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**Controlling Dangerous Financial Products through
A Financial Pre-Cautionary Principle**

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Abstract

High risk, opaque, and extremely complex financial products such as collateralized debt obligations (CDO)s and credit default swaps (CDS) have been among the key causes of the worst economic crisis since the Great Depression. Regulators, buyers, and even many issuers of these investor or capital market products (as distinct from consumer products) did not understand how they worked in calm times, much less in times of extreme market stress. Not only have these products helped cause the crisis but they have also made the crisis extremely difficult to resolve. In response, building on the analogy of the Food and Drug Administration (FDA), a number of analysts have proposed a requirement that financial products be approved by a government regulatory authority **before** they can be marketed. Crotty and Epstein (2009a, b) have termed this a *financial precautionary principle*.

In this paper we outline how a financial products regulatory authority which, we call for purposes of exposition the *Financial Stability and Product Safety Administration (FSPSA)*, would work. The key idea behind the *FSPSA* is that financial products must be approved before they can be marketed and should be subject to continuing evaluation and monitoring combined with enforcement mechanisms over the life cycle of these products. We argue that the agency will contribute significantly to reducing four of the problems that have been at the root of the current financial crisis. In response to the claim that this will reduce the rate of financial innovation, we show that a large portion of "financial innovation" are ineffective, or used for tax and regulatory evasion. The recent crisis also demonstrates that some can be extremely dangerous.

I. Introduction

Two years in, the global financial crisis that started in the U.S. subprime sector and broader financial markets is deepening and spreading throughout the world, has turned into a full-blown economic crisis. Pressure from the public for answers and reform is becoming especially intense, as taxpayer anger over multi-billion dollar financial "bail-outs" approaches the boiling point.

Most economists agree that one of the factors at the heart of the crisis was the creation and sale of new financial products, an alphabet soup of highly complex, opaque, and ultimately toxic securities and derivatives, including Asset Backed Mortgages (ABMs), Collateralized Debt Obligations (CDO's), Asset Backed Commercial Paper (ABCP), Credit Default Swaps (CDS) and many others. (For descriptions and these securities, see, for example, BIS, 2005a, 2008). An example of these problems are collateralized debt obligations of asset backed securities (so-called CDOs of ABS). According to analyses reported in the *Financial Times* (FT), almost half of all these credit products ever built out of other securitized bonds have now defaulted, and of those issued in the last few years of the credit boom, almost two-thirds are in default (Paul J. Davies, "Half of all CDOs of ABS Failed", *Financial Times*, February 11, 2009, <http://www.ft.com/cms/s/0/ddaa47f4-f79b-11dd-a284-000077b07658.html>). According to the *Financial Times*, "these defaults have affected more than \$300 billion worth of collateralized debt obligations which were built out of bits of other asset backed securities such as mortgage bonds, other CDOs, structured bonds, or derivatives based on these." These have caused huge losses to major banks and have been one of the key factors driving these banks toward insolvency. These losses, which have been obscured by the complexity of these securities, also explain why financial institutions were reluctant to lend to each other: they have not known the status of these assets on various banks' balance sheets and so have not been able to assess the health of those banks. This led banks to hoard cash and tighten lending standards and reduce credit to the real economy, thereby adding to the contractionary pressures that engulfed the world and, indeed, still have a stranglehold over key parts of it. It is also increasingly recognized that "credit default swaps" (CDSs), unregulated over-the-counter (OTC) "insurance instruments" that were turned into complex means by which banks and others could gamble on security failures, have enormously complicated the winding down of debt positions and may be one of the key reasons the crisis is so difficult to resolve. (See for example, Newsweek, 2008 and Whalen, 2009).

Now, top officials from the very banks that wrote and bought these products agree with this assessment. A top group of bankers from large financial institutions such as Lehman Brother, Citi, Bank of America and others that make up the Counter-Party Risk Management Policy Group, (CRMPG) published a report in August 2008 (a month before the collapse of Lehman Brothers) containing the following assessment of the role of financial products in the crisis:

"... throughout the credit market crisis, the behavioral characteristics of several classes of structured credit instruments have accounted for a significant fraction of the write-downs and losses incurred by large integrated financial intermediaries, hedge funds,

specialized financial institutions and other market participants. Moreover, there is almost universal agreement that even with optimal disclosure in the underlying documentation, the characteristics of these instruments and the risk of loss associated with them were not fully understood by many market participants. This lack of comprehension was even more pronounced when applied to CDOs, CDOs squared, and related instruments, reflecting a complex array of factors including a lack of understanding of the inherent limitations of valuation models and the risks of short-run historical data sets. As a consequence, these instruments displayed price depreciation and volatility far in excess of levels previously associated with comparably rated securities, causing both a collapse of confidence in a road range of structured product ratings and a collapse in liquidity for such products" (CRMPG III, 2008).

Yet, regulatory authorities were and mostly remain committed to self-regulation of financial institutions and products. To be sure, it is now increasingly recognized that lax standards, excessive leverage, high concentration of risks, complex interactions among products and institutions, and major maturity mismatches, were key factors in causing the crisis. But less recognized is that complex, risky and opaque financial products themselves were key transmission and enabling mechanism of a number of these problems themselves. For example, financial products such as CDOs and CDOs-squared embedded within their structures very high leverage. This leverage in products interacted with opaqueness which made it difficult for regulators, investors, or the issuing banks themselves to understand them. They were financed by short term borrowing even though they were long term products and became even longer term when they became illiquid in the crisis. And they made it easy to obscure and avoid financial regulations that had been themselves a weak line of defense against crisis. They were thus key transporters of leverage, riskiness and opacity throughout the system. Hence, regulating these products, and not just the financial institutions, is important to protect overall financial stability.

This raises the key question addressed in this paper: What is the best way to prevent these toxic securities from infecting the financial blood-stream in the future?

The Argument

In an earlier paper, we proposed as part of a nine point program of regulatory reform that we should institute a "Financial Precautionary Principle."¹ Under this financial precautionary principle, financial innovations would be prohibited unless those issuing them got permission to do so (Crotty and Epstein, 2009a). To get permission to sell these products, those issuers would have to provide evidence that these products were safe, both to those buying them, and to the overall financial system as a whole. This "Financial Precautionary Principle" would reverse the

¹ We use the term 'precautionary principle' somewhat loosely as it has many different definitions and disputes associated with it. Wikipedia's useful article defines it this way: "The **precautionary principle** is a moral and political principle which states that if an action or policy might cause severe or irreversible harm to the public or to the environment in the absence of a scientific consensus that harm would not ensue, the burden of proof falls on those who would advocate taking the action." Versions of the precautionary principle have been recognized by UN agencies, European Union Law, and many other places. But, as far as we know, it has not been widely applied to finance. http://en.wikipedia.org/wiki/Precautionary_principle

existing practice in the U.S. by which firms are allowed to issue these products unless they are explicitly prohibited from doing so.

The basic idea of a financial precautionary principle is quite simple: it is important to establish a level of risk tolerance and to take definitive actions to try to ensure that that risk tolerance is not breached, by placing the burden of proving the products are safe on those wanting to sell them. The Obama/Geithner financial reform blueprint proposes the creation of a new "Consumer Financial Protection Agency" (CFPA) which might embody some "precautionary" components with respect to consumer products. But it avoids any such regulations concerning investor products.

A number of economists spanning a wide range of political persuasions have suggested that financial innovations should be more carefully tested and regulated both **before** and **after** they get into circulation. These include economists like Nobel Prize winner Daniel McFadden, and Martin Hellwig, and many others including Dani Rodrik, George Soros, Robert Wade and Nobel Prize winner Joseph Stiglitz.

Rationale for a Financial Precautionary Principle

The lessons from the current crisis make it clear that these suggestions are on the right track. As much of the discussion over the last year has made clear, many warnings, going back several years, were available to regulators about the great dangers of current financial practices. But these were not acted on for a number of key reasons,² as a recent Government Accountability Office Report makes clear (GAO, 2009b):

1. A number of the financial products and practices were too complex to be understood by the banks themselves or by the regulators. Many regulators of large complex organizations reported that they did not understand, for example, how quickly liquidity would evaporate until after the crisis began. This stemmed partly from the complexity of these products, and partly from the willingness of the regulators to accept at face value the risk assessments of the bankers themselves.
2. Very little of the regulation that was in place directed regulators to look at the riskiness of particular financial products as they spread throughout the system, so they could not understand the extent or how quickly they would undermine the solvency of financial institutions if a crisis period began.
3. Even when they understood that there were some risky practices and products, the regulators did not have the enforcement tools available to stop the sale of these products or have them recalled.
4. Even where the regulators did have stronger enforcement mechanisms available, they did not use them. This was partly due to regulatory capture; partly due to the bluntness of the instruments they did have available and the absence of a norm or confidence in using them to oppose the large financial firms especially in a period of financial boom. That is, regulators are

² See GAO, 2009b, for a number of revealing examples.

subject to the same pro-cyclical processes as the banks they regulated. In the upturn, most bankers – and the regulators who regulated them – became over-optimistic and those who were out of step and issuing warnings, were thrust aside.

While Joseph Stiglitz has gone further than others and has laid out a useful general framework, despite the increasingly widespread discussion of institutions to regulate dangerous financial innovations, no one has provided a detailed description of how such regulation should be structured. This paper attempts to begin filling this gap. We develop here the outlines and rationale for a *Financial Stability and Product Safety Administration* (FSPSA) that will test and approve (or deny) the marketing of new financial products. In doing so, we outline the case for strict regulation and monitoring of new financial products both *before* and *after* their introduction into the economy; we will discuss how such regulation should be designed, drawing on analogies with the FDA, and somewhat ironically, risk management practices currently proposed by groups of bankers ((eg. CRMPG, 2008; COSO, 2004) and government analysts and regulators (BIS, 2008; Government Accountability Office, 2009a, 2009b). We propose the FSPSA title and structure just for the purposes of exposition. Obviously, the precise name of the institution, whether it should be lodged in another institution such as the Federal Reserve or a new regulatory institution – or whether it should be free standing like the FDA – is a complex matter than will depend on the overall structure of financial reform as it develops. The main focus here is on the *functions* such an institution should perform and how it would perform these functions rather than on the institutional structure within the overall regulatory scheme.

Outline of Our Paper

The rest of the paper proceeds as follows: Section II briefly describes experiences in other countries that have implemented a "financial precautionary principle" for new financial products, emphasizing the experience of India a highly successful example of a financial precautionary principle. Section III describes how a financial precautionary principle could work by describing the operations of the the Financial Stability and Product Safety Administration (FSPSA). Section IV addresses a key potential criticism that is likely to be raised against such regulation, namely the concern that it will stifle valuable financial innovation. Section V concludes.

II. Previous Experiences with Financial Product Regulation

There are important precedents for the implementation of a financial precautionary principle that have been quite successful. In the early post World War II period in the U.S., financial product regulation was implicitly embedded in the whole structure of financial regulation. This regulation was based on strict functional segmentation of financial institutions and strict regulation of activity based on the institution's function. (See D'Arista, 1994; Wolfson, 1993). So, for example, limits on interest payments on deposits prohibited banks and savings and loans from offering deposits that paid interest rates above the "regulation Q ceilings". The sale of money market mutual funds had to be approved by the regulatory authorities.

Various regulations limited the issuance of securitized mortgage securities in the 1980's. It was not until these regulations were altered that these securities could be sold on a wide scale (D'Arista, 1994, ch. 7). Where trading occurs on exchanges, the organizers of the exchange had the authority to limit the nature and types of products traded. (D'Arista, 1994, Ch. 7).

Yet, even though there were diverse check points on financial product creation in the regulatory system of the 1930's – 70's, there was no over-riding financial products safety commission who's job it was to assess the safety of financial products. Financial innovations were allowed unless they were prohibited, and as innovation and de-regulation proceeded in the U.S. during the 1980's and 1990's, there were fewer check points, ex-ante or ex-post to assess the private impacts of financial products, much less the public ones.

Still, some other countries have had much stricter control over the creation of new financial products: these include Malaysia, India, China and Spain. While these countries, like most, have implemented financial liberalization over the last several decades, they have retained some degree of significant oversight over the introduction of new financial products. In this paper, we describe one important precedent, that of India.

India³

The case of India presents an extremely interesting example of a successfully implemented financial precautionary principle for new financial products, a system that was defended and developed to a significant extent by former Governor Y.V. Reddy. Prior to the recent financial crisis, Mr. Y.V. Reddy was vilified by the financial sector, many economists, and the financial press for strong regulations on new financial products that the critics said stifled innovation and were preventing India from entering the 21st century in financial innovation. But after the financial crisis, when India escaped some of the worst fall-out that gripped the United States, the UK and other financial centers, Mr. Reddy was widely lauded as a financial genius and hero.

According to Governor Reddy, Banks can carry out only those activities that have been permitted to it under Bank Reserve Act, 1949. Under the act, if "engagement in some products is clearly prohibited, banks cannot deal with such products. For example, structured deposits are not permitted. In case banks engage in financial products which have neither been specifically allowed nor specifically prohibited, there are no well laid down rules as to how we would react to that. While launching any product, normally banks would seek our prior approval as they would want to play safe in case the prohibition surfaces in some regulation later on which banks may not be aware."

The degree of prior approval required depends to some extent on whether the products are over the counter (OTC) or whether they are exchanged on markets.

With respect to OTC products, Reddy notes that "Banks often ask RBI for a prior approval but RBI is generally averse to giving it since it is difficult to assess its efficacy and safety in advance. RBI does not want to issue a formal approval unless it is confident of its efficacy."

³ This section draws almost entirely from private communication from Mr. Y.V. Reddy, former Governor of the Reserve Bank of India and Mrs. Shyamala Gopinath, Deputy Governor, Reserve Bank of India, who very generously gave of their time and expertise in describing India's financial regulatory framework. Also see (Reddy, 2008)

The Reserve Bank of India has thus been reluctant to appear to "endorse" the safety and effectiveness of products that they do not or cannot fully analyze. However, according to Reddy, "if RBI is patently uncomfortable, the banks are advised not to offer such products or safeguards and guidelines are issued for such products, as what may be called a pre-cautionary measure. There is close monitoring of any such product so that additional safeguards could be considered. Sometimes banks do offer such products without prior approval of RBI, and based on its performance, guidelines are issued by RBI. This gives scope for innovation but keeps the rights of intervention with RBI."

In short, with respect to OTC products, there is a presumption that banks will approach RBI for approval; the RBI will not approve products it believes are clearly harmful. As for others it will issue guidelines and safeguards. Moreover, it will continue to monitor products and revise safeguards and guidelines as warranted.

The guidelines and safeguards can be quite strict and can involve specifying the issuance, trading, accounting aspects etc. of the products. For example:⁴

With respect to rupee interest rate derivatives, only certain types of derivatives are allowed (i.e., forward rate agreements, interest rate swaps, and interest rate futures) The guidelines clearly enunciate the broad principles for undertaking derivative transactions : "Any derivative structure is permitted as long as it is a combination of two or more of the generic instruments permitted by RBI and Market-makers should be in a position to mark to market or demonstrate valuation of these products based on observable market prices. Further, it is to be ensured that structured products do not contain derivative(s), which is/ are not allowed on a stand alone basis. This will also apply in case the structure contains 'cash' instrument(s). All permitted derivative transactions shall be contracted only at prevailing market rates."

The restriction on cross-currency transactions is especially cautious, sensible and restrictive: Banks can only offer complex derivatives if it has an "underlying exposure on account of commercial transactions". In other, naked CDS's and other speculative derivatives tied to capital account speculation have not been allowed. In the case of dollar-rupee derivatives, the only types of derivative that are permitted are: Foreign Currency Forwards, Currency Swaps, and Currency Options. Here too is the requirement of an underlying transaction for entering into a hedging contract is unique to the Indian derivatives market which is unique to the Indian market. Gradually the concept of underlying is being liberalized.

Structured Credit and Credit derivatives

Securitization in India has been in existence for over a decade but until recently were confined mainly to a few banks and non-banking finance companies. Both mortgage backed securities and asset-backed securities have been in vogue.

According to the RBI: "In the light of the differing practices followed by banks in India and certain concerns on accounting, valuation and capital treatment, the RBI issued formal guidelines in February 2006 after extensive consultation with market participants. The guidelines are largely in line with those issued by other supervisors internationally and envisage the following:

⁴ Thanks to Mrs. Shyamala Gopinath, Deputy Governor, Reserve Bank of India

- 1) Detailed set of guidelines to ensure 'arms' length relationship between the originator and the Special Purpose Vehicle.
- 2) Credit enhancements provided by the originator for first as well as second losses to be deducted from the capital.
- 3) Any profit/premium arising on account of sale not allowed to be booked upfront and is to be amortized over the life of the securities issued or to be issued by the SPV.
- 4) Provision of liquidity facility to be treated as an off- balance sheet item and attract 100% credit conversion factor as well as 100 % risk weight.
- 5) Disclosure by the originator, as notes to accounts, presenting a comparative position for two years:
 - a) total number and book value of loan assets securitized;
 - b) sale consideration received for the securitized assets and gain/loss on sale on account of securitization;
 - c) form and quantum (outstanding value) of services provided by way of credit enhancement, liquidity support, post-securitization asset servicing, etc.

Restrictions on Creating New Markets

With respect to creating new markets, the role of the RBI is even stricter. "As regards, financial markets it is generally necessary for participants to get the prior approval." Moreover, "the approvals given often carry safeguards and guidelines." In addition, the RBI does not uncritically accept self-regulation by banks or banking associations. Says Reddy, "While codes of conduct or self regulatory guidelines are recognized, RBI's guidelines specify the extent to which reliance can be placed on such code of conduct." Moreover, the guidelines are not "toothless" documents. While they do not have the legitimacy or rigidity of directives they are nonetheless binding unless there are extenuating circumstances. Says Reddy: "In case of disputes, both the regulator (RBI) and courts of law give weight to guidelines."

Lessons from the Indian Case

The RBI approach to regulating derivatives and other complex financial products is instructive:

1. There is a strong presumption that entities should get permission before selling new financial products. This presumption is even stronger for those wanting to create new markets.
2. The RBI reserves the right to ban products they are convinced will be harmful, but refrain from endorsing other products out of concern that will be considered to be placing a stamp of approval on a product they are not certain is effective and safe.
3. If the RBI does not ban a product, it often imposes restrictive requirements and safeguards and will continue to monitor the impacts of the product over time.
4. These safeguards and restrictions involve a broad range of elements: they include limits on who can issue the products and who can buy them; the conditions under which they can be issued (eg. there has to be an underlying commercial risk); restrictions on price transparency and risk management by the issuers and buyers; safeguards to insure that more dangerous products are not created in the guise of simpler products; the capital required to back up the issuance of products.

5. These guidelines and safeguards have teeth: i.e., they have some standing in regulatory rulings and in court.

Conclusion

A number of countries that have notably escaped the worst of the financial crisis had financial regulations which embodied aspects of a financial pre-cautionary principle contributed to these relatively good outcomes. Using the India analogy in particular, we see that there are two approaches to accomplishing this. The RBI approach emphasizes tighter capital requirements on risky products, guidelines and monitoring, along with occasional bans.

These principles could be implemented by the major financial stability regulator, such as the central bank. Or these principles could be embedded in a separate agency, such as a Financial Products Stability and Product Safety Administration (FSPSA) described below, which would implement a more elaborate system of tests and monitoring. This second approach we discuss in more detail presently.

III. Implementing the Financial Stability and Product Safety Administration: Structure and Function

Building on the FDA analogy, and drawing on actual practice in other countries as well as detailed prescriptions by bankers and regulatory authorities, we outline a viable set of procedures for implementing a *financial precautionary principle* which would be administered by the FSPSA.

Financial Product Testing, Approval and Monitoring Stages

This section describes the stages of financial product testing, approval and monitoring.

Step 1: Pre-marketing Testing and Approval

The sponsoring financial institution will submit an application to market a new financial product. It will be required to pay a significant fee that will fund the cost of testing. The sponsor will provide a ***Safety and Effectiveness Statement***, which will include comprehensive information concerning the nature of the product, the marketing plan (eg. to whom it will be marketed, etc), what the functions of the product are and then evidence that the product will serve these functions. In addition the sponsor will provide results of safety tests based on its internal models, including the structure, inputs and assumption guiding these models. Unlike current practice, however, the models cannot be proprietary. They must provide the FSPSA with full code information about the models, because the FSPSA (and/or its advisory experts) will need to be able to replicate the studies and understand their meaning.

In addition, the sponsor will also be asked to provide information for and fill out a ***Financial Stability Impact Statement***. Whereas the ***Safety and Effectiveness Statement*** will focus on the risk impacts on the sponsoring institution and on the buyer of the financial product,

the *Financial Stability Impact Statement* will focus on the impact of this product on the financial stability of the system as a whole taking into account not only the impact on the buying institutions, but on how stresses to the system can lead to interaction effects through asset prices and liquidity to affect the whole system. Of course, each sponsor will not have all the knowledge necessary to fully address this issue, but their inputs will be crucial for the FSPSA's analysis. The FSPSA will take these data and analyses and subject them to their own tests, rather than simply taking them at face value from the sponsors. The FSPSA will use a combination of in-house experts and outside experts to analyze these models, inputs, and data. (See more discussion of outside "experts" below).

What should be the level of acceptable risk?

This is a key question that is very complex and must be subject to widespread discussion as it is in other areas including public health, Food and Drug laws, environmental regulation, among many others. Still, several specific aspects of this issue deserve attention here. First is the tendency for regulatory enforcement to become more lax as financial booms occur. As Orace M. Williams, GAO's Director of Financial Markets and Community Investment noted in recent Senate Testimony: "Responsible regulation requires that regulators critically assess their regulatory approaches, **especially during good times**, to ensure that they are aware of potential regulatory blind spots." (GAO, 2009b, p. 30, (emphasis added)). One way to contribute to this is to have countercyclical maximum risk levels embedded into the structure of the FSPSA. In boom times, new products have to demonstrate a lower level of risk to be approved and continued, than in bust times. This would work against the natural tendency to be over-optimistic and subject to industry influence in boom times, and to the over-shooting of pessimism in bust times.

Second, in light of the inherent problems with risk management models discussed below, the maximum level of acceptable risk should only be raised as the models and other analytical tools for both creating the *Financial Safety and Effectiveness Statement* and even more importantly, the *Financial Stability Impact Statement*, are significantly improved as verified by the FSPSA and outside experts.

Increasing Capital and/or Liquidity Requirements

One approach to dealing with financial products that have been evaluated as a high but acceptable risk, is to impose higher capital and/or liquidity requirements and stronger reporting requirements on these products. This is a model apparently followed by the Spanish and Indian regulatory authorities and can be implemented by the FSPSA as well. (Crotty and Epstein, 2009a).

Determining Safety and Effectiveness at the Institutional and System-Wide level

The major means up to now for trying to determine the safety of complex financial products have been the computer models developed by the ratings agencies and by the banks in order to satisfy the Basel Capital rules. Many of these models are called Value At Risk (or VaR models). (Crotty, 2008). These have been shown to have been inadequate for testing risk, and, as Crotty shows, they can actually NEVER be a sole indicator of safety. To try to deal with some of these

liquidity and interaction effects analytically, some researchers have suggested a modification of the VAR analysis, for example a CoVaR analysis. (Adrian and Brunnermeir, 2008). CoVar is defined as the value at risk of financial institutions, assuming that other institutions are in distress.

Note that these data problems are even more severe with new securities since there may be no data directly applicable to the performance of these securities under stress. The firms themselves, and the ratings agencies, currently use models to try to test these securities in order to develop and market them.

Stress Tests and Reverse Stress Tests

A central problem associated with VaR and CoVar analysis is the fact that they rely on data from the past which, as we have pointed out, do not necessarily give a good indication of the actual risks involved with current products and practices.

Stress tests could help to remedy some of these problems as they are based on simulation modeling rather than exclusively on actual data. For example, they can be used to try to assess what would be the impact on the solvency of an institution or a product if there were an extreme event, such as major downgrades of counterparties in trades. (BIS, 2009). The BIS has recently published suggested best practice approaches for conducting these stress tests. Another tool that is available is reverse *stress tests*. (BIS, 2009; CRMPGIII, 2008). In these tests, the analyst starts with the assumption that an event could jeopardize the solvency of a firm, and then look at what kinds of products and practices would lead to that.

Another tool to study the effects of new products, would be to use stress testing to estimate how financial institutions and individual products will behave in response to extreme shocks, including shocks where other institutions are subject to the same shocks and therefore overall market liquidity and counter-party solvency is affected. To study the safety of new products, for example, stress tests could be applied to systems both with and without the existence of these products, and under varying assumptions about the nature of the distribution of these products throughout the financial system. The level of system risk created by these products under various degrees of distribution and types of shocks can then be assessed.

Here too the FSPSA could build on guidance and practices that have been or are being developed. The BIS notes in its recent guidance that supervisors should: 1) Make regular and comprehensive assessments of banks' testing programs. 2) Require management to take corrective action if material deficiencies in the stress testing program are identified or if the results of stress tests are not adequately taken into consideration in the decision-making process. 3) Ask banks to use specific scenarios under which their viability is threatened. 4) Ensure that they have the capacity and the skills to assess banks' stress testing programs (BIS, 2009, pp. 21 – 23.). Thus even the extremely timid BIS is willing to promote much more aggressive regulatory supervision of risk testing and also has developed check lists of what needs to be done.

Assessing the Effectiveness and Social Value of Products

It has now been demonstrated that passing a short-term "market test" is insufficient to demonstrate the social value (and often even the private value to the customer) of a financial product. Hence, the FSPSA must also assess products for their social efficiency (See Tobin, 1984, for an excellent definition of the social efficiency of financial institutions and products.) Complex models are unlikely to be as useful here as serious analytical work carried out by knowledgeable, objective experts. Financial engineers and economists are capable of assessing whether financial products are likely to contribute to true efficiency enhancements, and the only issue will be to make sure that they are giving their objective, expert opinions, rather than opinions tainted by financial involvement with the financial products firms. (Partnoy, 2003; Dad, 2006; Bookstaber, 2007).

The Bottom Line: Just say No

Given all these data and modeling problems, the key rule for the FSPSA should be this: if the product is too complex to understand with a relatively high degree of certainty as to how it will function in normal times and especially in times of stress, then it should NOT be approved until it is well understood. In less extreme cases where the likely benefits are high, it should only be approved with very strict limitations and follow-up requirements, including possibly high liquidity and/or capital reserve requirements. In other words, the rule should be that if the tests are insufficiently clear and the assumptions insufficiently sensible, and the results murky or negative, then the product should not be approved, unless it can be proven by the sponsor that the social benefits far outweigh the risks.

Post-Marketing Testing, Monitoring and Assessment

As with drug approvals, the FSPSA can refuse to allow the product to be marketed on the grounds that it is ineffective or unsafe, (with full explanation and an appeals process in place); it can ask for more data or tests; it can approve the product but insist on higher capital and/or liquidity requirements; it can limit the distribution of the product to certain institutions or types of investors and/or in certain quantities; and impose certain production information and product safety instruction requirements, including labeling. In the latter case, for example, it can insist that the sponsor provide information sessions for those buying the product to insure they fully understand them. In virtually all cases, the FSPSA will impose a post-marketing plan through which the sponsor (and/or the exchange on which the product is sold) will provide key information concerning the distribution of the product, price specs, default or liquidity problems associated with the product, and so forth. For products which are highly risky or uncertain but, for some reason were approved anyway, there may be a short trial period imposed after which time the approval must be renewed. All products will have a sunset date by which time re-approval will be necessary (see below).

Sunset Stage and Re-Approval

The approval of all highly complex financial products should have a sunset provision requiring them to be re-certified after a certain period of time. Over that period, the post-marketing data gathering, testing and other procedures will have been followed and then will be incorporated into the analysis in a systematic fashion. Without re-approval, the product can no longer be

marketed. In extreme cases, if the product is found to be extremely dangerous, then measures may be need to be taken to swap out the outstanding stock of assets, with appropriate penalties imposed on issuers and buyers, so as to avoid moral hazard problems in the future.

Staffing the Approval and Monitoring Process: Internal and External Expertise

Protecting the economy from dangerous products while allowing truly socially valuable financial innovations to develop will require sufficient numbers of skilled and appropriately motivated experts to assess the safety of financial products and to develop better mechanisms for assessing their safety. Some of this expertise will be developed within financial institutions themselves (and related consulting operations who sell such knowledge based services to these institutions). But the FSPSA must also have adequate numbers and quality of personnel – in house and externally from universities, think tanks and elsewhere – who can also contribute to the evaluation and monitoring of risk.

Staffing issues and the use of outside consultants and advisors is also a constant concern of the FDA. Issues related to possible conflicts of interest with respect to outside consultants and advisors are especially problematic. In the field of drugs, many scientists, even from academia, are also consultants for pharmaceutical companies. Similarly, many academic experts in finance have developed financial consulting practices, or own significant shares in financial institutions, or receive research grants from financial institutions to help develop new products.

Part of the solution is to develop conflict of interest guidelines for all outside experts. In addition, however, the FSPSA may have to try to encourage the development of more objective academic experts to help analyze these financial products, and, as we discuss below, develop new and improved means of assessing the safety and social effectiveness of financial products.

Improving Knowledge of Financial Product Effectiveness and Safety

The Institute of Medicine Report on the FDA noted that there is a paucity of scientists trained in the skills to test the safety of new drugs or to develop improved methodologies for assessing drug safety. (IOM, 2007) They recommended that the FDA help underwrite research and training for scientists in these areas. Along similar lines, the FSPSA may need to develop incentives and training opportunities for economists to develop skills in risk assessment and new methodologies for assessing the safety of financial products. These could include for example: 1) Sponsoring a high quality refereed journal where academics could publish high quality and innovative research on financial safety assessment; 2) Grants for young scholars to carry out such research and develop new methodologies; 3) One or more prestigious conferences each year where scholars can present and get feedback on research in this area. These would be relatively cheap ways to develop "expert citizen watchdogs" to help develop a cadre of experts who are not beholden to the financial interests and will be able to develop an objective analysis of such products.

Burden Will Ultimately Be on the Financial Product Developers Themselves

Ultimately, however, the burden of proof for demonstrating the safety of financial products will be on the financial institutions who want to sell the products. In fact, that is the whole point of

the financial precautionary principle: to shift the burden to those wanting to market and profit from the products. With a high bar raised for product approval, the financial institutions themselves will have to invest heavily in financial risk assessment and new methodologies for improved analysis.

IV. Would a Financial Precautionary Principle Stifle Financial Innovation?

Opponents of stricter regulation over the marketing of new financial products will object that this will reduce the pace of useful financial innovation. We address this concern by looking more closely at the nature of financial innovation and evidence of its impacts on the economy. Below we show that: 1) Even as a theoretical matter, there is no presumption that "financial innovation" will create increases in societal welfare 2) There is very little empirical evidence that more financial innovation is associated with higher rates of productive investment or economic growth 3) There is evidence that a good deal of financial innovation is motivated by tax or regulatory evasions, or by redistributing income among stake-holders, rather than increasing efficiency or making financial markets more complete.

Definitions and Functions

Peter Tufano's classic review of financial innovation defines the term this way:

"Broadly speaking, financial innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets." (Tufano, 2004).

Some economists distinguish between "financial innovation" and "financial engineering." (Finnerty and Emery, 2001). They define financial engineering as crafting innovative products to solve financial problems, but argue that these are only *truly* innovative if they create more efficiency or reduce the "incompleteness" of financial products. This distinction, of course, hints at the key issue addressed here: the idea that some financial "innovations" may not add to efficiency or might be too dangerous, and therefore might need to be more highly regulated or prohibited all together.

What Functions do Financial Innovations Serve?

In the most comprehensive studies to date, John D. Finnerty and his colleague have created a list of securities innovations organized by type of instrument and function/motivation of the issuers: debt, preferred stock, convertible securities, and common equities) (Finnerty 1988, 1992, 2002). Finnerty's initial study (Finnerty, 1988) dealt with both consumer and corporate financial innovations and listed eleven motivations/functions: (1) Tax advantages, (2) reduced transaction costs, (3) reduced agency costs (4) risk re-allocations, (5) increased liquidity, (6) regulating or legislative factors, (7) level and volatility of interest rates, (8) level and volatility of prices, (9) academic work, (10) accounting benefits and (11) technological developments.

In his later work, Finnerty reduced the functions to six:

(1) reallocating risk, (2) increasing liquidity, (3) reducing agency costs, (4) reducing transactions costs, (5) reducing taxes or (6) circumventing regulatory constraints. One should add two other motives: first, firms have a motive to create a proprietary innovation that is complex and murky enough to give it proprietary advantages for at least an initial period of time (Tufano, 2002; Das, 2006). We will call this (7) the "proprietary" or "redistributive" motive. An eighth motive, implicitly proposed by James Tobin, is to open new ways to gamble on trends or to limit losses when such gambling occurs. We will call this the (8) "casino motive." Clearly, many of these have nothing to do with reducing transactions costs or increasing social efficiency.

Table 1 uses the three Finnerty studies to calculate that number and percentage of innovations that are at least partly motivated by tax, accounting and/or regulatory "arbitrage" or "evasion." Our estimates reveal that roughly one-third of these "innovations" are motivated by these factors, rather than simply efficiency improvements. This estimate, in fact, is almost certainly a gross under-estimate of innovations motivated by tax and regulatory arbitrage, since Finnerty (and Emery) presented a selected set of innovations which they suggested would have "staying power" due to their "addition to value." Their list is not anywhere near a complete list of new types of securities.

Table 1

Financial "Innovations" Motivated by Tax or Regulatory Evasion

Study	Total Number of Security Innovations (1)	Number motivated at least partly be tax or regulatory reasons (2)	Percentage of total innovations motivated by tax or regulatory reasons (2)/(1) x 100 (%)
Finnerty, 1988	103	45	44
Finnerty, 1992	65	21	34
Finnerty and Emery, 2002	80	25	31

Sources: Finnerty, 1988; Finnerty, 1992; Finnerty and Emery, 2002 and authors' calculations.

Indeed, Tufano (2002) reports a much larger number of innovations than suggested by the Finnerty, et. al. He suggests that it is likely that a much larger percentage of new products are implemented for tax, accounting, regulatory, casino and redistributive motives than are indicated in this table.

A look at the list of the major institutions that have been undertaking the creation of new financial products in recent years does suggest that the benefits of these innovations might well be overblown. Tables 2 and 3 are based on a study undertaken by Lerner (2006) who looked at *Wall Street Journal* articles to identify "financial innovations" during the period 1990 – 2002. Table 2 is especially revealing. Apart from non-financial organizations (IBM, Reuters, etc.) the list of top financial innovators is essentially the list of banks that, in the current crisis, have lost enormous amounts of money, and even become insolvent while contributing to the downfall of the global economy. This list itself should give pause about both the private and the social long-run value of these financial innovations. Table 3 reveals that most of these innovations are in the area of security underwriting and trading and in lightly regulated broker dealer firms (i.e., investment banks) and commercial banks (which is also reflected in Table 2). So most of the innovations in recent years are precisely in those institutions where most of the problems have been created. While this is only prima facie evidence of the lack of social value in these innovations, it does raise warning flags.

Table 2

Most Frequent Financial Innovators, 1990 – 2000*

Company Name	Number
Merrill Lynch	20
Citigroup	15
American Express	13
Citicorp	13
McGraw-Hill	13
Charles Schwab Corp.	11
Dow Jones	10
Morgan Stanley	10
Goldman Sachs	9
Bear Stearns	8
IBM	8
Reuters Group	7
Bank of America	6
Barclays	6
Chase Manhattan	6
J.P. Morgan	6

*Financial innovations were identified by searching a data base of *Wall Street Journal Articles*.

Source: Lerner, 2006.

Table 3

Breakdown of Innovations by Industry*

Total Stories by Year		Breakdown of innovations by types (%)		Distribution of Innovations by Industry (%)	
1990	48	Security Underwriting; Trading	33.5	Securities Brokers and Dealers	23.5
1991	61	Asset Management; pensions	26.2	Commercial Banks	22.3
1992	47	Combination of Classes; other	17.7	Other Non-depository credit institutions	8.2
1993	49	Retail/Mortgage Banking	11.6	Computer programming & related	6.7
1994	38	Credit Cards	5.2	Books	4.4
1995	29	Insurance	5.2	Newspapers	3.5
1996	34	Commercial Banking	0.6	Motor Vehicles and equip.	2.9
1997	54				
1998	49				
1999	55				
2000	74				
2001	55				
2002	58				

*Financial innovations were identified by searching a data base of *Wall Street Journal Articles*. Source: Lerner, 2006.

Theoretical and Statistical Evidence

While the list of "innovative" financial firms in Table 2 should raise concerns about the riskiness and social value of financial innovations, certainly more rigorous tests of the connection between financial innovation and economic outcomes, would be desirable. In other words, what is the impact of these financial innovations on the real economy? Are they associated with higher profits for the innovating firms? More importantly from a social point of view, are they associated with more investment, more rapid economic growth, or higher productivity growth? Do they reduce instability, or risk?

Unfortunately, there have been very few rigorous empirical analyses of this topic. As a theoretical matter, there is no presumption that more financial innovation contributes to higher social welfare. Complex mathematical analyses have shown that financial innovations, in principle, can either increase or decrease social welfare (Elul, 1995; Frame and White, 2004).

Empirically, there has been very little evidence provided on these key questions. Lerner (2006) does find that financial innovation raises the profits of the innovating financial firm, at least in the short run. But what about social impacts? Frame and White (2004) published a comprehensive survey of the determinants and effects of financial innovation. As their paper shows, there has been relatively little study of financial innovation. As a result, there is virtually

no evidence that financial innovations contribute to lower cost of capital, more investment, or higher rates of economic growth. Indeed, in light of the enormous costs associated with the current crisis, we have a great deal of emerging evidence on the high costs associated with some financial innovations. This contrasts strongly with the popular claims that financial innovations and "modern" financial systems greatly improve social welfare, or that attempts to regulate such innovations will undermine economic well-being.

VI. Conclusion

We have outlined the rationale for a financial precautionary principle to regulate financial products and suggested two mechanisms to implement these regulations: 1) a financial precautionary principle "lite", as very effectively implemented by for example, the Reserve Bank of India and 2) a more elaborate set of testing procedures, monitoring and re-testing, as embodied in an institution like the FSPSA. Some may object that our proposed FSPSA will be corrupted by capture: the financial institutions that can profit from these new products will eventually use their financial and political muscle to erode and eventually destroy these regulations.⁵ This is a great danger. There is also the risk that the resolve to limit harmful products will erode as the financial markets boom again. The keys to avoiding these dangers are: 1) Heavy doses of democratic accountability of the regulatory process; and 2) Counter-cyclical, automatic tightening of financial product regulatory bite. In the boom, the acceptable level of risk of financial products must be lowered to reflect the over-optimistic projections and the increasing financial, political and cultural power of finance. Ways to accomplish this would be to implement automatic increases in capital and liquidity requirements for institutions and risky products in the upturn (see Crotty and Epstein, 2009a) and/or raise the minimum threshold safety rate and fees for new product approval as the boom proceeds.

Ultimately the only solution is to get money out of politics, and get more citizens in. This means putting more community members into more levels of governance and oversight, including oversight of the financial regulatory authorities. For that reason the FSPSA should have a **Community Oversight Board** made up of knowledgeable citizens to monitor the activities of the FSPSA. In the end, until we get regulators who are serious about regulation, until we give them the resources necessary to staff their administrations with enough skilled, competent and committed staff, and until we arm them with the legal and analytical tools to adequately regulate, then no institutional structure, no matter how appropriate its title or how rational its design will protect the public from the destructive practices of overly exuberant financial institutions, unethical financiers and the potentially destructive interactions of financial products and firms.

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