

## **IMPROVING FINANCIAL MARKETS: REGULATORY PROPOSALS TO DAMPEN DISRUPTIONS AND DETER DISTORTIONS**

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### **I. Introduction and motivation**

The tremendous growth in the international movement of capital, especially the growth in capital flows between advanced and developing economies, has raised the question of whether the “*liberalization*” of the regulatory framework for these flows has been the right policy. Most of the discussion in recent years has focused on whether or not these flows are too large and too volatile. This focus has taken the discussion towards considering whether capital controls or transactions taxes<sup>1</sup> might be the best method for reducing the volume of flows or velocity of trading and thus reducing the volatility of flows. This paper is designed to broaden that discussion by introducing the consideration of a set of prudential regulations for financial markets. Prudential regulation can accomplish the same ultimate goals as capital controls and transactions taxes while also claiming to improve market efficiency (lower costs of capital to developing economies) and reduce developing country exposure to other financial risks. Moreover, these regulatory proposals could be adopted unilaterally, thus allowing greater national policy autonomy. They would not have to wait upon a widespread agreement on a global tax.

Before proceeding further to explain these prudential regulations and how they would work to shape the quantity and quality of capital flows and financial transactions,<sup>2</sup> a couple of qualifications are in order. The point is not to argue that capital controls are wrong, but rather there may be better ways of getting at the same policy goal. Similarly, the implementation of prudential market regulations does not preclude the use of capital controls or transactions taxes. Rather, prudential financial market regulations might be viewed as a complement to these other alternative policy tools. Moreover, the prudential regulations afford developing countries the opportunity to base their policies on what advanced economies actually do and not what they say.

The paper is organized in the following manner. Section II describes a set of regulatory proposals and discusses their policy impact. The section after that compares the above regulatory proposal to that of capital controls, and the section after that compares the regulatory proposal to a transaction tax approach. The paper concludes with a brief summary.

### **II. A proposal for prudential regulation of financial markets**

The following policy proposals are a set of financial market regulations that are designed to make financial markets more transparent, stable and efficient and in turn less susceptible to

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<sup>1</sup> The term transaction tax is used here to represent the broader rubric of proposals for a Tobin Tax, currency transactions tax and securities transaction tax.

<sup>2</sup> The term *transaction* will be used in this paper to refer to a payment or trade involving securities, foreign currency or derivatives) and is distinct from a loan, security issuance or physical investment (i.e. capital flow).

disruptions and less prone to transmitting them throughout the economy and abroad.<sup>3</sup> They are designed to shape the composition of capital such that the choice of capital vehicles<sup>4</sup> is most appropriate for developing economies,<sup>5</sup> and they are designed to encourage the use of derivatives for risk management purposes while discouraging their use in unproductive pursuits that might create dangerous levels of exposure to market risk and credit risk or lead to reverse capital flows.<sup>6</sup>

Perhaps the best way to appreciate the potential for this policy is to view its role in what is commonly called the big picture. The policy is a set of regulations that will affect the profit maximizing behavior of financial market participants by modifying the contours of their constraints and reshaping their objectives so as to lead to a new market equilibrium that is of greater overall social benefit. If the prudential regulatory measures are successful, then both hedgers and speculators will be making their profit maximizing decisions based on the given capital and collateral requirements and in the context of a more transparent market place.

These prudential regulatory proposals are of three basic types. The first type relates to reporting and registration requirements and is designed to improve the transparency – and thus the pricing efficiency – in the markets. Reporting requirements also enable the government, and other market surveillance authorities such as exchanges, to better detect and deter fraud and manipulation. Registration requirements are especially useful in preventing fraud.

The second type of prudential regulatory measures involves capital requirements and collateral<sup>7</sup> requirements. Capital requirements function to provide both a buffer against the vicissitudes of the market and a governor on the tendency of market competition to drive participants towards seeking high returns and thus higher risks.<sup>8</sup> Collateral requirements have basically the same effect, although collateral requirements apply to transactions in particular and not institutions.<sup>9</sup> Thus non-financial institutions that would not otherwise be subject to capital requirements would be subject to collateral requirements on their derivatives transactions.

The third type of regulatory measures is Orderly Market Rules designed to address the need to maintain an orderly marketplace. The most important of these are market making requirements for dealers that help maintain market liquidity, while another important rule is the prohibition of bucket shops that reduce trading volume, liquidity and price discovery at central markets.

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<sup>3</sup> These proposals were prepared as part of a presentation by the author to the North-South Institute in October 2001. The manuscript is entitled, “Prudential Regulation of Financial Markets: A Comparison with Capital Controls and Transactions Taxes.”

<sup>4</sup> The term capital vehicle refers to the set of bank loans, bonds, equity shares or other financial instruments used to raise capital.

<sup>5</sup> Dodd, Randall. 2002. “Derivatives, the Shape of International Capital Flows and the Virtue of Prudential Regulation.” paper presented to WIDER/UN conference in October 2001 and revised April 2002.

<sup>6</sup> Dodd, Randall. 2002. “The Role of Derivatives in the East Asian Financial Crises.” In Lance Taylor and John Eatwell (eds.). *International Capital Markets*. Oxford University Press. New York.

<sup>7</sup> The term collateral is used for these purposes to mean the same thing as margin. And like margin, collateral is presumed to be held in the form of cash or government securities. When collateral is mentioned in the context of lending, then I will specify that real assets are serving as the collateral for the loan.

<sup>8</sup> John Eatwell has raised some serious concerns about the ability of capital held to meet capital requirements to successfully function as a buffer against such changes. See Eatwell, John. 2001. “The Challenges Facing International Financial Regulation.” presented to the Western Economic Association in July, 2001.

<sup>9</sup> Collateral should be in the form of cash (money deposits) or liquid government securities, and the government securities should be subject to a “haircut” that is proportional to their price convexity.

A list of prudential regulatory measures is enumerated in Table 3 below. They follow the three types – requirements for registration and reporting, requirements for capital and collateral, and orderly market rules – and each of these breaks down into those applicable to all financial markets and those that are particularly appropriate for emerging market or developing countries. Each of the provisions in Table 3 will be explained in more detail in the remainder of this chapter.

Note that U.S. regulations are mentioned throughout the discussion. The purpose is not to presume that U.S. standards should be imposed throughout the world. Rather, they are mentioned because they are an important benchmark for financial market regulations around the world. Also, it must be confessed, it is because the author is relatively more familiar with them.

Developing country financial markets are not isolated from their counterparts in the advanced capital markets of developed countries, and this interconnectedness – especially through derivatives markets – is very important. As one senior IMF official remarked to me in private, “I have never seen one sin in a developing country financial markets that did not have as its counterpart someone from New York or London.”

Another qualification is in order at this point. The financial markets in many developing economies, particularly of the poorest countries in the Caribbean and Sub-Saharan Africa, consist entirely of banking activities as these banking services do not extend throughout the country. So while their banking sector should be prudently managed and supervised, the larger framework discussed here is not very relevant at present. As those economies become more successful at generating rising living standards for their citizens, and as they begin to develop more sophisticated financial sectors, this framework will hopefully prove useful. It is a widely accepted policy view that developing countries should not *liberalize* their capital accounts and financial market without first establishing a proper regulatory system. This “sequencing” problem is even recognized by the IMF. Another policy lesson, although not widely accepted, is that a properly designed regulatory system could encourage the development of a financial system by bolstering public confidence, preventing destructive competition, providing deposit insurance and preventing it from being misused for private and public corruption.

One additional merit to prudential regulation for developing countries is that each developing country can adopt these prudential regulations on its own initiative and they do not have to wait, as would be the case of a currency transaction tax, until the entire world agrees. Most of these regulations are the same or similar to ones used in industrialized countries and therefore should not be viewed as objectionable by IMF or other actors in international capital markets.

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## Table 1

1. Reporting and Registration Requirements
  - a. Require all financial institutions to be registered or chartered. Require key personnel, including senior management as well as brokers, agents and sales staff, to be registered or licensed.
  - b. Require all financial institutions to report on their financial condition and their financial activities. Key financial institutions, especially banks, should be subject to regular and spot examinations by the regulatory authority.

- c. Require publicly traded corporations to make public financial reports, which should include explicit statements of their derivatives and other off-balance sheet activities. The accounting methods should require that financial reports convey the actual, underlying economic properties and business purposes of all activities including minority interests, special purpose entities and derivatives transactions.
- d. Modernize reporting and accounting rules and other financial market regulations in order to properly recognize the actual economic function of derivatives, embedded derivatives and structured securities.

Special Requirements for Developing Countries

- e. Reporting requirements for financial institutions and publicly traded corporations should make special note of their foreign currency, interest rate and security price exposure on both balance sheet and off-balance sheet activities.

2. Capital and Collateral Requirements

- a. Require all financial institutions to hold capital in proportion to their credit exposure and their current and potential market risk. Capital requirements must apply to balance sheet as well as off-balance sheet transactions and positions.
- b. Require adequate levels of collateral (margin) to be posted for securities and derivatives transactions.
- c. Encourage – if not require -- the establishment of clearing houses for trading in securities, securities loans, repurchase agreements, derivatives and foreign exchange. The clearing houses should be well capitalized, well managed and supervised by a public regulatory authority.

Special Requirements for Developing Countries

- d. Limit the exposure of all financial institutions to fluctuations in foreign exchange rates, interest rates, securities prices and other market prices. The limitation can be linked to capital or liquid reserves.
- e. Limit the exposure of all financial institutions to liquidity (refunding) risk by limiting their mismatch in maturity on assets and liabilities. The limitation can be linked to capital or liquid reserves.
- f. Capital and collateral requirements should be at least as high as those in developed industrial countries.

3. Orderly Market Rules

- a. Strictly prohibit fraud and manipulation in financial markets. Create market surveillance and enforcement authority, make violations punishable by civil and criminal penalties, and adopt “know the customer” and “truth in lending” rules. Require the reporting of large trader positions in order to detect and deter manipulation.
- b. Necessary levels of liquidity. Foster market liquidity by requiring securities and Over the Counter (OTC) derivatives dealers to act as market makers by maintaining binding bids and offer quotes throughout the trading day. Require banks and insurance companies to hold a minimum percentage of liabilities as liquid assets.
- c. Employ debt standstills, “circuit breakers,” and price limits for trading on exchanges and OTC markets in order to protect financial system from disruptions and short-term volatility.

## Reporting and Registration Requirements

*1.a. All financial institutions should be registered or chartered. This includes banks,<sup>10</sup> securities brokers and dealers, derivatives brokers and dealers, insurance companies, pension funds, hedge funds and other managed funds. Similarly, brokers, agents, other sales personnel and investment advisors should be registered or licensed.*

All financial institutions should be registered.<sup>11</sup> Registration is a means to insure that each financial institution meets key minimum standards; minimum standards should include that the requirement that firms have an operating plan and be well managed; meet minimum capital requirements;<sup>12</sup> employ competent sales agents and other sales staff; and that key personnel do not have criminal records for fraud or similar crimes or that they intend to use the financial institution for criminal activities.

One standard is for competence. Brokers and agents are usually required to pass an examination that tests their knowledge of their field of finance, e.g. Series 7 exams for stockbrokers in the U.S. Another standard is fiduciary integrity. Registration also allows regulators to conduct background checks on individuals who have fiduciary responsibility over customers' funds or who act as brokers, agents or salespeople to customers. The background checks should test for past criminal conduct because individuals convicted of fraud should not be allowed to act as brokers or other responsible persons (front-line representatives of financial institutions). An example in U.S. law is that an individual convicted of securities fraud cannot be a registered broker for securities or exchange traded derivatives (futures or options). However, that same individual can act as a derivatives trader for unregistered OTC derivatives dealers such as the Enron Corporation. Yet another standard requires that financial institutions be well managed, and that responsible persons or officers at financial institution are designated. A fourth standard is that a financial firm meet minimum capital standards as a precondition for registration.

In the case of the U.S., all securities brokers and dealers, insurance agents, banks and other depository institutions, futures and options brokers, exchanges and most managed funds are registered. Derivatives dealers in the OTC market and financial institutions such as GE Capital are not registered.<sup>13</sup> Hedge funds are required to register but if they satisfy certain size and investor qualifications, they have no reporting or other regulatory requirements. Long Term Capital Management was required to report annually to the Commodity Futures Trading Commission (CFTC) on the capital adequacy of its futures trading because it was also organized as a Commodity Pool Operator.

These requirements are not a burden to conducting business in the financial sector. Any successful firm will be well managed and keep records. No firm or investor will advocate filing

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<sup>10</sup> The term *bank* is used in this and similar contexts to refer to all depository and lending institutions and thus includes savings and loans, savings banks, credit unions and other thrifts.

<sup>11</sup> This section is written for "all" financial institutions, however it would be reasonable to exempt certain micro finance activities and firms providing micro finance services if loans are small and funding does not come from customer deposits.

<sup>12</sup> Note that this public requirement is not out of line with business practice. Many stock exchanges, including the NYSE and NASDAQ in the U.S., have minimum capital standards as a prerequisite for listing on those exchanges.

<sup>13</sup> However many OTC derivatives dealers are registered as some other institution such as a bank or securities broker-dealer.

false reports to shareholders and the wider public, and the honest ones will benefit if the dishonest are identified and punished. In order to minimize the reporting costs, the regulatory authority should have efficiently designed procedures for filing applications for registration and reports, and should police the registration approval process to prevent corruption or needless delays. One example of how regulators can accomplish more efficient filings is provided by the CFTC's "fast track procedure" for approval of new futures and options contracts, which successfully promise approval within ten business days if the filing meets certain conditions.

Together, these standards help prevent fraud on the market and provide assurance that the marketplace is not unduly disrupted by the failures of undercapitalized and poorly managed financial institutions. Whereas should firms fail when they are badly managed or make disastrous decisions, the productivity of the entire marketplace and the value of the financial industry would not be enhanced by reckless, under-funded new endeavors followed by widespread chaotic failures.

***1.b. Require all financial institutions to report their financial condition and their financial market activities. Financial institution, especially banks, insurance companies, and pension funds, should be subject to examination by regulatory authorities.***

Require all registered and chartered financial institutions to regularly report their financial condition and their financial market activities. Reports on their financial condition should be made quarterly (or no less frequent than annually), they should be certified by outside auditors and senior executive management and the board of directors should be liable for their accuracy and integrity. Reports on financial market activities should be made more frequently. These reports, sometimes called "Call Reports," should list assets, liabilities and capital as well as such activities as borrowing, lending, underwriting, issuance of securities, brokering trades, proprietary trades, derivatives transactions, other off-balance sheet transactions such as securities lending and repurchase agreements, funds under management, structured financing transactions, and others that the regulatory deems to be important financial market activities. Some information should be made public while other information should be retained by the regulatory authority because of its proprietary nature.

In the U.S., all derivatives and securities transactions conducted on exchanges are reported to the exchange and together with the exchange the information is reported to the respective regulator. Brokers are required to keep records of their customers' transactions and to report any large positions. The result is an audit trail that can be used to track the origin, time and responsible persons in the transaction.

The importance of an audit trail was illustrated in the weeks following the terrorist acts on September 11<sup>th</sup> of 2001 when there arose concerns that the terrorist organization might have profited from the attacks by short-selling the stocks of the insurance companies and buying put options on the stock of the airlines. Since both of these transactions were conducted through exchanges in Frankfurt and Chicago, regulators were able to trace the transactions and determined that they were part of normal market activity and not the machinations of a terrorist organization.

Reporting OTC transactions is both feasible and nearly costless to enforce. Most OTC derivatives transactions are traded through the ISDA Master Trading Agreement ("Master Agreement"), which requires that the counterparties to the trades exchange confirmation messages (usually email or fax messages) to insure that all the key terms of the contract are in

agreement. The reporting requirement would entail that the trading counterparties "CC" the regulatory authority on the confirmation email or fax message.

Information from transaction could be compiled and the non-proprietary data made available to the public, and protect the integrity of market price through better market surveillance. Once aggregated, this data would reflect the character of the market while protecting the details of dealers' market positions (assuming there are several dealers). The data of a proprietary nature would be retained by the regulator in order to detect and deter fraud, manipulation and potential systemic breaks in the markets. This would go a long way to improve transparency.

Market surveillance would help prevent and police malfeasance through better ability to detect and deter fraud and manipulation. The government could also get an early warning of firms that were in trouble due to taking large losses on big market positions.

Examination by regulatory authority should be conducted at least once a year in order to ascertain that the institution is fulfilling its capital requirements, confirm any restriction on holding of assets or issuance of liabilities, and ensure that it is well managed. Regulators scrutinize banks' balance sheets and loan portfolios in order to identify problem loans that are not being treated as such. Regulators should also be authorized to make unannounced visits to conduct examinations. The quality of management of the financial institutions is of great importance because the risk-management procedure of financial institutions plans a key role in preventing crippling losses or failures such as Leeson at Barings in 1995, Joe Jett at Kidder Peabody in 1994, John Rusnak at Allfirst (Allied Irish Bank) in 2002, Hamanaka at Sumitomo in 1996, and Papouis at National Westminster in 1997.

***1.c. Require publicly traded corporations and large non-traded corporations, both financial and non-financial, to regularly report on their financial conditions, business activities and environmental and social policies. The reports must be certified by independent auditors and signed by senior management and the board of directors.***

The key to efficient financial markets is the rational decision making of well-informed investors, and then reporting requirements facilitate that process. Reporting requirements must assure that corporations provide all the information that the public needs to make rational, fully informed decisions about the prospects of the firm including potential negative consequences of corporate policy.

After numerous booms and busts in the stock market and innumerable swindles of shareholders and bond investors, the U.S. established disclosure and reporting requirements in the securities acts of 1933 and 1934. While these laws have been frequently amended over the ensuing years, the latest amendments came about in response to a series of reported scandals beginning with Enron in 2001 that disclosed a widespread failure to accurately report revenue, debt and earnings. The amendment, known for its author Senator Paul Sarbanes,<sup>14</sup> made executives and boards of directors more accountable for the accuracy of corporate financial statements, and it created an accounting oversight board that would be subject to oversight by the Securities and Exchange Commission.

In order to bring off-balance sheet activities into the same light as balance sheet activities, derivatives would be reported by notional value (long and short), maturity, instrument

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<sup>14</sup> The bill, S. 2673, is properly known as the "Public Accounting Reform and Investor Protection Act of 2002."

and collateral arrangements. This would enable investors to better determine whether the firm was under- or over-hedged, and whether they were primarily acting as a producer or wholesaler.

Reporting standards can also be designed so as to achieve transparency in areas beyond the narrow concerns of financial market investors. By requiring corporations to report on their environment impact, working conditions and community impact, the full range of corporate activities can be made available to the public and provide information beyond the concern over future earnings.<sup>15</sup>

***1.d. Modernize accounting rules and other financial market regulations in order to properly account for derivatives, especially embedded derivatives, special purpose entities and off-shore activities. The accounting methodology must accurately convey the underlying economic conditions and the business purposes of all activities including minority interests, special purpose entities and derivatives transactions.***

The goal of disclosure rules should be to accurately identify and portray the underlying business activities and their profitability. Disclosure is no longer just a matter of underlying manufacturing and commercial enterprise, but now it is also a matter of financial activities that reduce, or expand, the risk inherent in the underlying business.

There are large and growing amounts of securities and loans to which derivatives have been attached or embedded. This has fundamentally altered the usefulness of existing rules for taking capital charges against the risks associated with holding or issuing these securities, for financial reports regarding investments in these securities and even regulations that might otherwise prohibit certain financial institutions, such as pension funds or insurance companies, from investing in these securities. Rules should be updated to reflect the market risk associated with the attached or embedded derivative and not merely the credit risk of the principle of the security.

***1.e. Special requirements for developing countries. Reporting requirements for financial institutions and publicly traded corporations should make special note of their foreign currency, interest rate and security price exposure on both balance sheet and off-balance sheet activities.***

It is no less important for developing economies to prevent fraud and to maintain market transparency. While the benefit is substantial, the cost of administering and enforcing these requirements is small.

## **Capital and Collateral Requirements**

***2.a. Require all financial institutions to hold capital in proportion to their credit exposure and their current and potential market risk. Capital requirements must apply to balance sheet as well as off-balance sheet transactions and positions.***

Capital requirements should apply to all financial institutions. This should include OTC derivatives dealers, such as the former Enron Corporation, that might not otherwise be registered

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<sup>15</sup> See the Sunshine Standards of the Stakeholders Alliance for good, common sense approach to accounting and reporting rules (<http://www.stakeholderalliance.org>).

as a financial institution. Capital requirements should be updated so that they apply to balance sheet as well as off-balance sheet activities and positions. The rate of the capital charge should reflect both credit risk and market risk (potential future exposure and value at risk (VAR)).

Capital serves two functions: first, it acts as a buffer so that when a firm suffers from an adverse event it is less likely to go bankrupt or fail to perform on debt or derivatives obligations to others; and second, it serves as a limitation or disincentive to a firm's risk taking in so far that it is required to hold capital commensurate with risk. Capital requirements are critical to prevent the problems at one firm from becoming problems at another firm. This is especially important for dealers in financial markets because their failure can lead to market problems such as illiquidity (market freeze-up) or meltdown.

Capital requirements also function as a governor on risk taking. In the context of international capital flows, financial institutions in developing countries would find that the capital requirements would limit their ability to accumulate foreign currency denominated debt in excess of foreign currency denominated assets, and it would similarly limit their ability to finance long-term investments with short-term debt. While it would not prevent these activities, it would require the financial institution to hold capital in proportion to the amount of these activities and thereby limit it for a given amount of capital.

Capital requirements should be based on the assessment of the value of assets, liabilities and positions using current market prices, or assessments based off of current market prices, and not simply the historic or book value of the assets and positions.

Capital requirements are potentially of several types. Traditionally, the requirement has been calculated as a simple percentage of assets. This amounts to a leverage ratio equal to the amount of assets divided by capital. In the 1990s, the Bank for International Settlements, at the behest of central banks from several industrialized countries, formulated a global standard for capital requirements for banks and in doing so updated the approach by setting capital requirements as a percentage (8%) of risk-weighted assets. The risk-weight standard required no capital charges on government bonds from OECD countries and only a 20% weight on loans from banks from OECD countries. Corporate debt was assigned a 50% weight and most other debts were assigned a 100% weight. This new approach was also important for applying the capital requirements to off-balance sheet transactions, such as derivatives and securities lending, as well as balance sheet assets.

The limitations to both of these approaches is that they focused on assessing capital as a percentage of credit risk, and that the assessment was a static measure of that risk. Credit risk changes with the changes and magnitude of changes in market prices as counterparties experience losses and greater losses. What is more, credit risk is not the only concern. Many firms go bankrupt from trading losses due to market price risk, and the potential for these losses is completely ignored in both the leverage ratio approach and risk-weighted asset approach.

There are several new proposals and actual policies to address these concerns, but there is no single new best approach – or at least one that has widespread agreement. The most widely known is the value-at-risk (VAR) or internal model approach. This method requires financial institutions to develop their own internal model to estimate their portfolio wide losses arising from a one or two standard deviation movement in interest rates and other market prices. The method treats the financial institution as a whole and not asset by asset or instrument by instrument. It also allows for shock tests for changes outside the normal distribution of returns. However the method leaves a great deal of the policing of capital requirements to the financial

institution because regulators cannot feasibly construct, deconstruct and identify critical errors in each institution's model.

The internal model approach is beginning to be applied in some spheres of developed countries. In the U.S. the Federal Reserve Board requires such a method for the largest banks who operate extensive securities and derivatives trading operations, and the Securities and Exchange Commission has adopted the VAR approach for derivatives dealers registered under rules known as "Broker-Dealer Lite."

***2.b. Require adequate levels of collateral (margin) to be posted for securities and derivatives transactions.***

Collateral requirements for financial transactions function much like capital requirements for financial institutions: both provide a buffer against financial failure, and both provide incentives to economize on risk-taking by raising the cost of holding open positions.<sup>16</sup> It helps prevent liquidity or solvency problems at one firm from causing performance problems that impact other transactions and other firms. In so doing it reduces the costs of the externalities of risk-taking by reducing the likelihood of default on transactions and thereby reduces the market's vulnerability to a freeze-up or meltdown.

Collateral and margin should be in the form of cash or government securities (or at a minimum liquid, investment grade notes and bonds). The minimum requirements should be reevaluated regularly by the regulatory authority according to changes in the market place so that they are neither excessive nor insufficient. Market participants must be required to frequently (usually daily) to adjust their levels of posted collateral to account for changes in the fair value of open positions.

The practice of rehypothecating collateral should be limited to ability of the clearinghouse or clearing and payments system to maintain liquidity and promptly transfer collateral between counterparties.

The current market practice for the use of collateral, in so far there is one, is inadequate.<sup>17</sup> One particularly dangerous market practice is to require small initial collateral levels, but then require a firm to become "super-margined" if its credit rating drops. This initiates a large increase in the need for collateral just at the time the firm is experiencing problems with inadequate capital. This amounts to a *crisis accelerator*.

Collateral limits risk taking, and discourages accumulation of large speculative positions.

***2.c. Encourage – if not require -- the establishment of clearing houses for trading in securities, securities loans, repurchase agreements, derivatives and foreign exchange. The clearinghouses should be well capitalized, well managed and supervised by a public regulatory authority.***

A well functioning financial system requires a highly efficient and dependable system for the clearing and settlement of payments (in local and foreign currency), securities transactions

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<sup>16</sup> Reminder: the term collateral is used to mean that same thing as margin because they have the same economic function: a performance bond to protect a derivatives counterparty from performance risk that the other counterparty will fail to perform on schedule (or at all).

<sup>17</sup> For good background reading on collateral provision in OTC derivatives markets in the U.S., read Christian A. Johnson. 2002. *Over-The-Counter Derivatives: Documentation*. Bowne Publishing, New York.

and derivatives transactions. The clearing of local currency payments is usually conducted through the central bank, often in conjunction with the major banks, which acts as a clearinghouse to net payments so that clearing banks need only transfer their net obligations to other banks through the central bank. This process economizes on the amount of liquid assets, i.e. money that is tied up in the clearing process.<sup>18</sup>

Clearinghouses are an effective means of improving the efficiency and dependability of clearing and settlements for derivatives, securities and foreign exchange. As such, they should be encouraged, and in some cases required, as part of the regulatory system.

Clearinghouses greatly reduce the trading risk and credit risk inherent in trading and holding positions in securities, derivatives and foreign currency. Clearinghouses reduce trading risk by providing trade confirmation services, and they can act as an arbitrator to settle disputes regarding trades or the settlement of trades without the delay and costs of court proceedings. In performing these critical services, clearinghouses mitigate several problems. One, they reduce the number of disputed trades because the trade is confirmed daily, and any dispute can be mediated by the clearinghouse acting as a third party. Two, they reduce the number of incomplete settlements, known as “fails,” because of the enhanced ability to economize on the payments and securities needed to make delivery. Three, they improve market liquidity by creating a high standard for credit rating on exposure in the market.

Clearinghouses facilitate multilateral clearing that allows for the highest possible degree of netting of trades and outstanding positions. Consider the example of party A trading with four counterparties B, C, D and E. Party A buys 100 units from B, sells 180 to C, buys 200 from D and sells 110 to E. After reporting the trades to the clearing house, party A must present the payment for the net purchase of 10 units and then receive delivery of the units. The netting process reduces transactions costs because only the net payment in each currency and security need be transferred to the clearinghouse. In addition, the clearinghouse can expand the number of hours during which payments and securities can be made beyond the hours offered by the central bank’s clearing and payment system.<sup>19</sup>

Not only does netting reduce each firm’s or individual’s outstanding credit exposure, but the clearinghouse further reduces credit exposure by converting positions into obligations against their own high credit rating. In the U.S., clearing houses for securities and derivatives have the highest possible rating, then they also improve the quality of the remaining credit exposure for each investor.

While the role of clearing houses mitigates many public interests concerns about orderly functioning of the financial system, they create one very important public interest concern. A clearinghouse concentrates a market’s credit risk into a single financial institution. In doing so it internalizes the potential for systemic failure into the clearinghouse. This concentration of credit exposure gives the public regulatory authority good reason to set high capital standards for the clearinghouse and to maintain oversight to ensure that it is well managed and is operating successfully.

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<sup>18</sup> As an alternative to netting, very highly efficient payments systems can use electronic payments systems to facilitate the use of real-time gross settlements that allows the near instantaneous transfer of gross amounts of funds between counterparties.

<sup>19</sup> See Dodd (1996) for a discussion of the economics of clearing.

***2.d. Special requirements for developing countries. Limit the exposure of all financial institutions to fluctuations in foreign exchange rates, interest rates, securities prices and other market prices. The limitation can be linked to capital or liquid reserves.***

Market volatility or other sudden changes in market prices can lead to financial disruptions and financial crises when the financial institutions take too large and too leveraged positions in the market. Enormous foreign exchange exposures will lead to massive losses following a devaluation, and large-scale interest rate exposure (presumably a long position) will lead to further losses if the central bank responds by tightening credit conditions. Together these losses can critically impair a developing country financial sector and potentially lead to a financial crisis.

While exposure to market risk and credit risk is a regular part of financial activities, a prudential regulatory system will shape the incentives of financial institutions so that these risks are prudently and efficiently managed.

The limitations can be calculated as a percentage of capital and can be augmented by an absolute limit. The limitation should apply to a consolidated balance sheet and off-balance sheet measure of exposure. The limits can be made tighter for higher degrees of exchange rate management. Examples of position or exposure limits already exist on U.S derivatives exchanges. These restrictions amount to explicit limitations on risk taking, but not hedging. This measure can be very effective in limiting the amount of short-term foreign currency denominated credit flows that are driven by the carry trade or “hot money” because they result in exchange rate exposure and sometimes interest rate exposure. By limiting these types of flows, it will discourage the building of leveraged positions that expose developing countries to devaluation, and it will encourage the hedging of currency exposure and long-term investment.

***2.e. Special requirements for developing countries. Limit the exposure of all financial institutions to liquidity (refunding) risk by limiting their mismatch in maturity on assets and liabilities. The limitation can be linked to capital or liquid reserves.***

This is particularly important for developing countries. Limit the mismatch in maturity on assets and liabilities. The limitation should not discourage long-term funding in the domestic credit market but should be designed with the intent of discouraging carry lending.

Another source of financial vulnerability that can plague developing countries more than their wealthier developed neighbors is the risk associated with mismatching the maturity of assets and liabilities. Not only is there an interest rate risk from changes in the level and slope of the yield curve, but there is also the liquidity risk, commonly referred to as refunding risk, from not being able to continue funding assets.

***2.f. Special requirements for developing countries. Capital and collateral requirements should be at least as high as those in developed countries.***

Capital and collateral requirements are even more important for financial markets in developing economies.

Modern capital requirements, whether based on risk-based percentages or internal models, should apply to balance sheet as well as off-balance sheet positions.

The appropriate level of collateral should be sufficiently high to establish safe and sound foundation for market transactions, and yet not so high that the use of risk management tools is discouraged by their lack of affordability. Zero is not the best level of collateral, and the high volume and widespread participation in futures and options exchanges, especially when OTC derivatives markets are in turmoil, shows how safety and soundness practices can enhance the performance of markets.

Collateral requirements for collateral held in local currency assets should be set so as to reflect the covariance between the exchange rate and foreign currency denominated securities and derivatives positions.

Developing countries do have additional reasons to maintain relatively stronger collateral requirements. They have the need to establish a reputation for market safety and soundness. In so far as they suffer more than wealthy countries when financial sector disruptions occur, they have the reason to require a greater “buffer” against such uncertainties. In addition, by raising the cost of risk taking, high collateral standards will shape the incentives in financial markets so as to discourage excessive risk taking.

## **Orderly Market Rules**

***3.a. Strictly prohibit fraud and manipulation in financial markets. Create market surveillance and enforcement authority, make violations punishable by civil and criminal penalties, and adopt “know thy customer” and “truth in lending” rules. Require the reporting of large trader positions in order to detect and deter manipulation.***

In order to protect the integrity of market prices so that they encourage the widest possible market participation and do not signal distorting signals throughout the economy, fraud and manipulation should be strictly prohibited and punishable by civil and criminal penalties.

Require large trader position reports. Derivatives dealers and exchanges would have to report each entity that amasses a certain size of position in the market. This information would be compiled across markets in order to detect and deter market manipulation. This large trader reporting data has proven very useful by the Commodity Futures Trading Commission in the U.S. for the purpose of market surveillance.

Extend “know thy customer” rules to all financial institutions conducting lending, underwriting, repurchase agreement transactions, securities lending transactions, and all derivatives transactions with entities in developing countries. This provision already exists in U.S. securities markets and a comparable measure exists for U.S. banking markets. It should be extended to derivatives markets where there is even greater concern with the implications of large differences between market participants in the degree of financial sophistication.

***3.b. Necessary levels of liquidity. Foster market liquidity by requiring securities and OTC derivatives dealers to act as market makers by maintaining binding bid and offer quotes throughout the trading day. Require banks and insurance companies to hold a minimum percentage of liabilities as liquid assets.***

Dealers benefit from the privilege of their role in the market. In addition to earning their bid/ask spread, dealers are also privy to the most current changes in the market. Along with this privilege should come the responsibility to help maintain liquidity and an orderly market. U.S.

stock exchanges, such as the NYSE and NASDAQ, already require that “specialists” act as dealers or market makers throughout the trading day. In the OTC cash market for U.S. Treasury securities, the primary dealers are also required to act as market makers throughout the trading day. Those markets have proven to be some of the most efficient and most liquid in the world, and so this supporting market rule has proven its merit.

Securities and derivatives markets are not the only part of financial markets where liquidity is essential for an orderly market. Banks and insurance companies must have a minimum share of their liabilities held in liquid assets. Banks are invariably funded in large part from short-term deposits and other liabilities and therefore should be required to hold liquid assets, usually call reserves, in order to meet the needs of their deposits or other creditors. Insurance companies, particularly property and casualty insurance companies whose liabilities are far less predictable than life insurance companies, should be required to hold a minimum share of their liabilities as liquid assets to ensure their ability to fulfill payments on damage claims. Hurricanes and other large natural disasters can generate enormous damage claims on a property and casualty insurance, and it is imperative that they be able to promptly honor those indemnities.

***3.c. Employ debt standstills, “circuit breakers” and price limits for trading on exchanges and in OTC markets in order to protect financial systems from disruptions and short-term volatility.***

Default and lesser debt payment problems are common problems faced by financial markets. In order to better manage the difficulties, many nations have adopted bankruptcy laws to provide for an orderly process for the debtor(s) and creditor(s) to work out the best resolution to the process. The bankruptcy law usually contains provisions that protect creditor (lender) rights (such as preventing the borrower from harming or disposing of assets) while also granting the borrower some protections from lawsuits and seizures while negotiations are underway.

This national solution is not available for international borrowing and lending, especially for the case of sovereign borrowers whose creditors might include banks, bond holders and international financial institutions from around the world. A much needed regulatory improvement in this area is the creation of a debt standstill arrangement that would protect international borrowers, especially sovereign borrowers from developing economies, during the negotiations to restructure the debt.

Another problem that plagues financial markets is large, sudden movements in securities and derivatives prices. The large price movements are of public concern because of their potential to ignite explosive momentum trading. Program trading, assisted by computers, and other dynamic hedging strategies are thought to have contributed substantially to the 1987 stock market crash in the U.S. There are additional public concerns that include the threat of sudden bankruptcy of investors caught on the wrong side of the market, the inability of the exchanges of the OTC markets to clear and settle the enormous volume of transaction that usually accompany a large price movement, and the limits of daily margin on stock and derivatives trading to cover losses.

**III. Comparison of prudential regulations and capital controls**

Capital controls, briefly stated, are prohibitions, restrictions or rationing devices such as taxes or licenses on the transfer of capital into or out of a country. They can be placed on inflows or outflows or both, and they can be announced as temporary or permanent. They can also be tailored to apply to (or to exempt) all types or specific capital flows, such as trade credits, foreign direct investment, security flows (portfolio investment), bank loans and even foreign currency derivatives. The administration of the capital controls is usually handled by the central bank or the minister of finance (Department of Treasury). They can be enforced by a process of preapproval (essentially a licensing or tax-withholding arrangement), self-enforcement (with oversight) or ex post facto reporting requirements.

The goals, or intended benefits, of capital controls include the following:

- a. Thwart massive inflows of short-term bank loans and portfolio investment funds that might lead to an unsustainable price level in stock markets or real estate markets or similarly lead to an over-appreciation in the exchange rate.
- b. Thwart massive outflows of *hot money* in order to protect the central banks foreign reserve holdings, stem a financial crisis or to support a foreign exchange rate target.
- c. Encourage long-term, and discourage short-term, investment and capital flows.

Some examples of the recent use of capital controls include that of Malaysia in 1994 to reduce the inflow of capital, and again in 1997-98 to reduce the outflow.<sup>20</sup> The latter effort was considered by many to be successful in mitigating the effects of the 1997 crisis. Chile imposed restrictions on capital inflows during the 1990s by requiring a percentage of the inflow to be set aside as reserves at the central bank. The reserves were returned to the investor if the funds were not withdrawn from Chile within a one year period. This effort was often credited with helping Chile avoid the harsh impact of the 1997 financial crisis in East Asia.

There are some problems with the policy. One is with the difficulty of enforcement -- currency smuggling. Another is the problem of "leakages" because of the fungibility of money allows investors to outflank the restrictions by using derivatives, and false documents or transfer pricing for international trade. Yet another is the problem of personal corruption or political patronage in the issuance of licenses for foreign exchange. Lastly there are the administrative costs and the economic losses from foregoing the foreign investment.

#### **IV. Comparison of prudential regulations and transactions taxes**

Transactions taxes, briefly stated, are small tax rates applied to transactions in foreign currency, securities, derivatives or possibly other items. Transactions taxes already exist in the U.S. and are applied to transactions in publicly traded securities; a similar fee is charged on the trading of futures and options by non-exchange members at futures exchanges (the fee pays the self-regulatory organization called the National Futures Association). Those taxes and fees are very, very small – less than one basis point or one-ten thousands of a percent of principal and they do not apply to all transactions. The transactions tax rates most usually proposed as remedies to volatile international financial transactions range between 0.20% and 0.05%. Although the rate is small, it would substantially raise transactions costs in markets where the bid-ask spread is four ten thousands of principle. It would potentially raise a large amount of revenue because of the very large number of international transactions in foreign currency and

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<sup>20</sup> Malaysia also set an important example by prohibiting foreign exchange swaps as part of their capital controls – the reasoning being that these transactions replicate foreign currency loans and thus capital flows.

other financial instruments. In order to be brief, the following is a list of goals, or intended benefits, of transactions taxes.

1. Reduce the volume for foreign exchange (or other) transactions, and thereby the volatility of foreign exchange rates (or other prices).
2. Reduce the volatility in other financial markets linked to the foreign exchange market.
3. Reduce the amount of speculation and the likelihood of a speculative attack on foreign currencies and other financial instruments.
4. Reduce the volume of speculative flows of “hot money” and other short-term investments.
5. Encourage long-term investment.
6. Raise substantial revenues for the potential use for development.

These goals are highly laudable, and they help explain why there are many supporters of this proposal. However, there are also many problems. They include political problems, administrative problems and whether the policy would in fact be effective as it claims.

1. Political problems include:
  - a. Many countries must join in order to avoid substantial leakages. The history of the growth of the Eurodollar market is an indication of the volume of transactions that can occur outside a system of national regulation.
  - b. Any effort to arrange such a tax treaty will have to overcome the incentives for free riders to refuse participation or to cheat once they agree to join.
  - c. A transactions tax will need to apply to a wide array of financial instruments, especially derivatives, in order to prevent substitution or “leakages.”
  - d. There are powerful vested interests that have yet to act in opposition to the tax.
  - e. There is powerful, if not overwhelming, opposition to any tax increase.
  - f. It will be difficult to direct the revenue for development purposes.
  - g. It will be difficult to convince nations, which raise the most funds to share or reallocate the revenue proceeds.
2. Administrative and enforcement problems include:
  - a. Enforcing the tax across national boundaries.
  - b. Keeping track of all foreign exchange (or other) transactions both domestically and across national boundaries (and thus across national jurisdictions).
  - c. Stopping the leaks through derivatives and other substitute transactions or through non-participating countries.
  - d. Enforce redistribution of tax revenue.
3. Problems with uncertain policy outcomes, which include:
  - a. It might reduce liquidity since it is essentially a tax on liquidity.
  - b. Reduced liquidity might in fact increase volatility of exchange rates or other prices.
  - c. It might fail to prevent speculation because in so far that speculation is motivated by expected movements in prices that would more than compensate for transactions tax.
  - d. It might further advance the U.S. dollar as the world currency.
  - e. It might fail to prevent or discourage carry trade, speculating on interest rate differentials.
  - f. It might fail to make debt repayment any easier, and in fact possibly more expensive.

## V. Conclusion: comparing dams and trolls to aqueducts and sewers

There are several proposals to reform the global financial architecture by controlling the quantity of short-term capital flows in order to increase the stability of financial systems around the world and reduce the vulnerability of developing economies to disturbances in those systems. These include capital controls such as the Chilean style speed bumps for short-term capital inflows or the strict controls practiced by the Malaysian government. They also include “sand in the gears” policies to slow down cross border transactions by imposing transactions taxes such as the Tobin Tax proposal. These approaches put the government into the position of constructing a **dam** to restrict the volume of capital flows or put it in the role of a **troll** to tax flows over the international bridge or through the lock in the dam.

The goal of this approach is not to *directly* control the quantity of capital flows, but rather to influence the speed and direction, as well as shape the *quality* of these flows, through a policy of incentives and restrictions. In doing so it will undoubtedly impact the quantity – and that may well be a good thing – but it will do so by discouraging and restricting certain forms of capital flows that have proven destructive in the past. In this way, the approach can be characterized as shunning the construction of dams and in their place erecting *aqueducts* and *sewers* in order to make distinctions between the type of flows and to channel flows towards, and alternatively away from, the needs of developing economies.