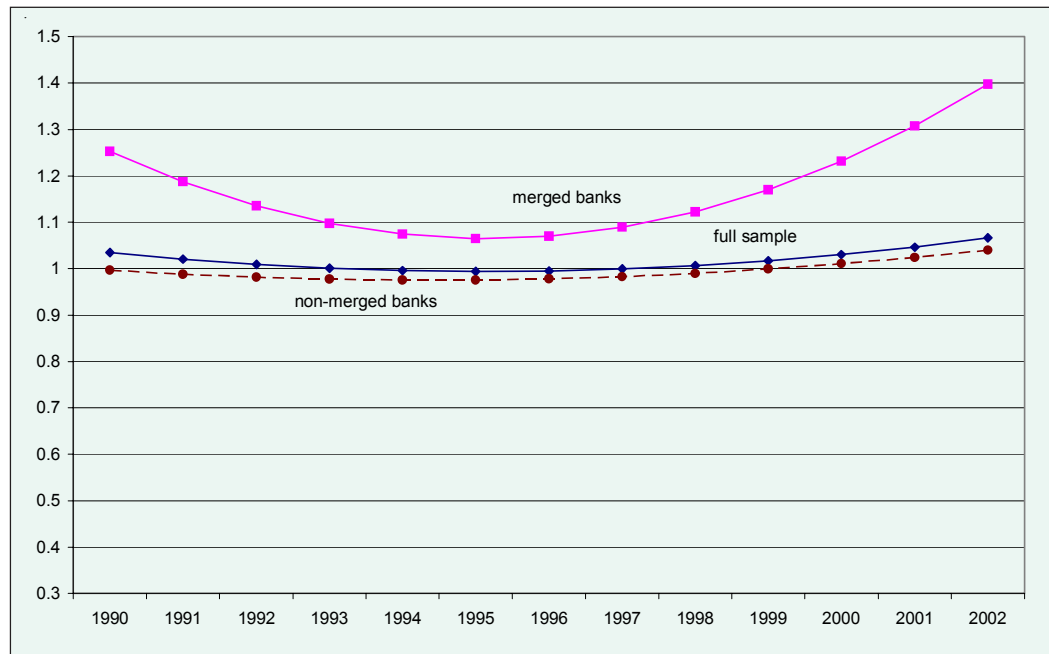
nary commercial banks increased competition (Figure 4).


Finally, in dividing banks into merged banks and non-merged banks, the results show in Figure 5 that merged banks, as a group, exhibit increased competition, the same as the nonmerged banks. While at first glance, this appears like a puzzle, the fact that mergers did not only involve big banks but also small commercial banks can explain why merged banks, as a group, did not become less perfectly competitive. Moreover, the fact that the small banks are providing competition to big banks explains why competition did not deteriorate despite the increasing consolidation trend shown by an increasing herfindahl index.

Implication for policy

What does the above result imply for central bank policy on bank consolidation? The result is quite supportive of further consolidation in the Philippine banking industry. First, because the herfindahl index points to no undue concentration. Second, because the starting level of competition in the banking industry is high. Granted that further mergers

Figure 5. H-statistics of merged vs. not merged banks



such consolidation would, in fact, improve efficiency is a different story. But, then, this is a topic of another paper. 

References

- Barth, James, Gerard Caprio Jr., and Ross Levine. 2003. Bank regulation and supervision: what works best?" *Journal of Financial Intermediation*.
- Berger, Allen and Timothy Hannan. 1989. The price-concentration relationship in banking. *Review of Economics and Statistics* 71:291-299.
- Claessens, Stijn and Luc Laeven. 2003. What drives bank competition? some international evidence. World Bank Policy Research Working Paper 3113.
- Demirguc-Kunt, Asli, Luc Laeven, and Ross Levine. 2003. Regulations, market structure, institutions, and the cost of financial intermediation. *Journal of Money, Credit and Banking*.
- Panzar, John and James Rosse. 1982. Structure, conduct and comparative statistics. Bell Laboratories Economics Discussion Paper. Bell Laboratories.
- Panzar, John and James Rosse. 1987. Testing for 'monopoly' equilibrium. *Journal of Industrial Economics* 35:443-456.
- Pasadilla, G. and M. Milo. 2004. Effect of liberalization on banking competition. PIDS Working Paper.
- Rosse, James and John Panzar. 1977. Chamberlin vs. Robinson: an empirical test for monopoly rents. Bell Laboratories Economics Discussion Paper No. 90. Bell Laboratories.
- Shaffer, Sherrill. 1993. A test of competition in Canadian banking. *Journal of Money Credit and Banking* 25:49-61.

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