

**REMEDY FOR BANKING CRISES:
WHAT CHICAGO AND ISLAM HAVE IN COMMON***

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We document banking system instability arising from a combination of fractional reserve requirements, deposit insurance and moral hazard by presenting several episodes of severe banking distress and crises in Asia. Following a framework of functional perspective suggested by Merton and Bodie (1993), we argue that one hundred percent reserves, “narrow banking”, provides a basis for banking reform and an alternative to reduce the likelihood of systemic financial crises. Both the narrow banking and the Islamic system (equity-based systems) provide more stability to a banking sector than a conventional banking system does. Moreover, the interlinkages of financial markets and the scope for instantaneous reversal of capital flows carry potentially huge systemic risks that could prove costly in terms of economic growth and welfare.

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I. INTRODUCTION

Banking crises have provoked myriad proposals from a multitude of foreign advisors, as well as from international institutions. To resolve the crises and to prevent future ones, these advisors have called for more and better bank regulation, more and better supervision, and more and better enforcement. In other words, the advisors urge more of the same.

There is nothing wrong with more of the same, except of course, that it often does not address the root of the problems. It only postpones the next turmoil.

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Indeed, an approach calling for more regulation may be the wrong medicine and may, in fact, delay resolution of the crises. A policy of more regulation does not address two fundamental problems: (a) the asymmetry between the real value of banks' assets and liabilities when there are macroeconomic shocks and (b) the inherent instability of the system of fractional reserve requirements, the Achilles heel of any banking system. As stated by Sjaastad (1997) "*Both deposit insurance and the lender of last resort facility offered by central banks have evolved as devices to stabilize an inherently unstable institution: fractional reserve banking.*"

Merton and Bodie (1993) suggest a simplified framework, the functional approach, which underscores that existing banking institutions should not necessarily be preserved as presently constituted. In this vein, the institutional form follows its function. The alternative, namely the institutional approach, seeks to find support and to strengthen the institutional structure already in place. A large part of banking systemic problems ultimately comes from a combination of fractional reserve requirements, deposit insurance and moral hazard. They produce an inherently unstable framework due to the resulting asymmetry between changes in the value of assets and changes in the value of liabilities. Governments usually try to avoid panic contagion arising from fractional reserve requirements. To that effect, they instrument deposit insurance. The natural consequence of deposit insurance is very intense regulation. This forceful regulatory burden, coupled with detailed supervision and untimely enforcement, has usually imposed heavy burdens on the banking industry. These costs are usually transferred to the banks' clients (through higher interest rate spreads) and to the taxpayer (when regulation fails and the system must be bailed-out).

During the last centuries, countries worldwide experienced many episodes of severe banking distress and crises. The U.S., for instance, after experiencing bank panics in 1873, 1884, 1890, 1893 and 1907 implemented a corrective measure creating, in 1913, the Federal Reserve System. It also imposed a system of deposit insurance as a mechanism to counteract banking instability. Nonetheless, the Federal Reserve System failed to prevent the worst banking crisis in U.S. history, the Great Depression of the 1930s.

In response to this situation, during the 1930s a group of economists—mostly, but not solely, affiliated with the University of Chicago -launched a proposal for an alternative banking reform -now known as narrow banking.¹ They advocated

¹ Phillips (1995a.) extensively discusses the background and details of the Chicago proposal for banking reform. It should also be noted that Simons (1933) cites the Bank Charter Act of 1844 for the Bank of England (known as The Peel's Act) as the original source of the Chicago Plan. This Act separated the Bank of England into money issuing and lending departments and implemented the proposal of Ricardo's "Plan for the Establishment of a National Bank (1851)."

making the financial system one based on equity, thereby separating the creation of money from the creation of credit.

Equity based banking systems have never explicitly been put into effect in the western world. Nonetheless, in some countries with Islamic population, due to religious concerns with the payment of interest, there are banks based on equity - under the aegis of the *Sharīfah*, or Islamic law. Those banks have instituted a scheme that –on the liability side- overcomes the payment of interest through a profit-loss-sharing (PLS) scheme. For very different reasons thus, the Islamic banking system and the western (Chicago) call for banking reform meet on a common ground: equity.²

Given that interest is prohibited by *Sharīfah*, Islamic banks have developed alternative modes to mobilize savings. This prohibition does not mean that capital is not being rewarded. Neither has it implied that risk is not priced. For example, if an Islamic financial institution lends money to finance a business project, the bank's return will be a specific percentage of the business's net profits for a given number of years. This share of the profits is used to amortize the principal and to provide a profit for the bank to pass on to its "depositors." In the case that the venture fails and the business loses money, the borrower, the bank and its depositors will all absorb the losses. This is the critical feature of the Islamic system: all the players share profit and losses.

Islamic banks also float bonds. Under this technique called *muqaradāh*, the investors do not have right to a fixed income but they share whatever profit the bank has made on the project financed with the bond issue. Naturally, if there is a loss the bond holder would also lose. Bondholders do not have any role in the management of the project, but act as non-voting shareholders. Many western trust-funds use, basically, the same technique.

On the asset side of Islamic banks, credit takers pay a rate of return through a mark-up on the value of "credit". From our perspective, the relevant aspect to underscore is that the Islamic type of financial intermediation resembles an equity based banking system.

Islamic financial systems are small but have been growing quite fast. Its market size, at the end of the 1990s, hovered around US\$130 billion. Currently, fifty countries have Islamic banks, and Iran and Sudan have all their financial institutions operating under a full-fledged Islamic system. Bangladesh, Egypt, Indonesia, Jordan, Malaysia and Turkey have Islamic financial institutions working

² Khan (1987) was one of the first to point out the similarities between some equity-based proposals for banking reforms made in the US and the Islamic banking system.

together with conventional banks. Many of them have affiliated houses in London and Switzerland. As in any other business, some Islamic Banks have failed. There have been some resounding bankruptcies in Turkey and in Egypt. However, those failures did not cause any contagion or systemic problem in the Islamic banking network.

In the conventional banking system, depositors are creditors that claim a fixed nominal amount, independent of the bank's profitability; it is as if the bank had issued a bond. In the PLS case it is as if the bank had issued equity. In the Chicago proposal there are two kinds of depositors. The first kind involves a liquid and almost risk-free bond.³ The second type of depositors, as in the PLS scheme can only claim profits or share the losses. In conventional banking, banks provide the financial intermediation services on the basis of rate of interest on both assets and liabilities.

There are, however, some significant differences between the PLS and narrow banking proposals. As we explained above, under the Islamic system, banks and the enterprises become "partners" in joint ventures, a financial product called *musharakah* - a characteristic with no relationship to the Chicago proposal. On the other hand, both systems have a critical similarity on the liability side: in the Islamic system, "depositors" and banks are partners in the sense that they share both, the banks' profits and the banks' losses.

While the Islamic system does not separate money from credit, as the Chicago proposal does, both avoid one of the most important causes of banking distress and crisis, namely, the perverse asymmetry between the value of assets and the value of liabilities. Both the Islamic and the Chicago systems overcome these problems because they are equity based and, more importantly, because both systems avoid the moral hazard generated by deposit insurance. Although it resembles Islamic banking systems currently in effect, the original "100 percent reserves" Chicago proposal has never been explicitly implemented, even in the face of extremely costly and recurrent cases of banking distress and crisis.⁴

³ The same spirit is the one found in Litan (1987), Pierce (1991), Tobin (1987) and Merton and Bodie (1993) in that collateral are equal to 100 percent of transaction deposits and that collateral should be restricted to U.S. Treasury bills or their equivalent. Kareken (1986) also supports this view although his proposal allows for bonds of any maturity to be used as collateral.

⁴ Nonetheless, today in the U.S., the Federal Reserve Banks are narrow banks as Federal Reserve Notes are backed 100 percent by government securities. The narrow banking proposal can, therefore, be viewed as an extension of the principle applied to Federal Reserve notes. Moreover, Phillips (1995b) reports the interesting experience with 100 percent reserves of The First National Bank of Englewood, Illinois, during the 1930s US banking crisis. Separately, this author also underscores that a few years ago an Okmulgee,

This paper contends, as the Chicago proposal did many years ago, that there is another, more efficient way -100 percent reserves- to avoid contagion and the costly deposit insurance scheme. In doing so, Section II advances some examples on fractional reserve requirements and the instability that affected some countries in Asia during 1997. Our focus on Asia does not preclude the absence of additional factors that might induce the emergence of a banking crisis. Indeed, Section II merely advances a set of examples that can be extended to other recent crisis in the banking arena. In addition, we develop a simple model to capture the sense of the economic costs associated with a system of fractional reserves. A logit model and panel data estimation, focusing on some Asian evidence, are introduced in Section III based on the relationship between crisis episodes and the money multiplier to underscore the instability of the conventional banking approach. Section IV describes the details of the narrow banking proposal and the features of a transition period towards it. In the end, it is argued that narrow banking provides the basis for better control of the money supply, which is more efficient for conducting monetary policy, and therefore it results in a more efficient allocation of resources in the banking sector rather than conventional banking.

II. THE FRACTIONAL RESERVE REQUIREMENT SYSTEM AND BANKING CRISES

Fractional reserve requirements contain key features that determine the possibility of both contagion and systemic banking crisis. Multiple credit and monetary expansion can be produced through small changes in base money via the system of fractional reserve requirements. This is because fractional reserve requirements create an inverted pyramid—i.e., a small reserve base supports a large quantity of deposits and credit.

Many countries that have initiated stabilization plans have experienced early stage euphoria. This situation emerges because stabilization generates confidence and the latter attracts capital inflows. Those inflows increase the monetary base and, through fractional reserve requirements, those changes in the base multiply deposits and credit. Conversely, when this phase of increasing capital flows is reversed, the inverted pyramid plays havoc on the system because, in turn, a small reduction in the monetary base reduces credit and money supply by a multiple. In fact, the banking industry is the only business that can “multiply” its output through a relatively small change in its input. More credit can also be produced simply because the public may choose to change its preferences regarding its cash/deposit mix. Contrary to other industries, banking is one of the few where

Oklahoma savings and loan institution successfully got out of the Federal Depositor Insurance Corporation because it was 100 percent liquid.

there are often generalized, systemic crises both within and across countries.⁵

Fractional reserve requirements can actually do more than just multiply. They can also blend. In any ordinary business, the nature of liabilities is no different from assets. In the case of a fractional reserve banking business, however, the (macroeconomic) nature of assets is different from that of liabilities: assets are credit whereas liabilities are money. Due to the system of fractional reserves, banks create money (credit) by means of credit (money) and, vice versa, eliminating credit (money) eliminates money (credit). In this system, money and credit are thus inextricable interwoven. Moreover, in an inflationary context (without payment of interest on demand deposits), fractional reserve requirements expand the deposit taking activities of the banking sector beyond the social optimum.⁶

In a nutshell, the basic flaw of the system of fractional reserve requirements is that the magic of the multiplier brings multiple curses. Specifically, the multiplier:

- makes it more difficult to control the money supply;
- gives banks a share of the inflation tax;
- gives incentives to non-elected authorities (i.e. central bank presidents) to either change taxes or levy discretionary taxes;
- creates significant allocative inefficiencies when implemented together with non-interest bearing demand deposits;
- generates a credit shock whenever there is a shock either to the monetary base, the cash-to-deposits ratio or the reserves-to-deposits ratio;
- amplifies exogenous shocks, particularly with fixed exchange rate regimes, where money supply is endogenous and money demand determines the supply of money;
- creates the need for a very large body of regulations and regulators; and, finally,
- generates the following chain: need for deposit insurance, followed by moral hazard that exacerbates the “perverse asymmetry” between assets and liabilities.

⁵ When a large airline gets into financial difficulties and has to close and default on some of its debt, other airlines would have no reason to fear the same fate. Indeed, the other airlines would probably gain market share. The sudden closure of Pan Am caused no systemic problems and required no generalized government bail out. The banking business seems different—a domino effect is much more likely to take place.

⁶ Fractional reserve requirements make it possible for the banking system to share a portion of the total stock of money created. The real quantity of money is determined by the public (i.e., it is endogenous). The division of that stock of money between the central bank and the commercial banks depends on the ratio of required reserves. This is important in order to understand why commercial bankers have opposed the narrow banking system.

A. An Illustrative Model

As emphasized in the previous section, an important problem in any banking crisis episode not only has to do with the liquidity constraint imposed on the financial system but also with the dissemination of the problem from the banking sector to the rest of the economy usually under the form of credit rationing (liquidity constraints) and abrupt changes in interest rates.

Suppose banks can invest deposits (D) in loans (L), bonds (B), or simply reserves $R = \delta D$ (where δ is the legal reserve requirement). In case of a panic, banks would sell bonds and maybe count on reserve requirements. If not enough they have the chance to sell bonds at an over-the-counter price at a discount, $PD(w)$. Banks' expected profits, in nominal terms, are set by the following equation:

$$\pi = (i^L - i)L + (i - i^d)D - iR - \sum_{k=1}^2 \text{prob}_k \left[\frac{(\alpha - \delta)D - B}{PD(w)} \right] [1 - PD(w)] \quad (1)$$

where i is the interest rate on bonds, i^L is the active rate on loans, i^d is the interest rate on deposits and α is the percentage of deposit that banks need to honor in case of a run. In the fourth term of the right hand side of equation (1) the cost of uncertainty is contingent to the state of nature (k), a bank run or not. When $\alpha D > \delta D + B$ the bank is selling assets to honor depositors. The amount of assets sold times $[1 - PD(w)]$ quantifies the capital loss. Needless to say, when there is no run, the cost is zero. The amount of resources needed in a banking panic is:

$$w = (\alpha - \delta)D - B \quad (2)$$

From the balance sheet of a representative bank, $D - L = \delta D + B$. Hence, expression (2) can be rearranged to depict the resources needed per unit of loan:

$$\psi = \frac{w}{L} - 1 = \frac{(\alpha - 1)D}{L} \quad (3)$$

When ψ falls, a liquidity problem emerges and there is an increase in the potential cost of the bailout for the central bank as a lender of last resort. In a much broader sense, and in order to assess the instability induced by the fractional reserve requirements, and abstracting from the incidence of bonds, let's define money (M) and monetary base (BM) in terms of currency (C), deposits (D) and reserve requirements (R). A typical linear system, with five unknowns in two equations, for a closed economy where, for simplicity, we abstract from bond holdings, emerges.

$$M = C + D \quad (4)$$

$$BM = C + R \quad (5)$$

Considering BM as exogenous and defining $C = cD$, where c is a constant, the solution for the money multiplier (m) would be:

$$M = mBM \quad (6)$$

$$m = \frac{(1+c)}{c+\delta} \quad (7)$$

In a simple representation like this, it can be shown that when the loanable capacity (L) is given by $L = M - BM = D - R$ and $m > 1$ then:

$$\frac{dL}{dM} = \frac{(m-1)}{m} > 0 \quad (8)$$

As loans cannot be immediately recalled, a reduction in M - induced by capital outflows - might end up in a banking crisis.

B. Control of Money Supply and Banking Credit

Under a floating exchange rate regime, control of the money supply is crucial for macroeconomic stability. A large monetary multiplier makes it very difficult to control monetary aggregates. This is because the money supply depends, not only on monetary base, but also on both the cash-deposit ratio and the reserves-deposit ratio.

The cash-deposit ratio is determined by the public and is a key variable during banking crises. Normally, it has strong seasonality that introduces "noise" which makes monetary programming difficult.

The reserves-deposit ratio is, by contrast, determined by the central bank. When there are multiple reserve requirements (which are common in many countries) the public nonetheless has a strong influence on the resulting weighted aggregate reserve ratio. In relatively stable countries, the weights (which are determined by the public's portfolio preferences) change little. The latter, however, is not the case in many developing countries, which have the temptation to use different reserve requirements to control inflation and/or to "develop" chosen regions.

With regard to monetary policy, there is an important lag effect between changes in the money supply and changes in the variable to be affected by the initial changes in money supply. For example, if a central bank wants to reduce the

money supply to reduce inflation, there will be a lag. It is, of course, still true that the most effective way the central bank can affect the money supply is through the monetary base (Friedman, 1959).

Fractional reserve requirements introduce an additional lag in the effect of monetary policy -one between a change in the monetary base and the change in money supply. This is because the link between the monetary base and the money supply is indirect: it has to go through the multiplier. Thus, changes in the monetary base put both the banks and the public in disequilibrium, creating a gap between actual and desired cash ratio on the one hand and the actual and desired (legal plus excess reserves) fractional ratio on the other. It takes time to equalize actual and desired magnitudes, introducing a substantial lag. In contrast, in a narrow banking system, money supply and monetary base are basically the same. Consequently, narrow banking has the advantage of eliminating the “inner” lag of monetary policy.

Fractional reserve systems introduce volatility in credit markets—a volatility that may be more harmful for developing than for the developed countries. In the latter, banking credit has many substitutes and is a small share of total credit. In other words, the central bank may have a near monopoly in creating money (shared with commercial banks), but it is just one of the many that create credit. This is not the case in developing countries, where banking credit exhibit poor substitutes (Garcia 1987). Consequently, any change in monetary policy that changes the nominal supply of money has more serious consequences in developing countries because it also affects the supply of banking credit. Narrow banking would thus reduce the impact of money supply changes on the supply of credit.

C. Deposit Insurance, Moral Hazard and Perverse Asymmetry

Deposit insurance is a natural consequence of a fractional reserve requirements banking system. To prevent contagion (a collapsing domino effect) governments impose deposit insurance. As claimed by Sjaastad (1997), deposit insurance is actually a misnomer because it, in fact, reduces the probability of the event—i.e., it makes bank runs less probable. In other fields, insurance does not change the probability of the event. In fact, moral hazard is defined as the increase in the risk of an event *because* it is insured (Stigler, 1987).

Although deposit insurance may decrease the probability of bank runs, it may nonetheless increase the probability of bank insolvency. The 1995 Mexican banking crisis, which had been brewing since the end of 1991 and exploded in 1995, illustrates this. While there was no major panic, no major bank run nor a major liquidity crisis, the lack of depositors’ interest on banks’ dealings (moral hazard) was one of the important determinants in bringing the banking system near

insolvency.

Deposit insurance is widely used to avoid the “domino effect” reflected by a sustained increase in the cash to deposits ratio—i.e., a run on the banks. In the short-run, deposit insurance may play a crucial role in halting an on-going crisis. In the long run, however, it may provide the necessary conditions that, together with some macroeconomic fundamentals, set the stage for a full-fledged banking crisis.

If there are fractional reserve requirements, there is a need for deposit insurance. In order to reduce the moral hazard effect, several types of deposit insurance can be implemented. These include, among others, risk adjusted premium paid by depositors, higher capitalization ratios, some binding loss to depositors in case of failure, and a mutual guarantee system of self-regulating banks. Although deposit insurance can be improved to reduce the moral hazard effect, it can never eliminate it.

Deposit insurance has yet another side effect. It leads to more government regulation, including industry specific restrictions on assets (liquidity, quality, related parties, maximum leverage lending, etc.) and on liabilities (earmarking of deposits, prohibition to pay interest on demand deposits, etc.). It also leads to higher capital requirements, as well as to more on-site and off-site supervision. Thus, deposit insurance leads to higher industry costs and resource misallocation.

As a fractional reserve requirement system leads to deposit insurance and as deposit insurance leads to moral hazard, bank clients have no incentive to monitor their banks or discipline them with the threat of withdrawal. The result is a perverse asymmetry, a public tendency to disassociate the quality of banking system assets from its liabilities.

During the early stages of a stabilization effort, interest rates are usually high, either because the central bank wants to slow down the expansion of credit or because the stabilization is based on fixing the exchange rate. These high rates also attract a high number of depositors who, due to moral hazard, care very little how their funds are used. They know that, because of deposit insurance, the value of their funds is insulated from the market value of bank assets. Consequently, the constant dollar value of the liability side of the banking system continues to increase in the early phase of the cycle when the economy/business is booming.

At a later stage, bank portfolios tend to deteriorate due to high real interest rates and/or to changes in relative prices, including the exchange rate. These, in turn, affect the market value of the asset portfolio. Distress borrowing by businessmen as well as unconcerned funding by the public and other investors may continue. Depositors enjoy increasing rates of return with little risk because of the deposit

insurance warranty.

In this scenario, the banking system enters into an explosive Ponzi scheme. Banks find themselves locked-in with significant assets that are not paying interest or principal due: this process of capitalizing is known as “ever-greening.” However, to repay interest (and some principal) to its “old” depositors, banks have to rely on “new” depositors. In this scheme, interest rates continue to increase worsening the banks’ asset portfolio.

III. A LOGIT MODEL

In order to gauge the predictability of episodes of banking disruption that affected several Asian economies in the late 1990s, we define a variable, y_{it} that takes the value of one during episodes of banking disruption and zero otherwise. Our goal is to estimate the probability p_{it} that y_{it} equals 1 conditional on the behavior of base money and the multiplier. In Figure 1, we present the changes in the monetary aggregate (M2) attributable to changes in monetary base and those to the multiplier for Indonesia, Korea, Malaysia, Philippines and Thailand, based on data from International Financial Statistics from the IMF.

The model to be estimated includes the log of the odds ratio explained by a constant (α), the one-period percentage growth in the multiplier (ΔM) and that of the monetary base (ΔB) by estimating a log of the odds ratio such as:

$$\log\left(\frac{p_i}{1-p_i}\right) = \alpha + \sum_{j=1}^L \beta_j \Delta Mult_i + \sum_{j=1}^L \beta_j \Delta Base_i \quad (9)$$

where $i=1, \dots, N$ is the number of economies, L is the number of lags. Table 1 reports the results revealing that the change in the money multiplier is, consistently, a significant predictor of banking turbulence among the countries considered. This result is in line with those reported by Moreno (1999) who found that episodes of sharp depreciation during 1997 in Asia were explained, in part, by the instability of the multiplier.

TABLE 1

Logit Model

	Coeff.	Std Error	Z Stat.	Prob
Korea				
Multiplier	1.08	0.47	2.26	0.0238

Base	-0.00	0.00	-0.19	0.8475
Malaysia				
Multiplier	2.56	1.33	1.92	0.0500
Base	-0.00	-0.00	-0.00	0.9974
Philippines				
Multiplier	1.51	0.63	2.37	0.0175
Base	0.02	0.01	1.58	0.1129
Thailand				
Multiplier	2.74	1.23	2.22	0.0261
Base	0.02	0.01	1.72	0.0853

The logit model is used to evaluate banking instability during 1997 by means of out-of-the-sample predicted probabilities. Figure 2 show different probabilities of a banking distress for each of the four countries that are predicted by the multiplier depicted in the logit model. For Korea the probability of a crisis rises abruptly at the beginning of 1997. For Malaysia and Philippines the starting points are 1997:03 and 1997:02, respectively. The case of Thailand is interesting because it triggered the sharp depreciation process in the region after devaluating its currency on July 2, 1997. The multiplier predicted a situation of banking distress at the beginning of 1997. However, after the crisis was triggered there were other factors that became more important in explaining the situation.

The change in the money multiplier is taken here as a good predictor of cases of banking disruption based on a model of discrete choice. We did not find the monetary base statistically relevant to explain the specific case of banking instability in Asia during 1997. Our next step was to pool the data for all the four countries. A total pool data of 170 observations for the period 1990:01 to 1998:02 was constructed for the four countries under consideration (Thailand, Korea, Malaysia and Philippines). The results in Table 2 suggest that the change in the multiplier was a statistically significant predictor of the 1997 episode.

TABLE 2

Pooled Data Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MULT	0.124482	0.015454	8.055002	0.0000
Fixed Effects				
_THAI—C	-0.950115			
_KOREA—C	-0.718882			

_MAL—C	-0.358478		
_PHIL—C	-0.421072		
R-squared	0.886301	Mean dependent var	0.152174
Adjusted R-squared	0.884542	S.D. dependent var	0.372595
S.E. of regression	260.319533	Sum squared resid	165.74459
Log likelihood	-140.38082	Durbin-Watson stat	1.701722

IV. HOW TO AVERT A CONTAGION: NARROW BANKING

The core of the Chicago plan for banking reform is the complete separation of money from credit. Money and credit have distinct attributes and are affected by other economic variables in different ways. The defining characteristic of money is that of a temporary abode of general purchasing power. Credit is not a temporary abode of general purchasing power, but rather a claim on a future income stream. Credit is not money and vice-versa. Nonetheless, credit can be converted into money at a price in the same way as any other claim to future goods or services can be converted into money at a price.

The change in the real quantity of money is determined by—among other variables—changes in both the nominal rate of interest (or the expected rate of inflation) and permanent income. Changes in real credit, on the other hand, are determined by changes in the rate of savings and in the real interest rate.

Banking credit is part of total credit and, in well-developed economies, banking credit has many substitutes. Unfortunately, and most importantly, in developing economies banking credit has poor substitutes primarily because capital markets are not well developed. Moreover, exogenous changes in banking credit (determined for example by monetary policy) can have important real effects (Garcia, 1987).

In a fractional reserve banking system, the creation and destruction of money is linked to that of banking credit thereby introducing “noise” in the economy. For example, if the main objective of the central bank policy were to reduce the nominal quantity of money (or its rate of growth), the central bank policy would have important spillover effects (externalities) affecting banking credit.

A narrow banking system avoids that type of externality. When the control of money supply is not a problem because there is a fixed exchange rate, the multiplier amplifies (multiplies) the exogenous shocks. To separate money from credit, narrow banks must have 100 percent reserves that are either idle or invested in AAA highly liquid public or private bonds. In this system, money is separated from credit and is a (nominal) “safe” asset, while credit is a “risky” asset.

Friedman (1959) stated the necessary steps for the transition to 100 percent reserves. While time has changed and while country specific differences need to be taken into account, the basic transitional steps are still relatively simple. In this respect, during the first quarter of 1995, Argentina had 43 percent reserve requirements on demand deposits. And for this reason, Fernandez and Schumacher (1997) have claimed that Argentina survived the 1995-banking crisis because the system had some features that made it similar to narrow banks.

A. Features of Narrow Banks

A narrow bank system would have an array of features. It would consist of two windows: a "narrow bank window" and a "broad bank window", both of which offer different products. One product (call it money or deposits) would have a 100 percent backing on domestic or foreign public or private AAA highly liquid securities. The second product would consist of a subset of alternatives: (a) profit-loss-sharing (PLS) accounts, and (b) other specific investment funds similar to current mutual funds.

On the liability side of these broad financial intermediaries, no ex-ante interest rate would be paid. Instead, there would be PLS or mutual fund accounts. Periodically, the liabilities (PLS and other mutual fund type of accounts) would share a percentage of the corresponding profits (or losses) of the asset side of the bank's balance sheet. The asset side of the balance sheet of broad financial intermediaries would not differ greatly from the current banks' asset structure, except that financial intermediaries would be allowed to have shares from publicly listed companies. In this system, there is no need for well-developed capital markets.

Although it resembles Islamic banking systems, the original "100 percent reserves" Chicago banking reform proposal has never been explicitly implemented, even in the face of extremely costly and recurrent cases of banking distress and crisis. There could be several explanations for the lack of explicit implementation, including:

- there is no public demand for safe deposits and consequently no demand for narrow banks;
- there is indeed demand for safe demand deposits, but the state has intervened and provided an explicit or implicit subsidy or "free lunch" to some through deposit insurance. Consequently, it is unlikely that there would be demand for self-paid safe deposits and the optimal provision of risk is destroyed by forcing banks to be "safe";
- conventional banking systems are a superior alternative to narrow banking,

despite their fractional reserve requirements, deposit insurance, high capital requirements, complicated regulations, costly supervision, weak enforcement, and recurrent crises. The superiority of conventional banks has been justified by their economies of scope and by the benefits of obtaining deposit and lending services from the same organization. Moreover, advocates of conventional banking argue that welfare is enhanced because the multiplier, with the same monetary base, allows for more loans;

- narrow banks leave financing to capital markets, and hence, there is a need for developed capital markets;
- small and medium enterprises would not have access to credit because of the high transactions costs associated with issuing commercial paper; and
- there are usually special interest groups opposing most banking reforms.

B. The Working of the Islamic (PLS) System

So far, we have discussed the asymmetry problem and its relation to banking instability. The assets-to-liabilities PLS system is the most important feature of Islamic banking and one that could be applied to banking systems in developing countries, including Latin America.

In a very small, sort of “pilot” scale, the PLS system has worked very well in Turkey. They have Special Finance Houses that use a very simple system, enforced by law, to calculate the assets-to-liabilities PLS. The system works much like a mutual fund and would be consistent with small minimum interest payments similar to those paid in money markets accounts. The profit and loss accrual distribution, announced every week, is based on the unit value (UV) of an asset pool. The UV, in turn, is published in various newspapers and essentially plays the same role as a mutual-fund index.

The Turkish UV is, in fact, a sort of share price index reflecting profit/loss developments in a given pool of participating deposits. Buyukdeniz (1996) gives a good description: “In essence, UV involves a week-by-week comparison of the total asset value (net worth) of a given pool. The UV changes as profit or loss is recorded to the pool. By multiplying the weekly announced UV by the account value (a coefficient indicating the relative participation share of an individual account in a given pool of participation funds, written on the participation account certificate), an account holder is easily able to know the outstanding value of his participation account.”

C. Mutual Funds

Mutual funds provide yet another example of an assets-(based-on- securities)-

to-liabilities scheme that resolves the perverse asymmetry problem. For a commission/fee, financial intermediaries are able to pool savings of many investors and channel them directly into assets containing an endless variety of securities from treasury bonds to stocks to an assortment of international bonds and equities. Each investor has an account that instantaneously reflects the value of the holdings, which also simultaneously represents the “liability” of the financial intermediary to the investor minus the corresponding commission.

For example, in the US (a country with a traditional low savings rate) the mutual fund industry, according to *The Economist* (“Fund Management: Investors Unite”, October 27, 1997), has accumulated assets of over \$4 trillion. Mutual funds are now worth more than either the US pension fund system or the insurance system; they will soon overtake traditional banking as the preferred system for savings. This growth, combined with the flexibility and transparency that mutual fund accounts offer, has given individual investors control over their finances. In such a system, the role of the financial intermediary is to compete more like a retailer to attract individual investors. The global shift toward a mutual fund system is already underway.

Moreover, such a system offers a diminished role for the government, as funds can be easily “globalized”. For example, if a fund wants to sell a global equity fund, it may easily draw on a handful of its existing funds from different regions. More specifically, a US equity fund, a Latin American fund managed in New York, a Euro fund managed in London, and an Asian fund managed in Hong Kong could create a new fund (“Global Equity Fund”) that contains all these funds and is managed from Buenos Aires. In summary, individual investors are (and will need to be more) involved in monitoring the performance of their investments. At the same time, financial intermediaries are urged to become more responsive to investors’ demands.

D. The Transition

Different countries with different initial conditions need different transitional periods to a narrow banking system. Specific proposals for the US have been advanced by Litan (1987) and by Burnham (1990). Litan, credited with coining the term “narrow banking”, borrows the 100 percent reserve requirements from the Chicago scheme, but proposes applying it solely to *highly diversified* firms that seek to offer both deposit and lending services. This selective feature is a critical element of the proposal as no existing bank or its holding company would be required to alter its mode of operation” (as emphasized by Litan). In this sense, Litan’s proposal would not resolve the problem of changes in the monetary multiplier affecting the supply of money.

For his part, Meltzer (1997) argues that reform would be relatively easy to implement in the US. He proposes to eliminate deposit insurance and to remove all the restrictions on the number and size of checks that can be written on money market funds that hold only US Treasury bills. In this framework, there would be a payments system with 100 percent reserves and no separate deposit insurance. The public could choose the preferred system by placing deposits in money market funds with 100 percent reserves in treasury bills or banks under FDIC without deposit insurance.

V. CONCLUSIONS

One hundred percent reserves, “narrow banking”, provide a good basis for banking reform. While it has not been fully tested, the fractional banking system has, in the meantime, continued to experience many episodes of contagion and financial sector distress and crisis. The direct and indirect costs of these crises have been staggering: in a few months, a banking crisis can literally erode (indeed, it has eroded) years of fiscal efforts. Thus, a narrow banking system offers a good alternative to reduce the costs of financial crises.

Both the narrow banking and the Islamic system are equity-based systems, which provide more stability to a financial sector than a conventional banking system does. Moreover, the globalization of financial markets and with it, the scope for instantaneous reversal of capital flows, carries potentially huge systemic risks that could prove costly in terms of economic growth and welfare. In order to diminish these risks, a new set of institutions consistent with this globalization is necessary. In this new context, a narrow banking system is a viable alternative.

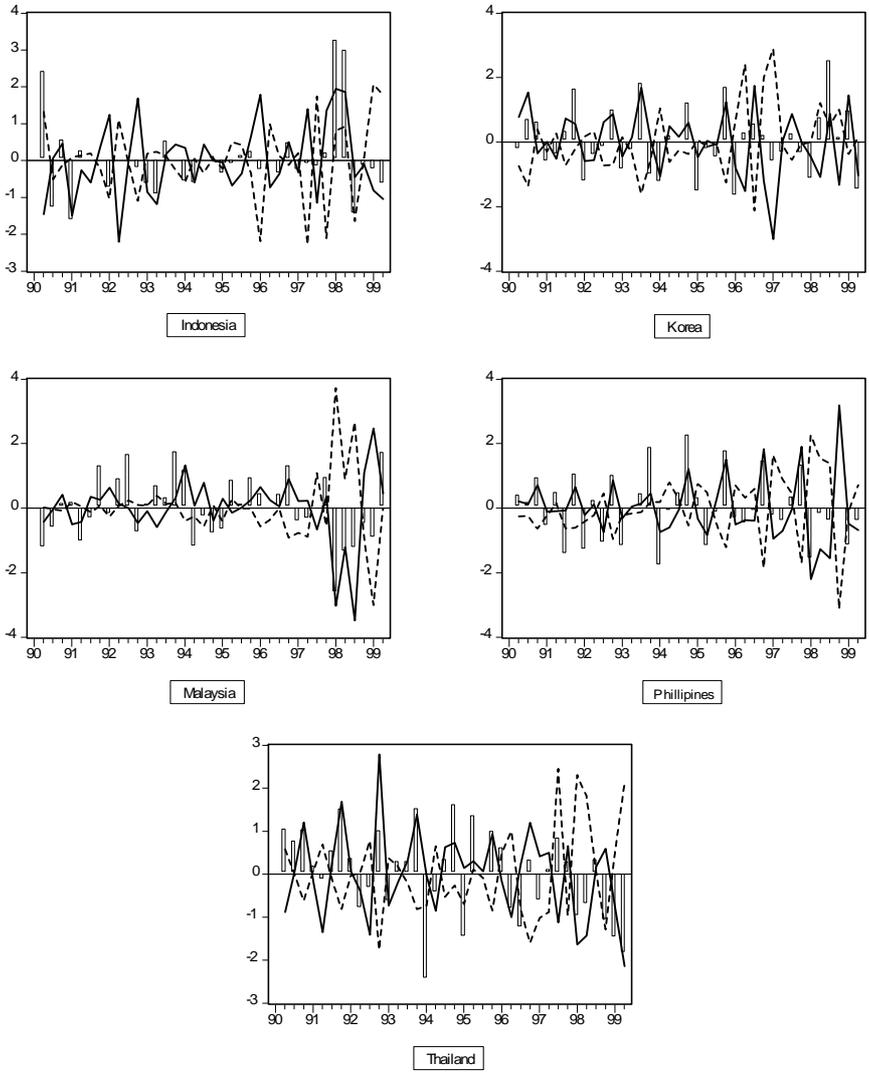
Nonetheless, narrow banking is not a panacea, as there would still be risks, such as settlement risk and fraud. Because of its design, there are many other things that narrow banking cannot do. Similar to conventional banks, narrow banking could not shield the system from a run due to political uncertainty. In addition, it could not shield the system from a portfolio change against all kind of banking liabilities (a run out of the whole system) or prevent the central bank from carrying out “bad” policies. Finally, there is the risk that the government would bail out a non-bank financial intermediary if it happens to be bankrupt. These risks are still small, when compared to both the risks and costs of the conventional system.

In summary, narrow banking has the following important advantages over a system of conventional banks:

- it eliminates the important moral hazard problem;
- it eliminates the need for deposit insurance;
- it resolves the perverse asymmetry problem, resulting in a more stable banking;

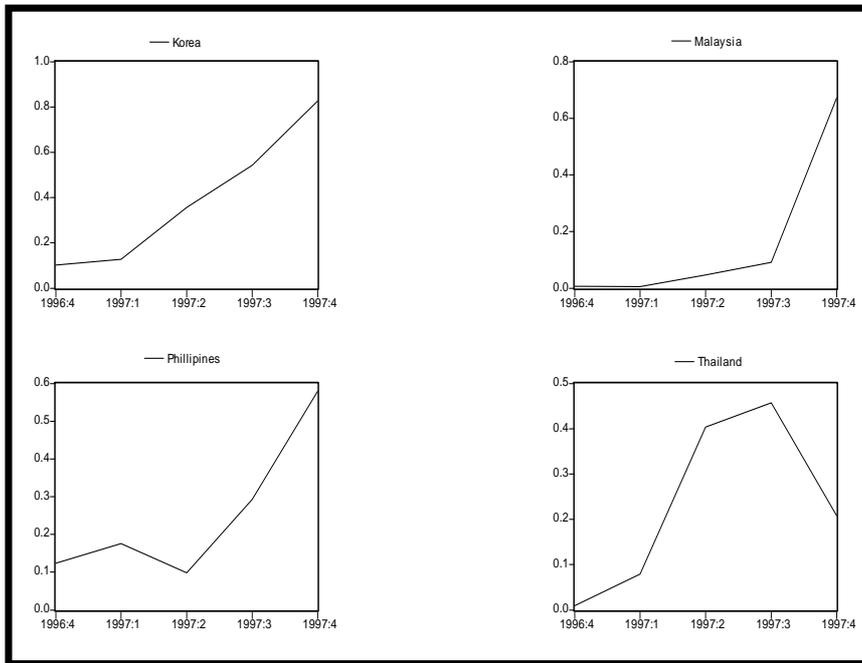
- it eliminates the need for a lender of last resort;
- it eliminates the impact on money supply of portfolio changes initiated by the public involving changes in the cash to deposits ratio;
- it makes it impossible for the central bank to introduce differential reserve requirements; and
- it is more equitable, as it reduces the probability that taxpayers (including labor through the inflation tax) pay the bill for bad banking practices.

Figure 1: Monetary Base and Multiplier in Selected Asian countries.



□ Change in M2 — Attributable to Base ---- Attributable to Multiplier

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Figure 2: Probability of banking distress

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