

Sequencing of Capital Account Liberalisation: A Challenge to the Washington Consensus?*

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1 Introduction

Ever since the Basle accords of 1988, progressively harmonised prudential regulation has been required of banks participating in the global economy: and since the early 1990's, policies towards emerging market economies have been dominated by the "Washington consensus" (Williamson, 1994, pp26–28), which looked to financial (and trade) liberalisation as the way to growth and prosperity. But the need to sequence these steps was not emphasised, and emerging market economies were, in effect, encouraged to liberalise markets as quickly as possible. In April 1997, for example, the Interim Committee of the IMF came out in favour of amending the IMF articles to make the capital account liberalisation¹ one of the "purposes" of the Fund (Eichengreen, 1999, p116).

It is, however, a lot easier to abolish capital inflow controls than it is to ensure that the local financial system is in good regulatory order to handle the resulting inflows: so in practice freedom of capital movements will precede effective regulation. But the financial crises in 1990s have demonstrated that the combination of massive inflows with distorted incentives is a recipe for disaster; and, for

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¹The analogy often cited was with current account liberalisation under the GATT; but this analogy was fundamentally flawed, as Stiglitz (1998) has pointed out.

the Washington consensus, this has proved an expensive lesson in the economics of the second best (i.e., the need to relax some first order conditions for optimality when others are not satisfied).

What is the challenge to the Washington consensus posed by the recent events? and how should it be modified as a consequence? These are the questions examined in this paper. We begin by considering just why the combination of market liberalism and poor regulation should be so potentially dangerous. The reason, we argue, lies in the interaction between government guarantees given to bank deposits and the limited liability enjoyed by shareholders, which poses potentially serious problems of moral hazard (Krugman, 1998). Massive short-term capital flows from global capital markets can enormously magnify these problems leading to financial and economic crises with major economic costs.²

Evidently not all steps of market liberalisation lead to faster growth (Rodrik, 1998): they may even, as in 1997/8, lead to disaster. At the very least, this is a significant qualification to the prior Washington consensus, with obvious implications for emerging-market countries with inadequate prudential regulations. More specifically, the extent of capital account liberalisation should be conditional on the quality of prudential regulation and supervision — a dramatic example of the logic of “second best”. Countries like China and India, for example, will not be well advised to follow the “quick fix” of the earlier consensus; the lesson of the Asian crisis is that improving domestic regulation and corporate governance is a necessary precondition for enjoying the benefits of financial liberalisation.

The paper is structured as follows. Section 2 looks at the origins of moral hazard in the banking system and the way in which this may be checked by regulation (as in the Basle accords). By examining the portfolio choices of banks in Section 3, we analyse moral hazard in terms of a put option available to bank shareholders — one which allows them to gamble with depositors’ money, keeping the profits and walking away from losses! We also show how regulation destroys this option. Section 4 discusses the role of open capital markets in magnifying the moral hazard problem. Section 5 draws implications for the sequencing of the capital account liberalisation and Section 6 concludes.

²Empirical evidence indicates that the cumulative losses for bank crises are 15% and 14% of GDP for industrial and emerging economies respectively, for banking and currency crises are almost 18% of GDP for industrial countries and 19% for developing countries (World Bank, 1999, pp126–127).

2 Deposit Insurance, Limited Liability and Banking

In emerging market economies where capital markets are underdeveloped, most domestic firms will have to rely on banks for investment finance: and banks, of course, finance the bulk of this lending by taking deposits from the public. While this may seem straightforward enough, it is in fact problematic. For, with balance sheets on which illiquid assets are matched by liquid liabilities, banks cannot collectively honour all the claims for cash for which they may be liable, and the banking system is thus exposed to *liquidity crises* in the form of bank runs.

In one of the most widely cited theoretical papers on this subject, Diamond and Dybvig (1983) interpret these runs as a shifts of equilibrium. They show that the banking system has multiple equilibria, and a failure of depositor confidence can precipitate a shift from good to bad. The history of banking crises in Britain and America demonstrates that bank runs are no mere theoretical curiosa. To protect their banking systems against the risk of self-fulfilling crises of confidence, the central bank can act as lender of last resort in favour of solvent but illiquid banks as the Bank of England began to do towards the end of 19th century. Alternatively the state can provide *deposit insurance*, as the Federal Deposit Insurance Corporation has done in the US since 1934.³ Because “the consensus in favor of deposit insurance is quite broad among regulators” (Dewatripont and Tirole, 1994, p111), we focus on this method in what follows.

Insured depositors need not withdraw their funds just because they fear others may do so; and this can avert liquidity crises. But the combination of deposit insurance with limited liability poses a serious risk, namely that of *solvency crises* due to ‘moral hazard’ — the distorted incentives that facing those who own and manage the banks. Unless bank shareholders have a substantial amount of equity at risk, those owning and managing these highly levered companies, whose borrowing is guaranteed by the state, have an incentive to take on risky projects: with limited liability, the benefits accrue to shareholders but the losses are borne by the insurer. For the shareholders indeed, the institution of limited liability is like having a put on the cash flows from the business: and, by increasing the volatility of these flows, they can increase the value of the put.

The *prudential regulation* of banks is designed to handle this problem: and in practice, since the Basle accords of 1988, Western economies have imposed capital adequacy ratios on their banks as a means for achieving prudential control.

³A third method of protecting banks is to authorise bank holidays (when convertibility of deposits is suspended).

⁴ How does this work? The principle, we believe, is simple: if the combination of deposit insurance and limited liability gives rise to moral hazard, the answer is to take away the limited liability! Since they require shareholders to have a minimum percentage of their own funds at risk, the capital adequacy ratios endorsed by the Basle accords should ensure that the put option conferred by limited liability will never be exercised. (How the capital adequacy ratios are to be enforced is not specified in the Basle accords, which leaves key issues of implementation to national authorities.)

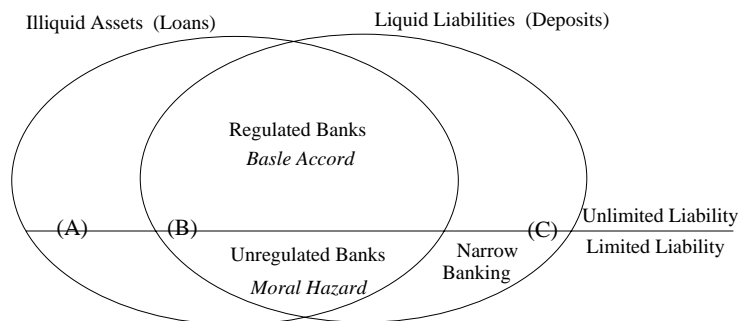


Figure 1: Limited liability, moral hazard and the Basle Accord.

The basic logic of the situation is illustrated in Figure 1. The circle on the left indicates the illiquid assets available in the economy, while the circle on the right shows the amount of liquid liabilities. The intersection of the two circles, labelled B, illustrates the liquidity transformation achieved by the banking system: but because of the risk of bank runs, these bank deposits have to be insured. The moral hazard that arises when deposit insurance is combined with limited liability is shown below the line in the lower part of B. The solution to this taken under the Basle accords, effectively removing the privileges of limited liability by bank regulation, is shown as the upper part of B. (Another solution, not discussed above, is to leave banks with limited liability but to take away their deposit insurance: this is indicated as the “narrow banking” approach shown in the lower half of C. These banks can meet their depositors demands and may not gamble, but they do little for the financing of investment!)

⁴The moral hazard problems arising in the banking industry are analysed by Dewatripont and Tirole (1994), assuming that financial panic can be avoided by a deposit insurance. In their monograph on the prudential regulation of banks, they treat the problem as one of corporate governance and discuss how effective the BIS capital adequacy ratio may be as triggers for regulatory action.

In what follows, we first use a profit maximising approach to show how distorted incentives can lead banks to “gamble for resurrection”, and then illustrate various regulatory measures to offset this.

3 Imprudent Banks and Regulatory Responses

3.1 Imprudent banks

To analyse the moral hazard arising from unregulated banking, we use a simple model of asset valuation, where the privilege of limited liability is represented as a put option (Merton, 1977; Fries et al 1997). The we show how prudential regulation effectively removes this put value.

Assume the total deposits, D , are invested in domestic interest-earning assets with returns, X . The bank can choose two mutually exclusive portfolios either with safe returns (with no uncertainty) or with risky returns (with a negative trend and substantial volatility).⁵ Let the equity value of bank, i.e., the value of assets less deposits, be given by V_N . To simplify the analysis we scale both the returns and the equity value of the bank by total deposits, so $x = X/D$ indicates the returns per unit of deposit and $v_N = V_N/D$ the equity value per unit of deposit.

In Figure 2, v_N^S and v_N^R are equity values of the bank for safe and risky investment respectively. These are increasing linear functions of loan returns, x , plotted along horizontal axis. Both schedules start from -1 (indicating net liability per unit of deposit when asset values fall to zero) with v_N^S having a slope of $1/r$ (where r is market rate of interest) and with v_N^R having a slope of $1/(r + \mu)$ (where μ is the negative trend for the risky asset).

For returns close to x_B , the net equity (if choosing a safe asset) of the bank is close to zero. This is when observers predict⁶ that loan managers will “gamble for resurrection” by switching to more risky assets. In the presence of limited liability, banks can increase their net equity values by increasing the variance of returns. This is because high returns will enhance bank profits but low or negative returns will be written off through bankruptcy.

It might appear that risky assets are always dominated by safe assets as v_N^R lies everywhere below v_N^S . But this would be to ignore the limited liability of

⁵The assumptions made here on portfolio returns are for the simplicity of the analysis. In general, one can choose one portfolio from the efficient set and the other inefficient. This will not change our general results.

⁶On the reasonable assumption that portfolio switching for banks involves very little costs.

the bank shareholders and how, as a consequence, expected profits depend on the variability of returns. These imply that the net equity of the bank is given by the schedule GG when deposits are invested in risky assets. So risky investment is more profitable than safe investment when bank capital is low (i.e., to the left of S where GG crosses v_N^S)⁷

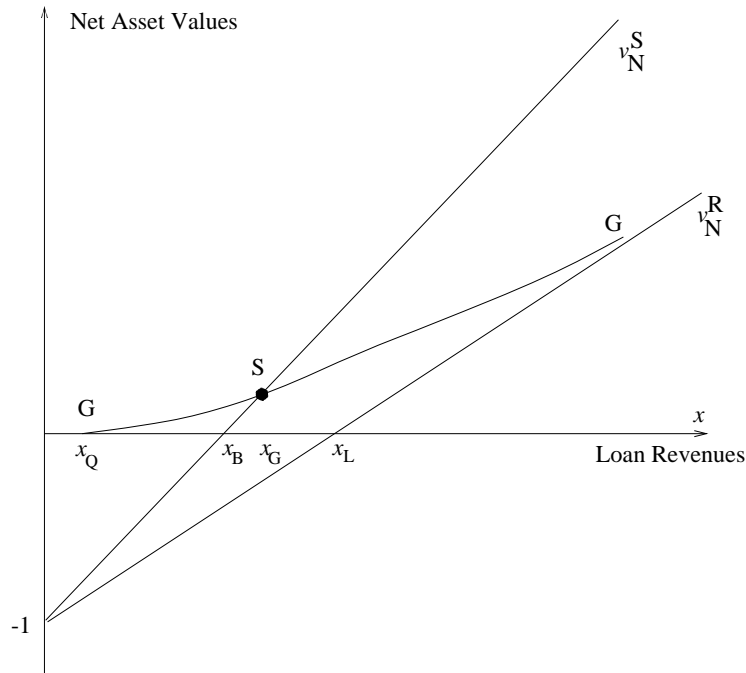


Figure 2: Moral hazard in banking: ‘gambling for resurrection’.

Given the possibility of switching from safe to lower-yielding, high-risk assets, loan managers will be tempted to gamble when net returns of the safe portfolio are at x_G or below. Who is to prevent loan managers from behaving in this

⁷We can see this by the following argument. Assume that x_L is chosen at the close down point and consider returns fluctuating above and below this level. Note that if returns go above x_L , this will increase the banks profits; but if returns fall below x_L , profits only fall to zero as a result of limited liability. The expected value of profits is positive, so, why close down? Is it not better to wait? Yes, because the economic value of waiting before closing down is in fact captured by schedule GG which lies above v_N^R by the put value implicit in limited liability. The schedule GG is tangent to the horizontal axis at x_Q and approaches v_N^R asymptotically to the right as x goes to infinity where x_Q is the point which the loan manager would like to exercise the option of going bankrupt.

way? Without deposit insurance, it would in principle have to be depositors who monitor the portfolio manager when x is close to x_G and promptly punish any sign of gambling (by firing the manager, for example). But as Dewatripont and Tirole (1994) point out, the risk of bank runs leads government to guarantee deposits. Consequently, it is the government that usually takes upon itself the task of monitoring portfolio allocation decisions and — punishing mismanagement.

What if the state provides the guarantee but fails to check the moral hazard? The consequence will be costly banking crises. Eichengreen and Rose (1997) estimated that an emerging-market banking crisis could cost about one year's normal economic growth. Using the samples of those banking crises occurred during 1970s, they show that bank losses and public-sector resolution costs could exceed 10% of GDP.

3.2 Regulatory responses

What regulatory measures can be used to prevent banks switching to inefficient portfolios when their net asset values are low? Here we look at two particular regulatory responses: early closure and the Basle accords.

(a) Early Closure Rule

The early closure rule would be consistent with the “prompt regulatory action” incorporated in the FDIC Improvement Act of the US passed in 1991 and designed to “ameliorate bank moral hazard behavior and protect depositors from loss” (Mazumdar, 1997, p284). How early closure can limit the scope for moral hazard can be illustrated using Figure 3. Suppose the regulatory agency would close down the bank when its equity falls to zero. This means that the put option offered by limited liability has no value: the freedom to walk away from losses is only of value if banks are allowed to run at a loss! Consequently, safe assets dominate risky assets, and the incentive to gamble disappears.⁸

(b) Basle accords

Since the Basle accords of common minimum capital requirements were adopted by the G-10 in 1988, about 100 countries have now implemented them.⁹ The

⁸Mazumdar (1997) showed that whether this is true depends on whether closure is costly or not. If it is costless, then early closure eliminates moral hazard problem. This is what we illustrated.

⁹The two main objectives of these accords are: (1) to “help to strengthen the soundness and stability of the international banking system by encouraging international banking organisations to boost their capital positions”, and (2) “that a standard approach applied to internationally active banks in different countries would reduce competitive inequalities” (BIS, 1999, p1). In addition, accords intended to: “(1) make regulatory capital more sensitive to differences in risk profiles

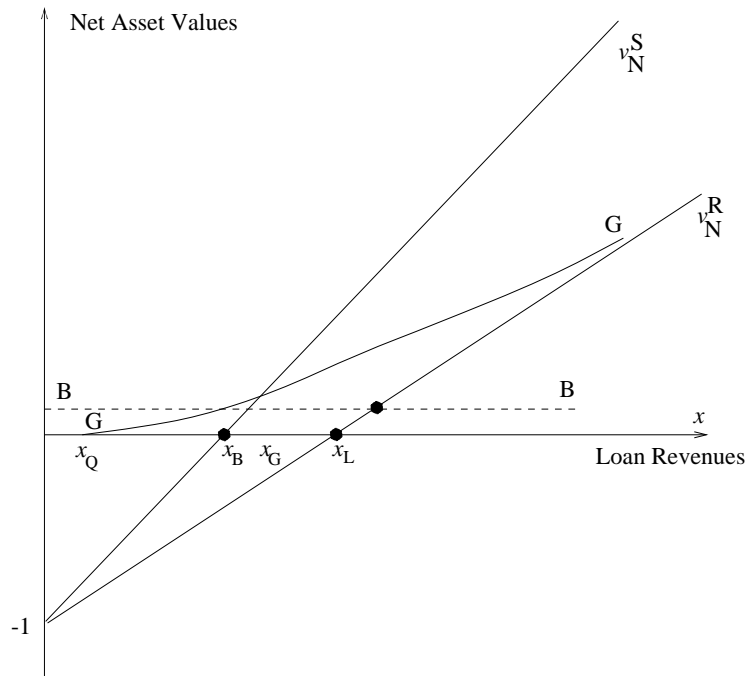


Figure 3: Effects of early closure rule and Basle accords.

accords require the banks to maintain levels of their own capital above certain percentage of risk weighted assets. The minimum capital ratio requirements are 4% tier one capital and 8% total (tier one plus tier two) capital in relation to risk-weighted assets (where weights can range from 0 to 100%) (BIS, 1997, p38).

How does implementation of the accords mitigate the moral hazard problem? We use Figure 3 to illustrate. If the bank chooses the safe assets, whose risk weight is zero, then observing the Basle ratios means that the bank needs to inject capital only when its equity falls to zero. *Hence, the value of equity given the choice of safe assets is the portion of v_N^S above zero.*¹⁰

What happens if the risky assets are chosen? In this case the Basle accords require that $v_N^R/[\omega(\sigma)(v_N^R + 1)] \geq R_B$, where the numerator is the bank's capital and the denominator the risk weighted total assets (with $\omega(\sigma)$ being the risk weight), and R_B is the capital adequacy ratio. This means the capital injection would occur when the equity value falls to $R_B\omega(\sigma)/(1 - R_B\omega(\sigma))$ indicated by the horizontal line BB in the figure. Using the same argument as above, at the point of capital injection, the slope of the equity value for choosing the risky assets is simply $1/(r + \mu)$. *So the net asset value to the bank when investing in the risky assets is given by the portion of v_N^R above BB line. This implies that the introduction of Basle accords (if credibly implemented) would destroy the option value associated with the risky portfolio.*

The reason for this is that Basle accords require banks themselves to finance the re-capitalisation. This effective bail-in makes banks internalise their costs and reduces the net equity value from line GG to v_N^R . (The existence of the option value to banks is because banks are subsidised when making losses under limited liability through deposit insurance. This value is simply the transfer from the taxpayers to banks. The net social losses if banks choose their own closure point are shown by the value of v_N^R at point x_Q , which can be substantial.) So under Basle accords, the risky investment would not have been chosen in the first place and this eliminates the moral hazard problem.¹¹

among banking organisations; (2) take off-balance-sheet exposures explicitly into account in assessing capital adequacy; and (3) lower the disincentives to holding liquid, low risk assets." (BIS, 1999, p1).

¹⁰As capital injection effectively bound equity value at zero, this point serves as a reflecting barrier. At this point the marginal benefit is $(dv_N^S/dx)\Delta x$ and the marginal cost is the additional capital injected $\Delta K = \Delta x/r$. Equating these yields the slope of the equity value for the safe assets being $1/r$.

¹¹Using a portfolio model of the bank, Kim and Santomero (1980) showed that when the bank's liability is unlimited and in the absence of any solvency regulation, the lower the capital/asset ratio the higher the failure probability of banks. However, when this capital/asset ratio is explicitly

4 Effects of Capital Account Liberalisation

To illustrate how fully liberalised capital account can exacerbate the moral hazard problem faced by the domestic banking system we use Figure 4. Assume initially there is a capital shortage, only the high return and high quality projects are financed by banks. Let us represent the net asset values for banks by v_N^S , i.e., as if banks only invest in safe assets. A sudden surge of large amount short-term capital inflows channeled through the domestic banking system may mean that the country is running into diminishing marginal return for some projects. The average returns would be lower. If lower return projects also have high uncertainty then this will rotate a equity value downward to v_N^R . Under limited liability and no banking regulation, banks will gamble for resurrection so to increase the equity value to line GG .

If the initial equity value for the bank is at point A , the large inflow of short-term capital may increase its value to point B . (Here point B is vertically above A assuming the additional deposits financing the same quality projects. If the quality of the assets is lower, then B will shift to the left along line GG . This may increase the adverse incentives for the bank if A initially lies to the right of intersection of GG and v_N^S .) Such shift of portfolio generates larger social losses indicated by point C . This suggests that if domestic banking sector is not well regulated fully liberalised capital account transaction will exacerbate the moral hazard problem.

In the above case, foreign depositors are assumed to be protected by the deposit insurance. But this may not be true.¹² They see local banks mismanaging their portfolios without any regulatory response and they can forecast bank insolvencies. They also know that, while the local central bank can print domestic currency, it can't print dollars! So, if foreign currency reserves are low (relative

required, they went on to show that whether the bank will choose the efficient portfolio depends on the weights assigned to the assets. If these weights are proportional to the systematic risks of the assets then the portfolio chosen will be efficient, otherwise it will not be efficient. Incorporating limited liability for the banks, Rochet (1992) showed for small level of bank's own capital, the bank chooses a portfolio with maximal risk and minimum diversification so inducing a moral hazard problem (gamble for resurrection). This implies that minimum capital/asset ratio itself is not sufficient in deterring the moral hazard problem. Rochet, therefore, suggested that there needs to a minimum level of capital, independent of the assets the bank holds, to rule out the behaviour of gambling for resurrection.

¹²“The effective functioning of deposit insurance depends on the deposits being in domestic currency; countries with dollarized banking systems often leave themselves exposed to creditor runs even when some deposit insurance arrangements are in place, because such deposit insurance often lacks adequate reserve funds and therefore credibility”, Radelet and Sachs (1998, p9).

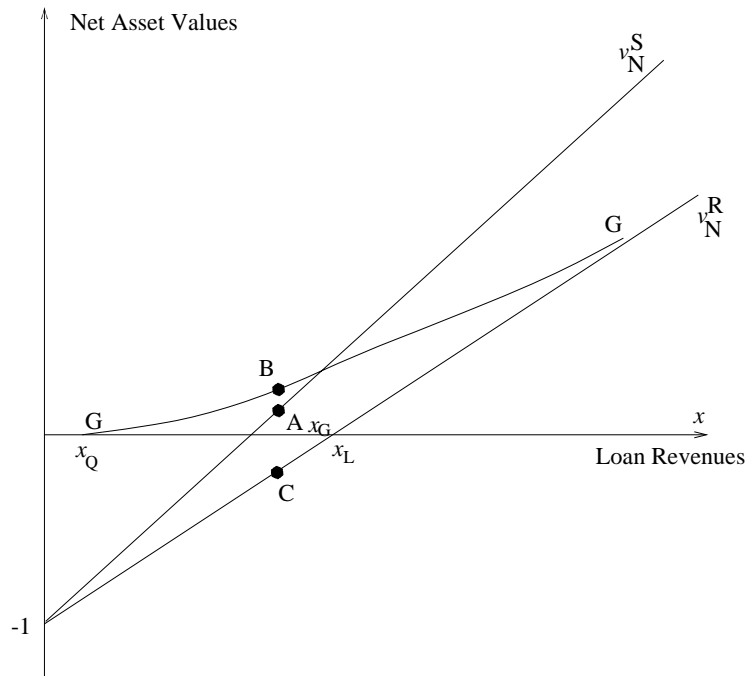


Figure 4: Effects of fully liberalised capital account transactions.

to foreign currency deposits), they can have no assurance that there is an effective lender of last resort. This is a recipe for a bank run as foreign currency depositors head for safety. And the central bank, having lost all its reserves will be forced to float the currency.¹³ This twin crisis can carry far larger costs than a domestic banking crisis (World Bank, 1999). The increased occurrence of these twin crises in the period of financial liberalisation (Kaminsky and Reinhart, 1997; Demirguc-Kunt and Detragiache, 1997) demonstrate the severe consequences the capital account liberalisation can cause in the absence of domestic banking sector reform.

In short, *if returns fall to the critical value, (x_G), and this does not trigger an appropriate regulatory response, it can be the signal for the exit of foreign depositors and a full-blown financial crisis.* The danger of allowing or encouraging substantial short-term capital inflows to pour into weakly regulated banking system is only too apparent. Short-term foreign deposits may easily exceed foreign currency reserves and low bank returns trigger exit rather than regulation.

Note that for assets in fixed supply the combination of deposit guarantees and limited liability can also give rise to rapid asset price inflation. As Krugman (1998) observes, fixed assets may be priced on the basis of the best possible outcomes (i.e., at ‘Pangloss values’) with the government covering losses in all other cases. In his assessment, the crisis was the bursting of an asset price bubble created by moral hazard in banking.

Lastly, we note that the willingness of the IMF to act as a lender of last resort in foreign currency term is necessarily hampered if there is unchecked moral hazard in local banking system. Unconditional lending into this situation will not avoid the problem, it may even lead to greater losses to local tax payers (as the American S&L experience confirms).

5 Sequencing of Capital Account Liberalisation

In theory, capital account liberalisation can have substantial benefits: faster productivity growth, risk diversification and consumption smoothing. This may be true if capital inflows are mainly in the form of FDI, but less the case for short term inflows. Using a sample of about 100 countries from mid 1970 to the end of 1980s, Rodrik (1998) has shown that capital account convertibility has no signifi-

¹³Empirical evidence by Kaminsky and Reinhart (1997) show that the correlation and the occurrence of both banking crises and currency crises increased in the period of financial liberalisation in 1980s. Other evidence by Demirguc-Kunt and Detragiache (1997) show the similar results.

cant effect on growth. This may partly reflect the role of highly volatile non-FDI and portfolio flows in precipitating crisis when domestic banking sector lacks well functioning prudential regulation and supervision. So improving the conditions for the domestic financial sector may be essential in fully realising the benefits of liberalised capital account. In what follows we illustrate the logic for the sequencing of such liberalisation.

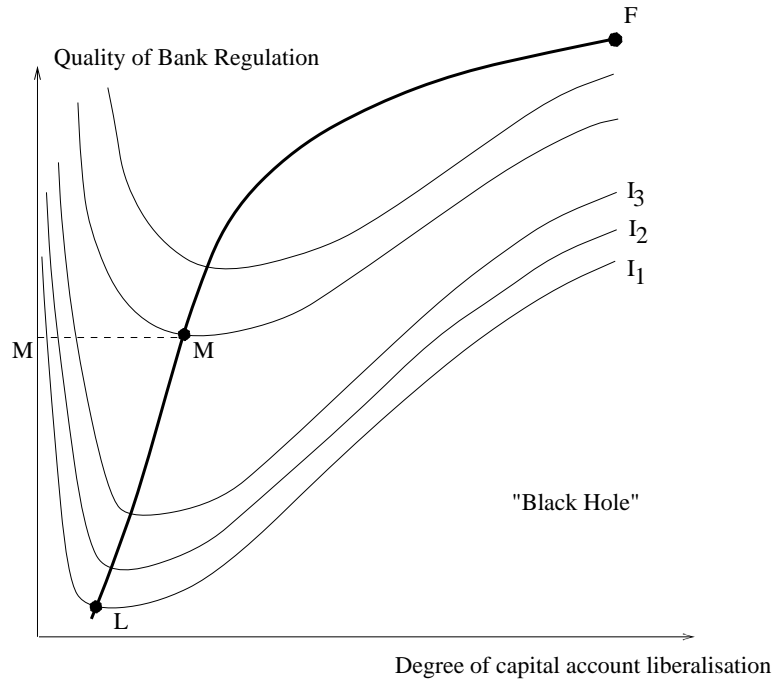


Figure 5: Sequencing of capital account liberalisation.

Assume capital account liberalisation involves little cost while improving regulatory framework for domestic banking sector is costly. Figure 5 shows these relative costs where horizontal axis indicating the degree of capital account liberalisation (higher to the right) and vertical the quality of bank regulation (higher when moving upwards). Point F illustrates the first best solution with fully liberalised capital account and high quality of bank regulation. The curves labelled I_i represent iso-loss contours with losses increasing in the south-west direction.

Given the degree of capital account liberalisation, losses decrease when bank regulation improves (which reduces moral hazard problem). Given the quality of bank regulation, increasing capital account liberalisation would first improves

welfare (as the benefits of liberalisation dominate) and then reduces it (as crises become more frequent and severe, so costs of liberalisation dominate). When quality of bank regulation is very poor, fully liberalised capital account is a recipe for disaster. This can entail huge output losses indicated by the “black hole” in the figure. The East Asian crisis gives us a vivid example.

Since moving up the iso-loss curves is costly, the best response would be *to condition capital account liberalisation on the given quality of bank regulation*. This is equivalent to locating a point on the iso-loss contour which is tangent to the horizontal line. Joining these points together gives us the time path for the capital account liberalisation (see *LMF* in the figure).

6 Conclusions

How should the Washington consensus be revised in the light of East Asia Crises? Some highly relevant suggestions were contained in a recent World Bank (1999, p124) report as follows:

“Capital account liberalization should also proceed cautiously, in an orderly and progressive manner, given the large risks of financial crises — heightened by international capital market failures — in developing countries. Benefits of capital account liberalization and increased capital flows have to be weighed against the likelihood of crises and their costs. Clearly the benefits from foreign direct investment (FDI) and longer-term capital inflows outweigh the costs associated with the increased likelihood of financial crisis, and developing countries should pursue a policy of openness. But for more volatile debt portfolio and interbank short-term debt flows and the related policy of full capital account convertibility, there are higher associated risks of financial crisis and greater uncertainty about the benefits. Tighter prudential regulations on banks, and, where the domestic regulatory and prudential safeguards are weak, restrictions on more volatile short-term inflows that minimize distortions and are as market-oriented as possible (through taxes, for instance), may reduce the risk of financial crisis. ”

The implications for China are clear: while FDI is fine, dollar deposits are dangerous!

References:

- BIS, 1997. *Compendium of documents produced by the Basle Committee on Banking Supervision*, April.
- BIS, 1999. "Capital Requirements and Bank Behaviour: The Impact of the Basle Accord", Basle Committee on Banking Supervision Working Papers No. 1, April.
- Bond, Timothy J and Marcus Miller (1998), "Financial Bailouts and Financial Crises", mimeo, International Monetary Fund, January.
- Demirguc-Kunt, A. and E. Detradiache (1997). "The determinants of banking crises: evidence from industrial and developing countries", World Bank Policy Research Working Paper 1828. World Bank.
- Dewatripont, Mathias and Jean Tirole (1994), *The Prudential Regulation of Banks*, Cambridge, Mass.: MIT Press.
- Diamond, D. and P. Dybvig, 1983, "Bank runs, deposit insurance, and liquidity", *Journal of Political Economy*, 91(3): 401–19.
- Dooley, Michael P. (1997), "A model of crises in emerging markets", NBER Working Paper No. 6300.
- Dooley, Michael P. (1998), "Are capital inflows to developing countries a vote for or against economic policy reforms?", mimeo. Forthcoming in R. Agenor *et al* (eds.), *The Asian Financial Crisis: Causes Contagion and Consequences*, Cambridge: Cambridge University Press.
- Eichengreen, Barry, (1999), *Toward a New International Financial Architecture: A Practical Post-Asia Agenda*, Institute for International Economics: Washington, DC.
- Freixas, Xavier and Jean-Charles Rochet, 1997. *Microeconomics of Banking*, MIT:London.
- Kaminsky, G. L., and C. Reinhart. 1997. "The twin crises: The causes of banking and balance-of-payments problems", Working Paper in International Economics 37, University of Maryland.

- Kemmerer, E. W. 1910. *Seasonal variations in the relative demand for money and capital in the United States*, 61st Cong. 2d sess. S.Doc. 588.
- Kim, D., and A., Santomero, 1988. “Risk in banking and capital regulation”. *Journal of Finance*, 43(5): 1219–33.
- Krugman, Paul (1998a), “What happened to Asia”, mimeo, MIT, January.
- Mazumdar, S.C., 1997. “Regulatory monitoring, closure costs and bank moral hazard behavior”, *Journal of Regulatory Economics*, 12: 267–89.
- Merton, R., 1977. “An analytic derivation of the cost of deposit insurance and loan guarantees”, *Journal of Banking and Finance*, 1: 3–11.
- Miron, J. A. 1986. “Financial panics, the seasonality of the nominal interest rate, and the founding of the Fed”, *American Economic Review*, 76(1):125–40.
- Miller and Zhang, (1999), “Creditor Panic, Asset Bubbles And Sharks: Three Views Of The Asian Crisis”, with Marcus Miller, forthcoming in Uzan et al (eds.) “The Aftermath of the Asian Crisis”, Edward Elgar.
- Radelet, Steven and Jeffrey Sachs (1998b), “The East Asian Financial Crisis: Diagnosis, Remedies, Prospects”, *Brookings Papers on Economic Activity*, 1, pp1–90.
- Rochet, J. C. 1992. “Capital requirements and the behaviour of the commercial banks”. *European Economic Review*, 36(5): 1137–70.
- Rodrik, Dani. 1998. “Who need capital-account convertibility?” Symposium paper in Princeton Essays in International Finance.
- Stiglitz, Joseph, 1998. “Must currency crises be this frequent and this painful?”, mimeo, World Bank. Forthcoming in P. Agenor *et al* (eds.), *The Asian Crises: Causes, Contagion and Consequences*, CUP: Cambridge, 1999.
- Williamson, John. 1994. “In search for a manual for technopols”, in Williamson (ed.), *The political economy of policy reform*, IIE: Washington, DC.
- World Bank. 1999. *Global Economic Prospects*. Washington, DC.

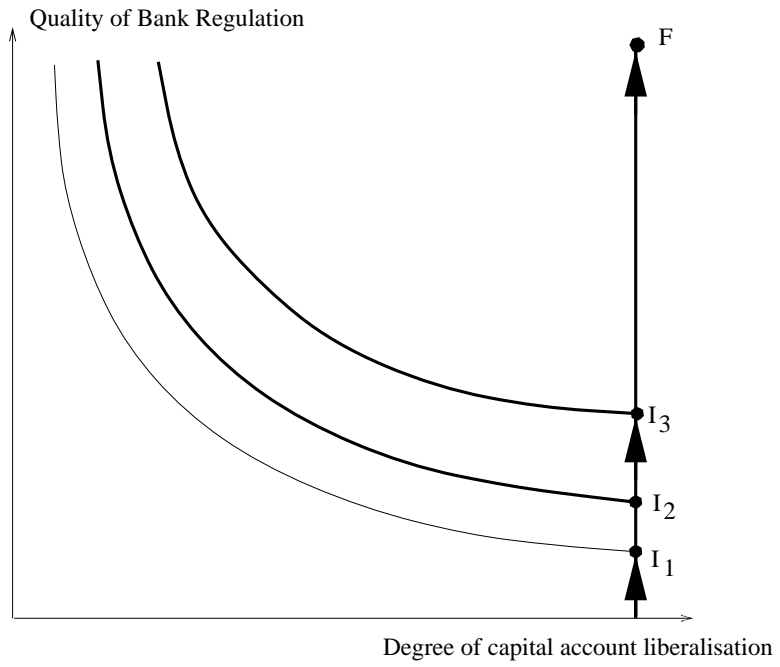


Figure 6: Sequencing of capital account liberalisation.