GLOBALIZATION AND FINANCIAL REGULATION

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INTRODUCTION

There has been no shortage of villains in the financial crisis which began in Asia and has now encompassed all major emerging markets: bankers, regulators, hedge funds and the IMF have all been excoriated for incompetence and immorality. This paper argues that the problems which have emerged from the crisis are structural, i.e., they arise from the very nature of financial activity. While the structural problems have been present from the beginnings of finance, the advance of technology and of globalization has so exacerbated the problems as to undermine the foundations of the international market order. To highlight the structural nature of the problems, this paper will eschew the search for villains and examine the theoretical basis for the globalization of financial markets — the major direction of their recent evolution. Economic theory identifies major difficulties in the presumption that this drive will lead to socially desirable outcomes. The financial crisis can be understood as the exacerbation of these difficulties by globalization and the advance of information technology.

THE ORIGINS OF GLOBALIZATION

Globalization is the ultimate extension of the basic theme of microeconomics since Adam Smith: that resources should be allocated, as far as possible, by the market rather than by the government. Under competition, prices incorporate all the information available to the various players, so individual choices guided by prices will bring about an allocation of resources which is efficient, although not necessarily fair. By contrast, the government has less information than market players and politics muddles its incentive to address individual economic welfare.

A rigorous analysis of these claims for the "invisible hand" of markets, familiar to economists, shows that they hold only if markets are:

(i) complete in that all goods which affect individual welfare are traded, so that all private information and concerns about production costs and tastes are incorporated into prices, to which other market players respond.
(ii) competitive in that no player can manipulate prices through its market power.

Conversely, a market economy could allocate resources inefficiently if some markets are:

(i) incomplete, e.g., if a polluting firm does not have to pay the full social cost of its pollution.
(ii) natural monopolies in that scale economies can be achieved only by a firm which is large relative to the market, so that it can determine prices, e.g., a railway and a utility.

This analysis led to the view that such "market failures" called for government regulation, e.g., to impose pollution standards or control the prices charged by a natural monopoly.

In the 1970's economists argued that government attempts to correct market failures could be counter-productive because of the following forms of "government failure":

(i) Regulatory capture, whereby the regulated industry dominates the regulatory authority by lobbying, influencing appointments, and overwhelming it with tendentious information, thereby securing decisions which exclude competitors, carve up the market and increase the profits of the incumbents.
(ii) Rent seeking by interest groups who manipulate prices via the political system.
(iii) Public choice exercised through government agencies with their own agendas, such as maximizing salaries, perquisites and bureaucratic empires.

These arguments shifted the professional consensus toward deregulation, i.e., abandoning attempts to regulate fair outcomes, instead regulating to ensure a fair competitive process thereby expanding the scope and effectiveness of market forces. The deregulation movement held that monopolies should be controlled by making markets contestable by new entrants; externalities should be controlled by issuing tradable licenses to pollute.

The 1980's saw an ideological shift from redistributive taxation which distorted work incentives. Here also, the role of government came to be viewed as ensuring equality of opportunity, rather than equality of outcome. The 1980's also saw governments retreat from Keynesian macroeconomic intervention, as its inflationary consequences became incorporated into the expectations of market players, thereby undermining any short-term gains in employment. Governments largely accepted the Monetarist prescription that macroeconomic policy should be confined to aligning growth of the money supply with long-term real growth, thereby ensuring a stable price level.

The above consensus on expanding of the scope of the market and narrowing that of government within a country was powerfully reinforced by the globalization of business activities. On a global scale, there was room for competition amongst a number of large players in industries such as autos and aircraft manufacturing. Thus, global competition could reconcile scale economies with competitive markets. More generally, globalization captured the gains from the international division of labour and brought new producers onto world markets.

As governments saw the benefits of international investment, global competition for capital led to a reduction in tax rates on capital. This competition also drove governments to adopt stable macroeconomic policies to maintain credibility with international investors. East Asia became the success story of goods markets globalization as international competition for legitimacy led its authoritarian governments to pursue economic growth. However, the region eventually fell victim to the globalization of capital markets. The next three sections identify the special features of financial instruments, institutions and markets which prevent market forces from bringing about a coherent, socially efficient outcome.

INCREASING RETURNS TO PRIMARY INVESTORS

The intertemporal exchange of money characteristic of finance creates its distinctive problem: the enforcement of obligations for future payments. Debtors with obligations which are large relative to their lifetime earnings/assets will default. This reality is acknowledged in the law of bankruptcy which forces creditors to bear the risk of non-repayment when the debtor's total obligations exceed the value of his attachable assets. Similarly, limited liability forces a corporation's creditors to bear the risk of non-repayment when its total debt exceeds the value of its equities. Recognizing this, debtors typically limit their loans to what can be secured by equity, plus a cushion to allow for the costs of seizing the collateral.

When the value of the equity falls below the value of the debt, residual downside risk is shifted onto the debt holders. This creates "increasing returns" to risky gambles: doubling a gamble increases its expected return if the gambler would capture the doubled upside but is not liable for the doubled downside risk beyond the loss of his equity. Such increasing returns undermine a basic requirement for markets to bring about a coherent, socially efficient outcome.

INCREASING RETURNS TO FINANCIAL FIRMS

Scale economies in financial transactions arise as follows:

Information discovery and processing. Once a system for discovering and processing information has been set up, the additional cost of handling a higher volume of information is small. This is true, for example, for the costs of forecasting the performance of corporations, evaluating the creditworthiness of counter-parties, valuing financial instruments, monitoring market information, and processing and internally disseminating information.

Internal generation of information from discovering patterns in existing information flows is enhanced when those flows can be tapped from a more diverse range of sources.

The application of existing information to activities larger in scale and wider in scope requires a less-than-proportional scaling up of input costs. Thus, an existing information processing system can be applied to a wider range of related activities, such as portfolio management, arbitrage, retail banking, investment banking, proprietary trading, IPO's.

Risk pooling. The overall riskiness of portfolio with a given expected return can be reduced by diversifying it across financial instruments whose returns are less than perfectly correlated. Since transaction costs limit the gains from diversification, an institution large enough to enjoy scale economies in transactions can enjoy greater risk pooling.

Internal transactions. Activity in a broad range of markets creates opportunities to profit from internal trading which nets out assets and liabilities, income and expenditure.

Reputation and Access to Credit. In principle, a given dollar of equity can support a loan only once, since the next lender should set off against existing equity any prior exposure to loans. However, complex balance sheets are costly to scrutinize, understand and monitor; large changes in creditworthiness can occur quickly. This leads creditors to rely upon the borrower's reputation. Unlike equity, reputation can be used repeatedly, in that several inattentive lenders can be induced to make loans based an institution's reputation: given such lenders, reputation is like a fixed factor, hence a source of scale economies.

While these informational economies of scale facilitate expansion in size and scope, the expansion itself can enhance perceived creditworthiness if the debtor is seen as “too big to fail” and thus enjoys an implicit government guarantee or if one set of creditors assumes that the debtor would not default on their loans because this would jeopardize its other activities.

Informational economies of scale mean that financial transactions are typically not between primary savers and investors but are delegated to financial firms:

Fund management is based on scale economies in transactions, risk pooling, and discovering and processing information.

Arbitrage exploits discrepancies in the relative pricing of portfolios with related payoff streams. Once the informational costs of identifying the discrepancies has been incurred, arbitrageurs maximize their profits by applying this information to the maximum volume of transactions. Thus, it pays for large groups of primary investors to appoint specialist agents to find and exploit pricing discrepancies.

Intermediation is based on scale economies in information processing, such that primary

savers and investors find indirect financial transactions via the intermediary cheaper than direct transactions with each other.

THE PRINCIPAL/AGENT PROBLEM IN FINANCE

All firms must motivate their agents (employees) to act on behalf of the principals (owners). Implicit in the reliance upon market forces to integrate the decisions of many consumers and firms into a coherent, efficient whole is the presumption that this integration has been achieved within firms, i.e., that they have solved the principal/agent problem. Asymmetry of information between principal and agent means that agent incentives must be based upon performance measures which the principal can observe or infer, which can conflict with their efficient sharing of risk. In manufacturing, asymmetry of information and the riskiness of observable measures of agent performance are not so severe as to jeopardize the effectiveness of market forces in organizing the economy as a whole . However, in finance, the only reason a principal employs an agent is to process information on his behalf. Therefore, asymmetry in information is not peripheral to their relationship, but constitutes its economic basis. Furthermore, the link between the fundamentals of effort and ability and observable measures of absolute performance, such as the return to capital, is subject to so much randomness that rewards based on these measures would introduce intolerable riskiness into the agent's payoffs, undermining their effectiveness as incentives. Therefore, an agent's rewards are typically based upon his performance relative to the average performance of his peers, as measured, for example, by the average returns on the class of assets under management. Relative performance also determines the flow of funds to be managed by the agent, which also has a major impact on his payoffs. The following sections argue that these features of incentive structures in finance exacerbate herd behaviour by agents, distort their risk incentives and preclude their consideration of long-term fundamentals

FUND MANAGEMENT

Financial markets are vulnerable to herd behaviour, in which traders respond in lockstep to a small set of signals with only a tenuous relationship to fundamentals. The underlying reason is the scale economies in processing information about the quality of financial assets and about the business fundamentals that determine their future returns. Those primary investors who trade on their own account usually operate on too small a scale to incur these costs: they try to infer the information that has been discovered by larger players from movements in asset prices. Thus, they rationally choose to follow trends, leading to herd behaviour. This makes small primary investors vulnerable to manipulation by those who trade on a scale large enough to move asset prices.

Most primary investors, burdened with other calls on their time and energy, delegate their daily investment decisions to fund management firms. While passive funds have attracted an increasing share of funds, their expansion is inherently self-limiting since it raises the potential returns to active fund management. Below, I point out that firms active in fund management are inherently unstable, so that it is rational for primary investors to choose amongst them on the basis of their short-term performance. This short-term focus, mediated by investment advisors and financial analysts, forces a short-term focus on the fund managers which leads to them to herd also.

Fundamental research provides a basis for predicting the performance of a firm which faces stable trends in input and output markets and has a stable organizational structure and culture. These conditions are usually present in a manufacturing firm: much of the knowledge and

skills of its core employees have value mainly within the firm, so there is little scope for rapid changes in the core which would destabilize its performance. By contrast, the performance of an investment fund depends on the skills and teamwork of its core analysts. These "fundamentals" are highly unstable, indeed, inherently self-destructive:

(i) Analytical skills are not specific to a fund management company, but can be used anywhere with access to the same information flows. Hence, analysts who have made their reputation from successfully managing one fund can set up their own company or be bid away by other funds desperate to improve their mediocre performance before investors defect.

(ii) A successful fund tends to attract new investors, which hinders repeat performances as the fund grows large enough to affect prices. Its investment style attracts imitators who bid away the supernormal gains from using that style.

(iii) Within a fund management team, a few key decisions leading to spectacular success confer not only massive bonuses but also status and power — which, however, can vanish as markets turn. In a high-stakes, high-pressure environment with endless scope for backbiting, second guessing and finger pointing, there can be abrupt deterioration in the personal chemistry amongst star managers, self-selected for their aggression and world-class egos. Overnight switches of allegiance to other funds are the common result.

Given such unstable "fundamentals" in fund management, it is rational for primary investors to focus on short-term fund performance, a tendency supported by the psychological predisposition to give excessive weight to the most recent data.

To choose amongst funds, primary investors turn to fund salesmen and financial analysts who provide "scientific" advice by tabulating relative fund performance as the best available measure of fund managers' effort and ability. Good relative performance attracts new investors and defections from other funds. This is true even of money invested through pension plans because their trustees seek to shift liability for fund performance by selecting managed funds on the recommendations of financial analysts, inevitably based on relative fund performance. The upshot is that fund managers must focus on relative short-term performance because this determines money flows across funds, hence their incomes and job security.

Even if a trader plans to sell in five minutes, he cares about the expected price at that time, which, in turn depends on the expected price five minutes hence, etc. Therefore, even short-horizon traders would trade on long-run fundamentals, provided that they give equal weight to upside and downside risk, i.e., they are risk neutral with respect to the value of their portfolio at the end of their trading horizon. This is not the case when a poor relative short-term performance can cost the fund manager his reputation, funds under management and perhaps his job. For example, during the U.S. bull market leading up to October 1987, the consensus amongst fund managers was that the market was more likely to go down than up. However, few managers wanted to sell their holdings. If the market did continue to go up, they would be perceived as lone fools for having missed out on the ride. On the other hand, in the (more likely) event of a market decline, they would not look very bad if most other managers made the same mistake.

The focus on short-term relative performance also undermines the incentive to carry out fundamental analysis. A trader must focus on signals which help him predict short-term price changes, signals which need have little to do with long-term fundamentals, so long as they are regarded as important by other traders who subsequently impound them into the price within the first trader's planning horizon. Thus, all traders might rationally choose to ignore signals which influenced fundamental values beyond their planning horizon, instead focussing on

those few signals which conventional wisdom views as driving the market in the short-term, even if the data were unreliable and bore little relationship to long-term fundamentals.

In summary, herd behaviour by fund managers is inherent in the use of market incentives to motivate them to process fundamental information which is costly to acquire and use. The problem will only become worse as savings are increasingly invested through privately-chosen fund management firm which compete for the savings.

ARBITRAGE

Arbitrage originally meant the search for riskless profit opportunities from discrepancies in the pricing of a given asset in two different markets. As these opportunities were exploited with the advance of information technology and the consequent fall in transaction costs, arbitrageurs moved on to exploit price discrepancies between complex portfolios of assets with similar payoff structures by shorting the overpriced portfolio while taking a long position in the underpriced portfolio. This permits high leverage of capital with the possibility of high returns, plus a high risk of loss of capital. Since arbitrageurs derive their returns from their nimbleness in responding to rapidly-evolving market opportunities by adjustments of complex portfolios, their balance sheets and capital adequacy are impossible for creditors and regulators to monitor on a day-to-day basis. The danger is always present of their capital being wiped out, shifting downside risk to creditors and counter-parties and motivating the arbitrageurs to take ever-riskier positions.

Advances in technology drive the technological cost of information processing systems ever lower. This leaves as the key cost the payoffs to individuals with the intellectual skills to integrate flows of data into mathematical models to yield useful conclusions. Moreover, the advance of technology permits lower-level skills to be replaced by computer models and permits programme trading to arbitrage away supernormal profits from any stable, predictable economic relationships. This raises the relative value of higher-order skills: the ability to see new patterns beyond what can be captured in existing models and to capture them in new models. To attract, retain and motivate agents with these increasingly-scarce skills, financial firms must offer rewards which are strongly performance-related on the upside, while limiting exposure to the downside risk of their trading positions, which is borne by the firm and ultimately by its shareholders and creditors. This exacerbates the risk-seeking tendencies of arbitrage firms noted above, while forcing them to place ever-larger bets on complex, inherently speculative, conjectures about the future evolution of financial markets.

Large pools of capital to underwrite arbitrage activity can be assembled from risk-seeking investors from around the world. Banks provide credit to the arbitrageurs to gain exposure to the high potential returns without jeopardizing their own creditworthiness by direct association with arbitrage activities. However, short-term market movements which lead to poor short-term returns can trigger withdrawals of risk capital by disappointed primary investors, withdrawals of credit lines by alarmed banks and margin calls from alarmed regulators, forcing the arbitrageur to liquidate positions designed to exploit long-term fundamentals. Thus, like fund managers, arbitrageurs must focus, not on the long-term but on short-term relative performance. Consequently, they are also prone to herd behaviour.

INTERMEDIATION

Financial intermediaries specialize in assessing credit risk and monitoring debtor's balance sheet to forestall perverse risk seeking behaviour, exploiting informational economies of

scale which are unavailable to small savers. They discourage excessive leverage (a high ratio of debt to equity) by charging a higher risk premium on loans to borrowers who are already highly leveraged. However, this economic role makes the intermediary itself liable to risk seeking. Since its creditors cannot operate on a scale to monitor its balance sheet effectively, its own cost of credit need not rise with leverage. In these circumstances, maximizing the return on equity requires the intermediary to leverage to the maximum extent permitted by the regulatory authorities.

Expansion of a manufacturing firm against competitors requires creating distinctive new products and/or price cuts which would show up immediately on the bottom line. By contrast, financial intermediaries can easily expand to the limits of their permitted leverage because deposits at all intermediaries are viewed as identical except for perceived credit risk, so it can compete for funds to finance an expansion by offering depositors a higher interest rate, while relaxing lending standards and charging higher rates to borrowers. Deterioration in asset quality can be masked for some time by rolling over loans and lending more money to borrowers to maintain the illusion that their loans are performing. The problems will not surface until an economic downturn creates liquidity problems by reducing the flow of deposits.

The business of an intermediary is hold a portfolio of offsetting assets and liabilities; typically each side of its balance sheet is large relative to its net worth. Having been leveraged to the maximum extent permitted by the regulatory authorities, its equity base can be eliminated by falls in the values of its loans if its monitoring systems are inadequate or if there are economic setbacks in the sectors where its loans are concentrated. Then the intermediary has an incentive to seek risky gambles with upside potential before its creditors awaken to their exposure. Thus, financial intermediaries are structurally prone to risk seeking.

Amongst intermediaries, banks are special because a subclass of their liabilities — deposits — serves as the dominant medium of exchange in a modern economy. To protect the economy against loss of confidence in this medium of exchange, governments provide explicit or implicit guarantees to bank depositors. This guarantee further shifts downside risk from the bank's creditors (depositors) to the general public. The guarantee is strongest (and the shift greatest) for the banks which are “too big to fail”, i.e., which are so large that their failure would cause a general loss of confidence, threatening systemic collapse. The guarantee provides free deposit insurance and reduces the interemediary’s incentive to control the riskiness of its loans since this will not raise the cost of attracting deposits.

These risk-seeking tendencies in a financial intermediary are exacerbated by the principal/agent problem of motivating top management to act in the interests of shareholders. An expansion of both deposits and loans to the limits permitted by the regulations on capital adequacy benefits top management by fuelling an expansion of their salaries, perquisites and status. They do not bear the downside risk of the loss of equity value of the intermediary, let alone the losses to the general public beyond that point. Asymmetry in information is severe because top managers will be aware of the capital adequacy position long before shareholders and are even further insulated from liability, so they are prone to seek risk to resuscitate balance sheets and maintain their positions and perquisites.

Informational economies encourage financial intermediaries to expand into proprietary trade and arbitrage. Any institution with a large, stable cash flow from retail intermediation can “rent” its reputation to a subsidiary bearing its name. With the resulting access to cash and credit, the subsidiary can take large arbitrage positions. Given the perverse incentives created

by bankruptcy and limited liability noted above, this implies that financial intermediaries have a structural propensity to exploit and, therefore jeopardize, their creditworthiness in a drive to expand the scale, scope and leverage of their arbitrage activities. Competition for capital forces them to do so.

NATIONAL REGULATION

Because of the above considerations, even the modest objective of levelling the financial playing field requires extensive regulatory intervention:
(i) Setting up circuit breakers to guard against herd behaviour and speculative bubbles.
(ii) Detecting and punishing collusion, insider trading and price manipulation.
(iii) Imposing capital adequacy standards to anticipate risk seeking by financial intermediaries.
(iv) Licensing brokers and dealers and imposing margin requirements in derivatives markets to limit counter-party and settlement risk.
(v) Serving as lender of last resort to forestall systemic collapse.

To achieve these objectives, an effective regulatory authority requires the following internal mechanisms:
(i) Systems to record information in real time within a consistent framework which facilitates crosschecking and provides timely signals of tenuous capital adequacy.
(ii) Economic expertise to process and interpret information, and respond to new developments in financial markets, instruments and incentives.
(iii) A professional career structure to attract and retain high quality personnel: competitive salaries, job security, and avenues for exit into careers which are sufficiently separated from the regulated industry to avoid distortion of regulatory decisions.
(iv) Safeguards against bureaucratic inefficiency and corruption.
(v) A convincing ideological framework to sustain regulator morale and commitment in the face of threats and bribes.

An effective regulatory authority also requires external institutional support:
(i) An accounting profession with the procedures to define and impose professional standards, so that balance sheets reveal the quality of loan portfolios.
(ii) A legal framework which provides regulators with statutory access to information about balance sheets, supported by effective sanctions for distortion and delay.
(iii) Political support of regulatory goals so that regulations and judicial decisions are enforced, not subverted by power holders.
(iv) Acquiescence by the regulated business community, so that enforcement procedures need be invoked only in exceptional cases.

Only a few countries meet the above conditions for effective regulation of financial activity within their borders. Building a “new global financial architecture” which meets these conditions at a global level remains a daunting challenge, given the problems of organizing the timely international collation of financial data, establishing the credibility and authority of global regulators to the international community, and reconciling national regulations, laws and economic and political agendas. Meantime, severe problems arise from the multiplicity of regulators, each with jurisdictions limited to their nationals and firms incorporated in their nation.

GLOBALIZATION AND THE FRAMEWORK OF FINANCE

The globalization of finance and the international movement of capital across jurisdictions has transformed the framework in which fund management, arbitrage and intermediation take place.

(i) Globalization has altered the balance of power between regulators and regulated. From being agents of the sovereign government, regulators have become players on the same level as the entities which they regulate. By relocating the incorporation of subsidiaries, financial firms can shift activities outside the jurisdiction of regulators who impose costs which are too high relative to the private benefits which the regulation brings. Therefore, regulators are constrained by concern that stringent regulation will lead to an exodus of capital and corporate headquarters, with damaging consequences for their economies.

(ii) Informational economies of scale have become even more significant when a financial firm can extend its operations globally. Thus, globalization has given a further advantage to large firms, whose reputations permit access to large credit lines and whose technology for information processing and management is readily extended to more countries.

(iii) Globalization has introduced another class of assets into financial markets: currencies. Exchange rates between currencies added another dimension to portfolio choice, requiring the monitoring of countries' macroeconomic fundamentals. Moreover, currencies provide an easy target for manipulation because of their low transaction costs and the ease of stampeding smaller players into herd behaviour.

The next sections discuss the interaction of these emerging features of the global financial framework.

COMPETITION AMONGST REGULATORS

Corporations seek to reassure counter-parties by certification by a jurisdiction which can enforce legal action against them. The certified corporations must be regulated by the certifier to sustain its credibility and guard against the shift of downside risk from the certified parties. A corporation trades off the costs of complying with the regulations against the benefits of the certification in providing access to counter-parties when it chooses the jurisdictions where it (i) incorporates (ii) issues financial instruments (iii) lists its financial instruments for trade. These jurisdictions can differ from each other, and from the jurisdictions responsible for the economies fundamental to determining the returns on the corporation's financial instruments.

With globalization, an increasing proportion of the economic activity within a nation is through entities certified abroad. Consequently, regulators in different jurisdictions find themselves in competition for certification business. By reducing compliance costs, light regulation attracts certification business to a regulatory authority, but increases the risk of major ethical lapses or large-scale defaults, which jeopardize the credibility, and hence the value, of the certification. In this regard, a regulatory body faces tradeoffs familiar to brand managers, such as Holiday Inn or McDonalds.

Can the invisible hand of competition between regulatory authorities ensure an optimal level of quality control, such as we rely on competition to achieve for hotel and fast-food chains? Competition between regulators can indeed play a useful role. Control of a brand confers monopoly power, which can exploited to secure monopoly profits. Similarly, organized financial markets can exploit their monopoly power by imposing a high tax on transactions.

Competition between organized markets and the threat of entry by rival markets can be useful in keeping transaction taxes commensurate with the regulatory authority's costs. It was competition, or the threat of such, which forced down the trading commissions charged by the New York Stock Exchange and the London Stock Exchange.

However, there are crucial differences between brand managers and regulatory authorities which make it unwise to rely just upon international competition between regulatory agencies:

(i) Regulatory authorities face the same principal/agent problems and the same perverse incentives as those created by bankruptcy, and limited liability in the entities they regulate. The agents of a regulatory authority capture some of the upside of light regulation which attracts international business, since this enhances their status, salaries and bureaucratic empires, but bear little of the downside.

(ii) The regulatory authority itself is not legally liable for the economic consequences of regulatory failure, in contrast to the quality control office of Holiday Inn, which is integrated into an ownership structure which is fully liable for the economic costs of a quality lapse. The costs which the regulatory authority does bear in loss of reputation and bureaucratic sanctions by its government can be trivial compared to the economic consequences of regulatory lapses.

(iii) As the case of Thailand shows, regulatory lapses in one jurisdiction can damage other jurisdictions, as contagion spreads from one market to another. However, the duty of any national regulatory authority is to serve its national interest, not to worry about damage in other jurisdictions, except insofar as this spills back to damage its own jurisdiction.

(iv) If a financial instrument is traded in several jurisdictions, market manipulation which would be subject to criminal or regulatory sanction in one jurisdiction can be shifted to another, less rigorous, jurisdiction. For the sake of attracting certification business, a regulatory authority might go easy on conduct which damages only citizens of other jurisdictions.

(v) If related instruments are traded in several jurisdictions, then this could undermine the attempts of one regulatory authority to counter trading strategies which involve manipulation of several markets. For example, Hang Seng Index futures have been used in a multi-instrument strategy to manipulate Hong Kong's financial markets. The regulators of trade in this index in other jurisdictions have no obligation or incentive to take account of the impact of such manipulation on the Hong Kong economy. Indeed, they may perceive a business opportunity in any tightening of settlement rules or disclosure requirements by the Hong Kong regulatory authority.

(vi) There are few barriers to sovereign nations seeking entry into the low cost, high revenue business of certification by providing a nominal location for incorporation and offshore banking. The downside risk of loss of reputation and hence of future business is not much of a disincentive to miniscule islands whose only economic resource is sovereignty, which they can realize by selling low-cost certification to ethically-challenged corporations, alongside their sales of postage stamps to philatelists. Indeed, the spectacular collapse of companies incorporated on the island provides free advertising and attracts business from other corporations seeking to minimize liability. For example, the Cayman Islands claims to be the fifth largest financial centre in the world with confirmed bank deposits of US$0.5 trillion (i.e., more than the deposits in the New York Federal Reserve District), 575 banks and trust

companies (including the Bank of Credit and Commerce International before it collapsed in the biggest banking scandal in history), 20,000 corporations (including LTCM). By law, a bank inspector who asks to see the books of one of these institutions would be arrested.

INTERNATIONAL BANK SUPERVISION & REGULATORY ARBITRAGE

Firms which borrow internationally have novel ways to dress up their balance sheets, shifting assets and liabilities amongst subsidiaries in different countries. International lenders have been slow to learn how to interpret such balance sheets. International borrowers can also book loans amongst subsidiaries located in different countries to exploit international weaknesses in regulation, so that regulators with the capacity to scrutinize the books lack the incentive or authority and vice versa.

Consider firm 1 based in country A which borrows from banks in countries A, B and C. By making simultaneous loan applications to the banks in A, B and C, firm 1 can raise a number of loans implicitly secured against the same assets without actually perjuring itself in any loan application. These loans can be hidden in the balance sheet reported in country A by booking them through subsidiaries in countries B and C. If firm 1 guarantees the loans, then these guarantees should be recorded as contingent liabilities in its balance sheet. However, if accounting standards in country A are poorly enunciated and enforced, then banks and regulators will learn about the difficulties of firm 1 only when it is too late.

The situation becomes even murkier if firm 1 borrows directly from a bank in country A, but that bank in turn borrows from a bank in country B. If the banks in country A are not closely regulated and have obscure accounting, then the country B bank will find it difficult to determine the quality of its loans.

The duty of country B's bank regulator is to guard against systemic collapse of banks incorporated in country B. It has no authority to penalize firms and banks incorporated in country A for lapses in accounts presented in country A. On the other hand, the authorities in country A may have access to information about its firms and banks, as well as authority to act against them, but it may attach low priority to ensuring full disclosure to banks incorporated in country B: the financial health of country B's banks are not their responsibility.

To address these problems requires international enforcement of accounting standards and of rules on capital adequacy, plus international pooling of information about the income statements and balance sheets of firms and banks. These requirements for a “new international financial architecture” can be met only if nations surrender some sovereignty for the common good.

INTERNATIONAL HERDING

Global economies of scale in information permitted financial firms to expand rapidly to exploit international discrepancies in asset prices and returns. This outpaced their development of the intellectual resources to assess asset quality in countries where regulation, accounting and financial analysis were poorly developed. It also outpaced their development of management systems to control risk effectively on a global scale. They therefore made international investments decisions on the basis of a few macroeconomic parameters for a country or region, plunging into asset classes from which quality surprises emerged only after they had taken massive positions.

This reliance on the attenuated data amenable to information technology, thin intellectual resources and inadequate management systems exacerbated the tendency to herd in financial markets: all international financial lenders tarred all companies in a given country with the same broad brush. This forced that nation's government to defend its reputation amongst international lenders, as if it had guaranteed the loans which its firms had in fact taken out privately from international lenders. This involuntary guarantee shifted risk from private borrowers and lenders to the nation as a whole.

When doubts about the quality of private loans to a nation surfaced, there was a herd-like rush out of the assets of that nation, as the technical systems of all international lenders responded in lockstep to changes in the same few macroeconomic parameters. Lacking access to and confidence in the nation's internal procedures for recovering loans, international lenders instead called upon their own governments to press the IMF into service as private debt collector, pressurizing the borrowers' government, which was suddenly beholden to the IMF for loans to support its exchange rate as international lenders became unwilling to roll over their foreign currency loans.

"NATIONAL" CONTAGION AND MULTIPLE EQUILIBRIA

The term "contagion" has entered the lexicon of international finance to connote the spread of fears about one country's financial system and currency to neighbouring countries. In addition to this contagion across countries, contagion across firms within one country can arise via its exchange rate. Thus, fears about the creditworthiness of some of country A's loans denominated in, say, US$ can lead to an exit from currency A, lowering its US$ value, hence the US$ value of the collateral of other US$ loans. This can lead to a self-fulfilling cumulative downward rating of all of country A's loans.

Such "national" contagion can occur, even if most of the loans were originally in good standing. If country A's private sector has incurred a large number of US$ loans, international lenders could become alarmed that these loans would become unpayable if country A's currency depreciated substantially. At this point, currency speculators with resources which are large relative to A's foreign reserves could short A's currency, thereby precipitating a panic collapse of its exchange rate as more and more lenders refuse to roll over their US$ loans. This can be true even if the borrowers would have had no difficulty servicing their loans at the original exchange rate.

When a country's private sector takes out a large number of loans denominated in, say, US$, there might be two possible equilibrium values of its exchange rate. In one equilibrium, the local currency has a high value in terms of the US$, the US$ loans can be serviced and local interest rates are the same as those in the US because lenders require no risk premium. In the second equilibrium, the currency A has a low value in terms of the US$, all the firms in country A which have taken on US dollar loans are at or close to insolvency, so they can roll over their loans only by paying a high risk premium. This risk premium is required to compensate lenders not only for the sudden high leverage of their debtors but also for their perceived exposure to further currency risk. Despite its low exchange rate, the country cannot export its way out of its problems in the short term because internal financial chaos makes trade credit unavailable from an internal banking system whose equity base has eroded.

The currency speculators may claim that they have made their money only by recognizing just ahead of everyone else that currency A is overvalued. In fact, their actions have shifted country A from the high to the low equilibrium. They have made their money via short sales

which capture some of the reduction in country A's income which their short sales have brought about. Thus, it could be the duty of the government of an economy targetted by short sellers to intervene in financial markets to keep it at the high equilibrium. Such was the duty of the Hong Kong Government in late 1998.

Conversely, a country such as Malaysia which has been driven to the low equilibrium might need to restrict international capital flows to shift its economy back to the high equilibrium. Otherwise, given the pessimistic expectations which obtain at the low equilibrium, any expansion of domestic credit to recapitalize the banking system and jump start the economy with lower interest rates would result merely in flight of the credit created. Once confidence had been restored by internal economic recovery, the risk premium in domestic interest rates would fall and the economy could remain at the high equilibrium.

Thus, interventions such as those by Hong Kong and Malaysia should be evaluated on a case-by-case basis without jumping to the conclusion that they violate some universally valid economic principles.

GLOBALIZATION AND THE INTERNATIONAL MARKET ORDER

The globalization of finance has stretched to breaking point key concepts in the Western model of political economy, which celebrates competition between autonomous individuals, market exchange and the rule of law. Thus, the Western institutions whose under-use undermined Asian finance threaten the global financial order through over-use.

Market Exchange and the Rule of Law

The loan contracts between the hedge funds and the money centre banks (such as that between LTCM and UBS) are amongst the largest ever written. Such a contract is qualitatively different from those governing normal economic life:

Intelligibility. Given the exposures of LTCM around the world and the complex way in which they interacted, it is safe to say that the full implications of the contract were not grasped by the signatories, let alone anyone else. Globalization had expanded the information processing requirements beyond the capacity of any individual.

Enforceability. The contract was unenforceable because the obligations were so large that triggering a default would have jeopardized world financial stability: hence the takeover of LTCM by a consortium of the world's largest financial firms.

The Price Mechanism

In goods markets, prices convey information which lead to efficient resource allocation because they are the medium through which market players interact. Players make private tradeoffs taking account of the prices which they face; if all players face the same prices, then the prices would convey information about the tradeoffs made by other players. Incomplete markets undermine this because some social tradeoffs are not incorporated into private tradeoffs; monopolies, because they distort price signals. The globalization of financial markets has vitiated the price mechanism in the following ways:

(i) Asset prices fail to reflect fundamentals because private and social risk tradeoffs diverge hugely as a result of the global application of bankruptcy and limited liability.

(ii) Principal/agent problems mean that asset prices reflect agent decisions which are not aligned with the interests of principals. In particular, the incentive structures which are available to motivate financial agents preclude their focus on long-term fundamentals.

(iii) Herd behaviour on a global scale leads to asset prices which reflect traders' expectations of future price movements or which reflect only the restricted set of signals upon which players in that market choose to focus.

(iv) Informational economies of scale lead to global financial firms which are large relative to the markets in which they trade, so that they can manipulate the key prices of entire economies, such as their exchange rates and interest rates, rather than allowing these to be determined by competitive market forces.

Distortions in asset prices, due to the effects noted above, have real effects by distorting real investment decisions or by triggering institutional constraints designed to control credit risk, for example, if they force sales of the underlying assets to meet margin requirements or if they eliminate the equity base of a firm, thereby blocking access to credit, forcing liquidation or leading it to take riskier gambles.

An example of the latter effect is the recent difficulties of Metallgesellschaft when it entered into forward contracts to purchase crude oil to hedge its forward sales of petroleum products. Although these contracts were intended not for speculation, but for exercise at maturity, Metallgesellschaft received margin calls when the price of crude oil fell. The financial burden of these margin calls disrupted company operations, forcing changes in top management.

Competition and Economic Equilibrium

A more basic problem is that the above considerations call into question whether the globalization of finance permits any coherent economic outcome (equilibrium) at all. Economic theory demonstrates that goods markets achieve a coherent outcome when increased consumption brings diminishing marginal benefits, while firms are subject to rising marginal costs (i.e., scale economies are absent). Under these assumptions, the expansion of any individual's consumption or any firm's output is limited because the diminishing private gain is eventually offset by prices which rise as other players compete for the same resources.

By contrast, individuals protected by bankruptcy and limited liability enjoy rising marginal private benefits from taking larger gambles, while financial firms with informational economies of scale enjoy a falling marginal cost. Therefore, financial markets can fail to achieve a coherent outcome, instead fluctuating between:

(i) speculative excesses as individuals and corporations take ever-increasing gambles.
(ii) collapses due to the triggering of institutional rules on loan margins and capital adequacy which were imposed to constrain this speculative behaviour.

The global financial crisis which began in 1997 shows that this is not an obscure theoretical possibility, but a real problem.

Individualism

The Western model of political economy celebrates individual autonomy, allegedly in contrast to the collective mind-set of Asians. Individualism has been taken to its logical extreme with the globalization of finance, by exploiting the institutions of bankruptcy and limited liability. In production, these institutions facilitated the collaboration of many

individuals in risky new ventures. In finance, they can be perverted into a vehicle for evading downside risk. This has been exacerbated by the globalization of finance, as risky trades are executed through companies incorporated in minute islands whose governments feel no responsibility to the corporation's creditors, let alone for global financial stability. The result is that a few individuals with the intellectual power to see new patterns in economic relationships beyond those captured and exploited in existing formal models can privatize the upside of gambles large enough to be a significant percentage of world GDP, while globally collectivizing their downside. Because of informational economies of scale, they can operate through global financial firms on the same scale as whole nations, manipulating their key prices while remaining outside the jurisdiction of any responsible regulatory authority.