Some New Ideas for Financial Sector Reform

Lawrence J. Lau, Ph. D., D. Soc. Sc. (hon.)
Kwoh-Ting Li Professor of Economic Development
Department of Economics
Stanford University
Stanford, CA 94305-6072, U.S.A.

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Phone: 1-650-723-3708; Fax: 1-650-723-7145
Email: ljlau@stanford.edu; WebPages: http://www.stanford.edu/~ljlau

How to Minimize the Probability of Systemic Failure?

- How to reduce the probability of a melt-down or collapse of the entire financial system such as those in Thailand, Indonesia, South Korea and, to a lesser extent, Japan?
- How to design a system that can maintain its stability in the face of both internal and external disturbances?
- Examples of systemic failure
  - The East Asian currency crisis of 1997-1998
  - The Japanese stagnation of the decade of the 1990s
  - The U.S. Savings and Loan Associations problem in the early 1980s
- Common features
  - An asset price bubble (that eventually burst)
  - Supported by excess leverage
  - Driven by moral hazard
- The key to minimizing the probability of a systemic failure of the financial system lies in implementing measures that (1) reduce excessive leverage (debt to equity ratio) of enterprises and (2) reduce the incidence of moral hazard.

Reduction in Excessive Leverage in the Economy Reduces the Overall Risk of Systemic Failure

- First, if the debt to equity ratio is lower at the level of the individual enterprises, the probability of failure of any one particular enterprise is reduced—with the equity (shareholders) absorbing the losses rather than the debt (creditors including lenders and suppliers).
- Second, reduction in leverage helps to reduce the overall level of excessive risk-taking in the economy by reducing moral hazard
- Third, even when an enterprise fails, and some creditors suffer losses as a consequence, they are less likely to fail themselves because the losses from the debts are smaller, and they themselves have more equity to absorb these losses.
- Fourth, the low capital requirement on the financial institutions (also an example of excessive leverage), of, say, 8%, implies that they do not have the capacity to take large losses
- Fifth, a lower debt/equity ratio or a higher capital requirement implies that no borrower or financial institution will become "too big to fail"

Reduction in Excessive Leverage in the Economy Reduces the Overall Risk of Systemic Failure

- Thus, and more importantly, a lower debt/equity ratio reduces the "domino effect" or the "spillover effect" of insolvency and bankruptcy of one enterprise on other enterprises and on financial institutions.
- Reduction in leverage lowers the probability of a failure propagating throughout the economy, causing a widespread failure of enterprises and financial institutions, which in turn lowers the probability of a failure of the entire financial system, including the banking system.
- It is only in highly leveraged economies that failure of enterprises will cause the failure of other otherwise sound enterprises in a series of chain reactions and eventually even cause the financial institutions to fail.

Moral Hazard Contributes to Excessive Risk-Taking and Recklessness

- Moral hazard occurs when the negative consequences of (possibly hidden) actions, including excessive risk-taking, is borne by others (risking "other people's money").
  - E.g., from past experience, developed country lenders expect that they will not suffer losses in the event of a large-scale default of their loans to developing countries (The Latin American loan crisis of the 1980s, the Mexican crisis of 1994).
- Reduction in the leverage per se also helps to reduce the moral hazard of managers and owners of enterprises because a higher proportion of the potential loss will be borne by the owners and managers themselves.
- When an enterprise wholly or almost wholly funded with non-recourse debt, or a financial institution with very low capital requirement, fails, the owners are not adversely affected at all.
  - E.g., the savings and loan association crisis in the United States in the early 1980s
- Thus, moral hazard contributes to excessive risk-taking and recklessness

Moral Hazard

- The doctrine of "too big to fail" applies to both financial institutions as well as to enterprises (borrowers), e.g., Hyundai—financial institutions tend to over-lend to enterprises deemed too big to fail; enterprises that consider themselves too big to fail tend to over-borrow; e.g., Hyundai of South Korea.
- Reducing the debt/equity ratio of enterprises
  - Increasing and promoting equity investments
  - Risk-based deposit insurance premium
- Rationalizing the capital requirements of financial institutions depending on the nature of the assets and liabilities
  - Distinguishing between different lines of business
  - Distinguishing between capital requirements and liquidity requirements
  - Bank for International Settlement idea of using credit-rating firms to rate the assets of financial institutions is unlikely to help
- Encouragement of specialization and division of labor in banking and credit
- Government support of the stock market also leads to moral hazard (speculators can make one-way bets)

Fundamental Macroeconomic Causes of the East Asian Currency Crisis

- Savings-investment imbalance--also reflected as current account imbalance
- Dependence on short-term foreign capital (portfolio investment--both equity and debt instruments--and loans) by private investors
  - Equity is better than debt
  - Direct investment is better than portfolio investment
  - Insolvency caused by the revaluation of foreign-currency denominated debts and the rise in the domestic and foreign rates of interest
  - Domino effects of insolvency and bankruptcy
  - Problems magnified by high leverage (high debt to equity ratio) of enterprises and financial institutions
- Inadequacy of foreign exchange reserves (working capital of a country) for supporting imports, debt service, and (potential) net short-term capital outflows
- Real exchange rate appreciation (loss of competitiveness) due to a domestic rate of inflation higher than the U.S. rate of inflation

Fundamental Microeconomic Causes:Borrowing Too Much, Short-Term and in Wrong Currency

- Maturity mismatch--borrowing short and investing (lending) long
- Currency mismatch--revenue and cost (liability) in different currencies
  - Vulnerability magnified by high debt to equity ratio
  - Insolvency caused directly or indirectly by declines in the exchange rates (through revaluation of debt in terms of domestic currency, high nominal domestic and foreign rates of interest, and domino effects of bankruptcy)
  - Oversold currencies create unnecessary bankruptcies and discourage re-capitalization and re-structuring
- Moral hazard on the parts of both lenders and borrowers
  - Past bailouts (Latin American loans, Mexican loans) of developed country lenders encourage moral hazard on the part of lenders
  - Implicit guarantee of banks and enterprises “too big to fail” by governments encourage moral hazard on the part of both borrowers and lenders

Fundamental Microeconomic Causes: Excessive Leverage and Herd Mentality

- Excessive Leverage
  - Excessive leverage of enterprises magnifies the negative effects of a sharp devaluation on foreign-currency denominated debt as well as the resulting rise in both the domestic and the foreign rates of interest
  - Excessive leverage magnifies the negative effects of a sharp devaluation even for enterprises without foreign-currency denominated liabilities because of the resulting rise in the domestic rate of interest
  - Excessive leverage encourages moral hazard (recklessness) on the part of the borrowers
  - Excessive leverage magnifies the domino effect of insolvency and bankruptcy on the entire financial system
  - Excessive leverage also enables the hedge funds to engage in predatory speculation on a large scale
- "Herd mentality"--too much money chasing too few good projects leading to mis-pricing by developed country investors and lenders (it is better to make the same mistake as everyone else)--the making of an East Asian "bubble"

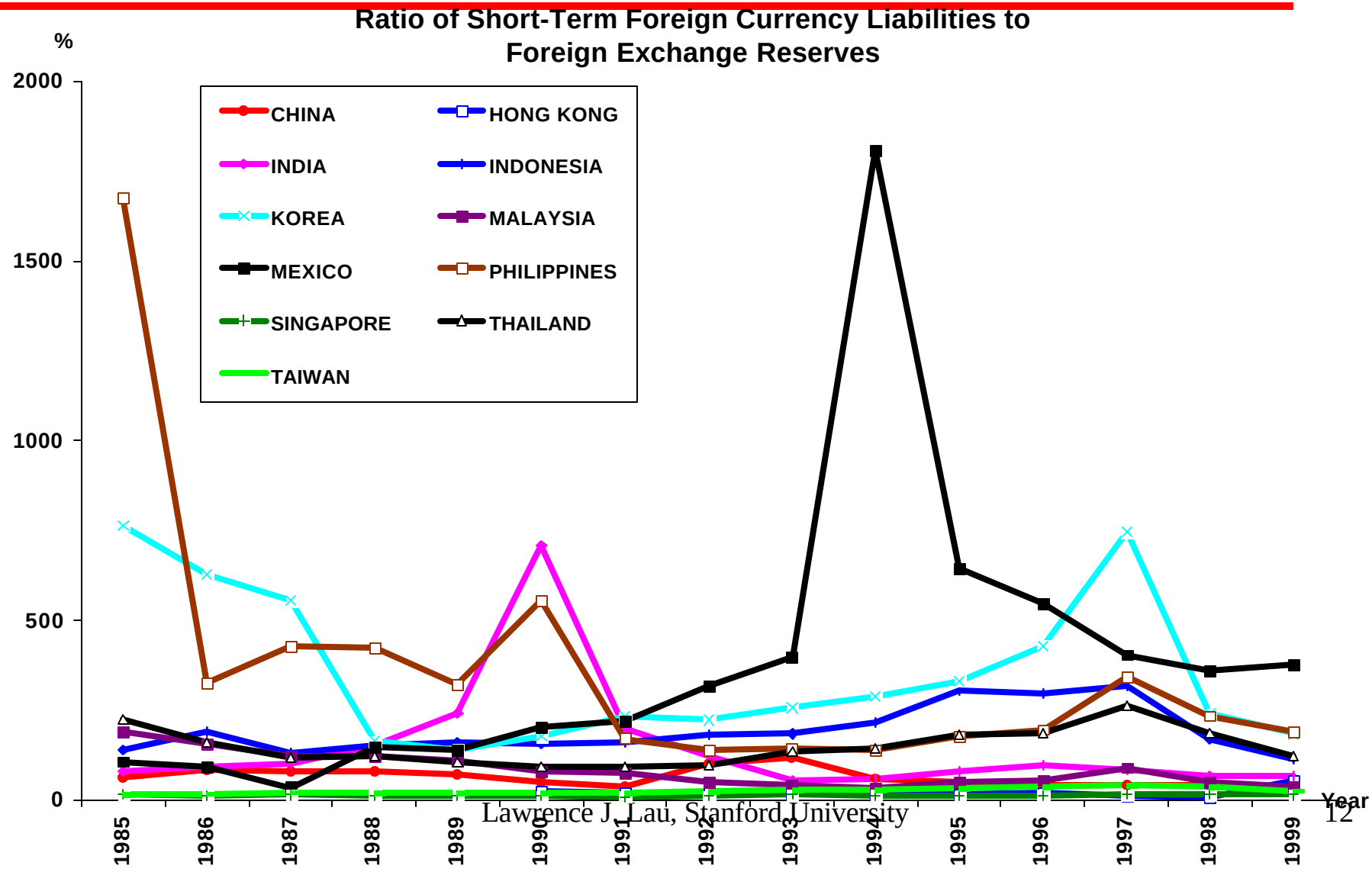
The East Asian Currency Crisis is a Currency Crisis Inducing a Financial Crisis

- The problem stemmed from insufficient liquidity in terms of foreign exchange
- Unexpected outflow of short-term capital caused the exchange rate to plunge
- A “bank run” on foreign exchange ensued
- Financial insolvency caused by the resulting revaluation of the foreign-currency denominated debt and the rise in the rate of interest (due to expected further devaluation and increased volatility of the exchange rate)
- Domino effects of insolvency and bankruptcy, magnified by high leverage (that is, debt to equity ratio), leading to systemic failure

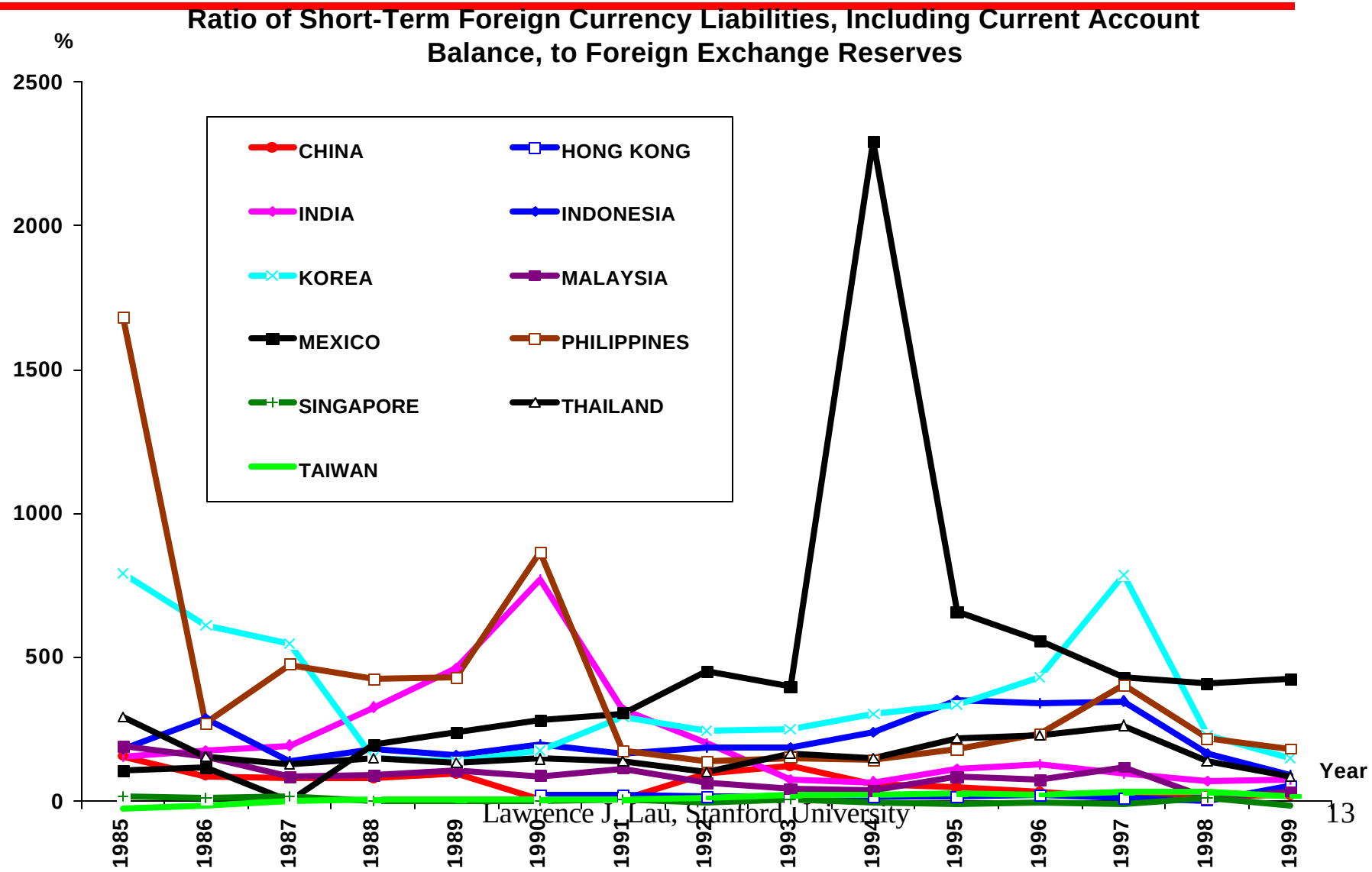
Ratio of Short-Term Foreign-Currency Liabilities to Foreign Exchange Reserves

- The potential short-term foreign exchange liabilities, that is, the foreign exchange that can be withdrawn from the country with little or no prior notice, consists of the stock of foreign portfolio investment and short-term foreign loans
- The stock of foreign portfolio investment can be estimated by cumulating past foreign portfolio investments; however, the existing stock may be under- or over-estimated by this procedure because of the possibilities of gains and losses from these investments
- To these may be added the current account deficit of the current period
- If foreign exchange reserves are low relative to these potential demands on foreign exchange, the currency may be vulnerable to a run

Ratio of Short-Term Foreign-Currency Liabilities to Foreign Exchange Reserves



Ratio of Short-Term Liabilities, Including Current Account Balance, to Reserves



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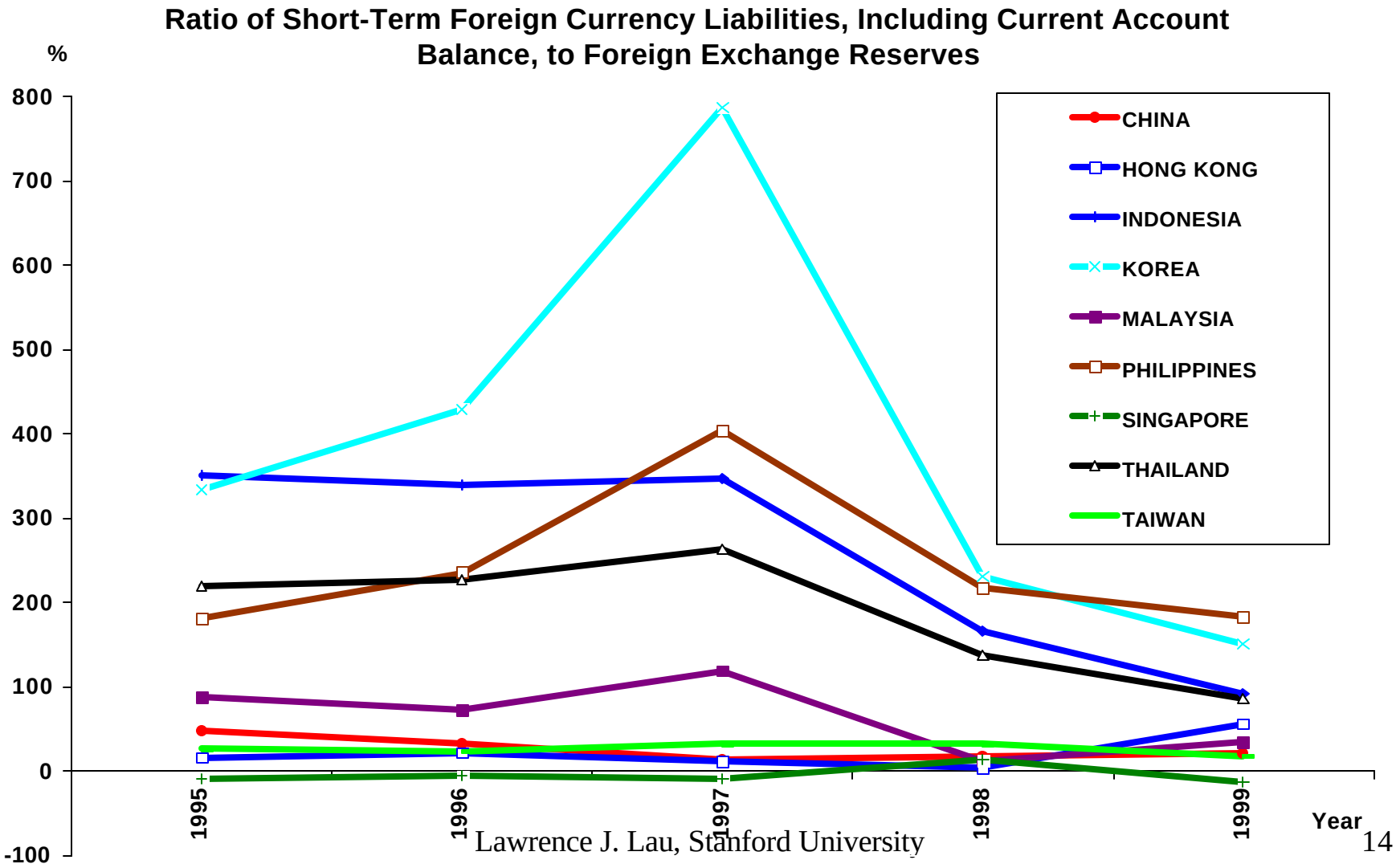

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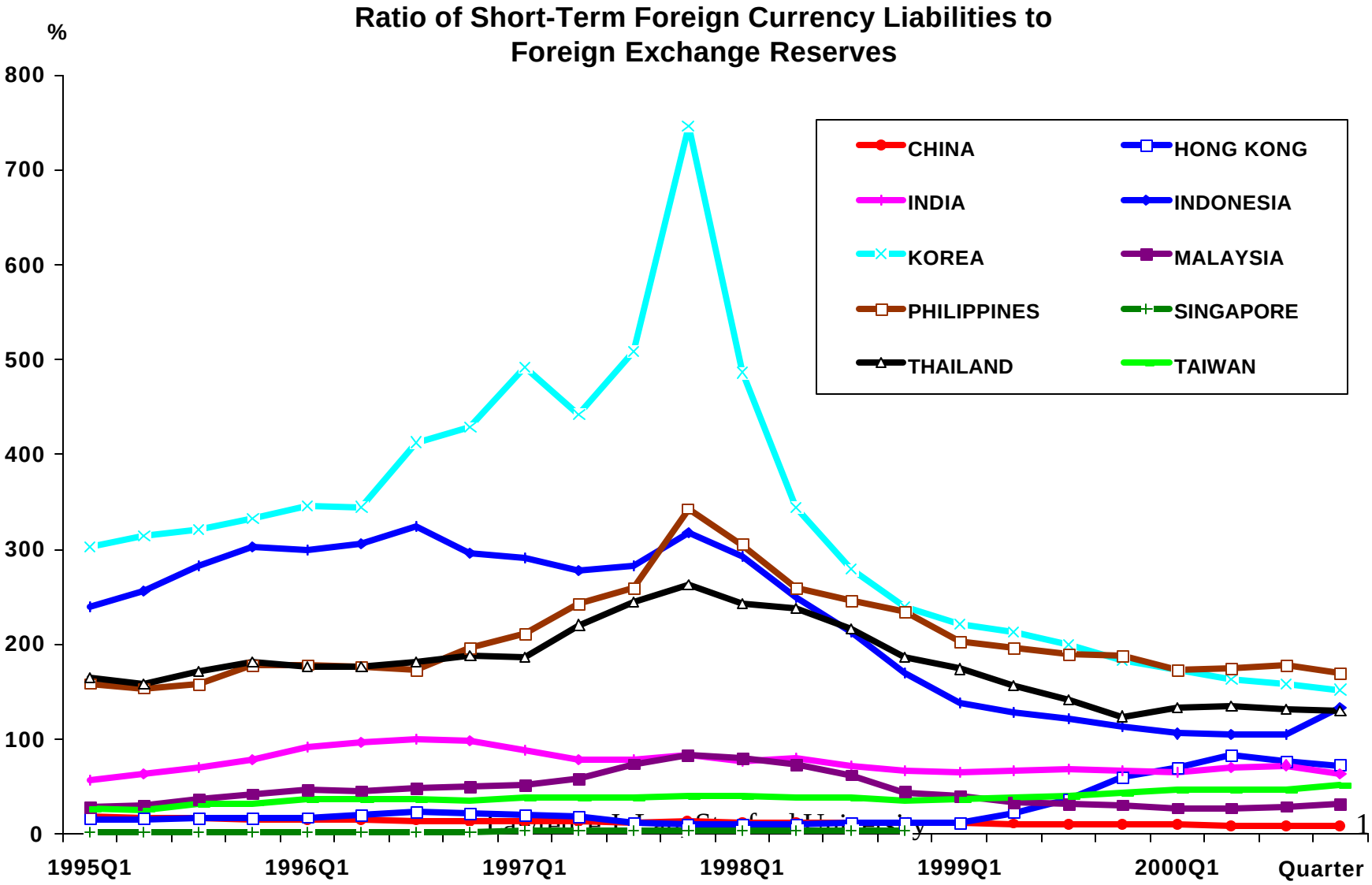

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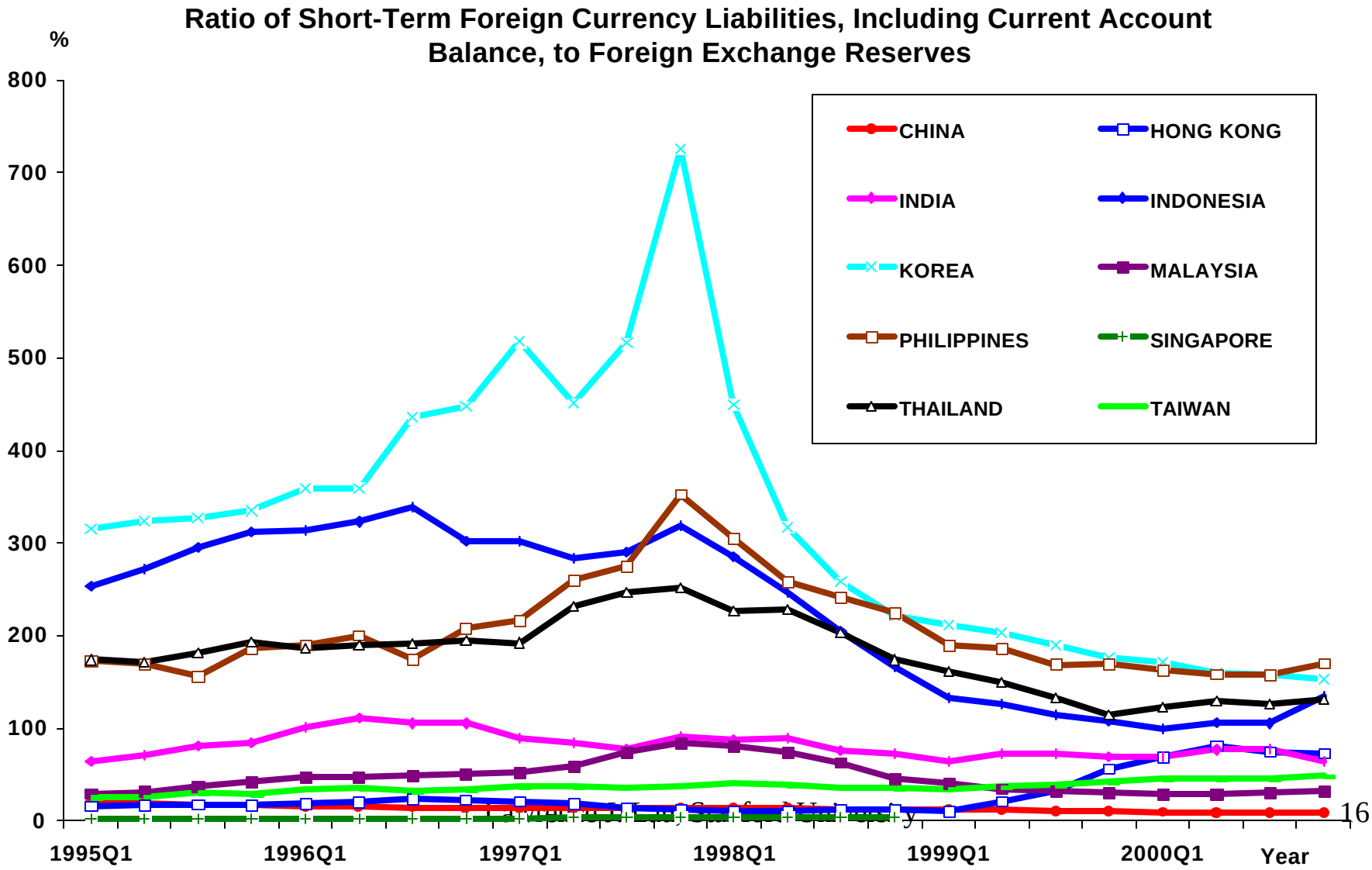

Excessive Leverage Led to the Bubble and Its Subsequent Bursting in Japan

- The large volume of non-performing loans and bad investments (not yet marked to market) in Japanese financial institutions reduces significantly their net capital
- They are thus forced to contract and are unable and unwilling to finance new investments
- This has prevented an economic recovery despite very low rates of interest
- It also makes it necessary for the Japanese Government to engage in "price-keeping operations" to support the solvency of the financial institutions
- The result is a whole decade of economic stagnation

The Functions of the Banking System

- There are transactions that would not have taken place in the absence of financial intermediation or credit, formal or informal
  - Asymmetric information between savers and entrepreneurs/investors
  - Transfer of risks from savers and producers to financiers (e.g. letter of credit)
  - Economies of scale
    - Maturity transformation
    - Pooling of resources (lumpiness of investments)
    - Pooling of risks across borrowers
    - Transaction costs
    - Specialization in information acquisition and monitoring
    - Amelioration of exchange rate risk through offsetting transactions

Moral Hazard and Financial Institutions

- The capital requirements (e.g., the Bank for International Settlement (BIS) standard of 8%) are generally too low to discourage moral hazard on the part of the owners of the financial institutions
- Government-directed credit and the doctrine of "too big to fail" encourage moral hazard on the part of the lenders as well as borrowers
- Explicit or implicit deposit insurance encourage moral hazard on the part of savers and depositors in their choices of depository institutions for their deposits
- Informal credit markets (the lack of anonymity of which limits moral hazard)
  - Mutual credit associations
  - Grameen banks

Reduction of Moral Hazard in Financial Institutions

- Changing the capital requirements on financial institutions
  - The BIS requirement of 8% capital requirement is both too high and too low. For financial institutions specializing in the investment in short-term central government securities, e.g., Treasury bills, even an 8% capital requirement may be too high. For financial institutions making risky loans, 8% is obviously too low—because if the loan goes sour, the owners of the financial institutions only lose 8 cents on the dollar. They are therefore very likely to engage in high-risk activities which may yield an exceptionally high return on the equity invested.
- Avoidance of moral hazard in financial institutions with diffused ownership and a large number of shareholders—senior executives should be required to own shares in the financial institution in an amount large relative to their own individual net worths, if necessary, financed with recourse debt, so that the interests of the executives and the institution are aligned
- Mutual monitoring by peers
- Pension benefits for the executives should also be tied to the performance of the financial institution

Explicit or Implicit Deposit Insurance

- Enhances confidence in and hence stability of the financial system
- Reduces the probability of bank failure due to illiquidity as opposed to insolvency
- Reduces the spillover (contagion) effect of bank failure
- Levels the playing field between large and small banks (a large number of small banks is not as efficient as a small number of large banks because of the intrinsic economies of scale in banking; however, the political economy may favor a large number of small banks)
- A high capital requirement is a possible substitute for ineffective prudential regulation and supervision

Deposit Insurance

- Deposit insurance, implicit or explicit, encourages moral hazard and increases systemic risk—moral hazard on the part of both the depositors and the owners of financial institutions (lenders)
- Deposit insurance effectively enables an insured financial institution to attract deposits with sovereign credit, regardless of its own financial conditions—hence the need for prudential supervision and regulation
- However, the regulatory agencies in most countries lack the ability to detect and correct problems before it is too late—insufficient qualified personnel, the incentive for the financial institution to cheat, and the ability of the financial institution to circumvent regulations—self-regulation through a higher capital requirement is much more effective
- Deposit insurance limits should be consolidated to a per person basis rather than a per account basis for each failure. This effectively implies, in practice, that there is an upper limit to the insurance provided to each person for the failure of each financial institution (since it is not likely that more than one financial institution will fail at the same time). The existence of this per person limit will at least force risk-averse depositors to diversify across financial institutions and hence lower the potential liability of the deposit insurance system.

Deposit Insurance—Risk-Based Insurance Premium

- Deposit insurance premium should be tied to the average debt/equity ratio of the borrowers (and to the credit quality)—the lower the average debt/equity ratio, the lower the insurance premium, thus providing the financial institutions with the incentive to lend to borrowers with lower debt/equity ratios.
- Deposit insurance premium should also be tied to total size of the financial institution as measured by its net capital (marked to market)—the higher the total net capital, the lower the insurance premium, thus encouraging the emergence of larger financial institutions that are better able to pool risks themselves (otherwise the existence of deposit insurance enables the proliferation of small financial institutions)
- Deposit insurance premium should also be tied to the degree of concentration by borrower in the loan portfolio—the higher the concentration, the higher the insurance premium, thus encouraging diversification and discouraging over-exposure to particular borrowers by the financial institutions

Can Rating the Assets of Individual Financial Institutions Help?

- A recent proposal by the Bank for International Settlements recommends capital requirements based on ratings of the quality of the assets made by rating agencies is basically unlikely to be helpful. The problem is that the rating agencies themselves really do not have the capacity to determine the credit quality a priori—otherwise they would have made superior bankers themselves. The incentive is also not there for them to make an accurate and usable classification since their capital is not at risk. In most cases, rating agencies change the credit ratings of enterprises only after the fact, and not before.
- It is really a matter of providing the right incentives for proper governance of the financial institutions, including regulatory compliance and risk management

Increasing Equity Investments

- Establishment of a second board--The second board should specialize in medium-sized enterprises. It should take as its model not so much the NASDAQ in the United States or the GEM board in Hong Kong. Rather, it should concentrate, at least initially, in the provision of capital to medium-sized enterprises with a good operating profits record (at least three years) and good future potential. The enterprises do not have to be in the high-technology sector.
- It is risky to start a GEM-like board in Taiwan today. The probability of failure of these high-technology enterprises is very high, as evidenced by the recent NASDAQ and GEM board experience. The real dangers are (1) the government will be left holding the bag—that the shareholders of such failed enterprises will demand a government bailout, on the grounds that the government has approved the listing of these enterprises and (2) there will be a backlash so severe that it will close off the possibility of another second board for years to come, thus shutting off a potential source of capital for medium-sized, low-technology, enterprises.

Increasing Equity Investments

- Venture capital should also be promoted, but it should not be done at this stage through the public stock markets because of its very high rate of failure. (Approximately only one out of twenty venture-capital funded firms in the Silicon Valley eventually succeeds.)
- The utilization of foreign capital either in the form of portfolio investment or direct investment, including the issuance of American or Global depositary receipts (ADRs or GDRs).

Reduction of Excessive Leverage in the Stock Market

- High leverage in the stock market can eventually make the government hostage to the stock market. A high leverage implies that a collapse of the stock market will adversely affect the health of the financial institutions that have provided directly or indirectly the financing of the stock purchases. Thus the government will be motivated to try to support the stock market (Japan and Taiwan are examples). However, government support of the stock market encourages moral hazard—speculators will realize that they will never lose money but can only make money—this in turn encourages even more margin purchases, further increasing the leverage. The government will find itself in a position that it cannot extricate itself.
- The margin requirements for stock purchases should be kept relatively high, e.g., 50%. The government should maintain the flexibility of increasing (or decreasing) the margin requirement, on the margin, i.e., for new purchases, if the price/earnings ratio in the stock market becomes too high (imposing a higher margin requirement only on new purchases minimizes the downward pressure on the stock market) or too low.
- Another advantage of a lower leverage in the stock market is that when the stock market falls (or when the bubble bursts), there will not be as severe a social disturbance as if all the shareholders wind up owing huge amounts of money to the financial institutions. The market collapse of 1992 in Taiwan did not lead to any social disruption largely because there was little use of margins.

Distinguishing and Matching Classes of Bank Assets and Liabilities: Specialization

- Pure transactions banks--demand deposits to be matched with investments in short-term Treasury securities (30 days)—no capital requirements and no deposit insurance premium required, a low reserve requirement (in the aggregate, the total funds should balance), and no loans
- Pure savings banks--deposits to be matched with investments in slightly longer Treasury securities (30-90 days)—no capital requirement and no deposit insurance premium required, an even lower reserve requirement and no loans (e.g., postal savings)
- Capital requirements for deposit-taking and loan-making financial institutions can be set at a higher level, say 20-25%, to discourage moral hazard
- Mortgage banks, consumer durable financing, and credit card receivables—funding through securitization, no deposits are taken
- Non-retail-deposit taking consumer bank and business bank—securitization to achieve the maturity match, transferring the interest rate risk to the public securitized bank bond holders
  - Banks providing credit will face higher capital requirements because they have to finance their loans not through deposits but through direct borrowings from the market, by issuing commercial papers, notes and bills, which are not insured
  - Capital requirements and the rates of interest are a function of the market conditions and the specific characteristics of the credit banks—they are not set by the regulatory agency

Reduction of Information Asymmetry: Transparency and Disclosure

- Enforcement of disclosure of holders with large positions in individual stocks, bonds, options, currency contracts and other instruments
- Disclosure of pledges of securities as collateral for loans, in addition to sales and purchases, by directors and officers
- Enforcement of the “real names” system
- Piercing the corporate veil—greater use of recourse rather than non-recourse debt

Reduction in Information Asymmetry: Transparency and Disclosure

- Globalization of accounting standards and disclosure (transparency) requirements
  - Insistence of financially responsible auditors by lenders
- Global credit reporting system for large borrowers (say over $500 million in aggregate debt) (e.g., LTCM, Daewoo)
  - Voluntary reporting by lenders of large credit transactions of large borrowers (say, transactions exceeding $500 million each) to a central bureau operated by a consortium of global lenders
  - Inquiry by lenders of total cumulative debt to-date (as opposed to debts to individual lenders, thus preserving confidentiality and privacy) prior to extension of additional credit
  - It is in the self-interest of each lender to cooperate and to report to such a system
  - Regulatory agencies may require that a lender must have knowledge of the total outstanding indebtedness of its large borrowers prior to extension of additional credit

The Information Content of Equity Investment

- One additional advantage in emphasizing equity over debt lies in the information content in equity investment. When an entrepreneur is willing to put up his own equity in an investment project, it reveals his confidence in the probability of success of the project. If he is not confident enough to put up his own equity in his own investment project, why should anyone else invest with him or lend him money? Thus, the amount of equity to debt reveals the degree to which the entrepreneur believes in his own project, other things being equal.

The Information and Communication Revolution

- The information and communication revolution makes possible the efficient sharing of information by the various types of financial institutions and hence the realization of the benefits of specialization and division of labor
- Faster settlement and clearing of transactions reduces the systemic risk
- Debit and credit cards instead of checks; e-commerce

Reducing Dependence on Short-Term Foreign Capital

- Lengthening maturities of foreign-currency denominated loans through the imposition of a fee by the central bank, say, of 25 basis points, each time such a loan is made or renewed. This fee implies the recognition by the Central Bank of such a loan, which should be comforting to the foreign lenders. However, it also has the effect of forcing the foreign lenders and the domestic borrowers to rethink whether a foreign-currency loan is in their best interests and if so whether a longer-term loan, with floating rates of interest, may fit their interests better, reducing the potential fees payable to the central bank
- Larger reserve requirements can also be imposed on non-resident domestic currency deposits on the grounds that they are likely to be more mobile than resident domestic currency deposits

The Role of the Central Bank

- The Central Bank possess valuable information through the payments and clearing mechanism and is hence a more ideal locus for prudential supervision and regulation
- The Central Bank is the lender of last resort
- Countries with independent Central Banks tend to have a lower rate of inflation over the long run
- With the formation of financial holding companies that can engage in banking, insurance, asset management and securities businesses at the same time, there is a need to unify the regulatory process so that the overall risk to the financial system can be controlled and minimized