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# SEVEN PILLARS OF WISDOM

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# Seven Pillars of Wisdom

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*But for fit monument I shattered it, unfinished: and now  
The little things creep out to patch themselves hovels  
In the marred shadow*

*T.E. Lawrence*

#### **Abstract**

**The persistence of financial instability calls into question the adequacy of the current regulatory regime. A critical review of the three pillars at the core of current financial regulation exposes some structural flaws. Four new pillars are proposed and compared with measures proposed to shore up the current financial architecture.**

**1. Introduction.** Over twenty years ago the central banks of the main developed countries started in Basel a process meant to make financial markets safer and competition fair. The current crisis, described by Masera (2008), brings many observers (Barone-Adesi, 2008, Szego, 2009) to question the effectiveness of their efforts. Although preventing all financial crises was never the target of the Basel process, they feel that the Basel process may have helped make the current crisis worse, encouraging complacency and lowering safety standards to the level necessary to reach consensus. Much confusion may have been introduced by the need to formulate a regulatory framework vague enough to be applicable under the huge variety of conditions banks face in different countries. In spite of the personal commitment of participants, the result is reassuring at first glance, but quite disappointing on a closer look.

In the first section of this paper the main features of the Basel framework are discussed. We question in particular its capital requirements and the use of fictional risk measures in banking. They result from an unhappy compromise between the need of predictability of required capital and the ever changing risk banks face in the market place. To address this dichotomy we propose some additional measures that may provide stronger foundations for financial regulations. We hope that our study may help stimulate the debate about the future of financial regulation. There is in fact a growing consensus that some revamping of current regulation is necessary (Group of Thirty, 2009).

**2. The three pillars.** The Basel agreements are founded on three pillars: capital requirements, supervisory review and market discipline (Basel Committee on Banking Supervision, 2005). Their interplay is crucial to the good working of banking. Something obviously amiss at the beginning of the process was the convergence of banking, monetary and capital markets that occurred over the last twenty years. Over time a wide array of institutions has developed to provide credit, largely to escape the regulatory burden banks bear. Banks themselves provide a variety of new services, to the point where distinctions between banks and non-banks become blurred. Therefore a meaningful critique of current regulation must first make assumptions about the architecture of the financial system: is it meant to encompass all financial entities that participate in the

current system or is it predicated on implementing some alternative architecture, such as a return to the separation of commercial and investment banking?

The first route, analyzing the current system, is certainly difficult, perhaps hopeless. Financial innovation provides ever new ways to skirt or subvert hard rules. Therefore a regulatory system for a world dominated by innovation in products and institutional form must focus on incentive alignment rather than monitoring of formal compliance. The numerous fiascos related to executive stock options and bonuses show that incentive alignment is easier to wish than to implement. However, it is hopeless to think that financial innovation may be regulated before it is developed. Once it is developed, industry pressures prevent timely effective regulation. The only hope for improvement of the current system is therefore based on incentive alignment. The analysis of the three pillars reveals that troublesome fault lines are present in this alignment.

**Pillar 1: Minimal Capital Requirement.** Much of the current trouble and the difficulty of overcoming it can be linked directly to the first pillar, minimum capital requirements. Regulatory capital, being largely based on accounting entries, does not have much to do with economic capital. In fact, initial contributions are not marked to market, but at most adjusted for retained earnings or expected losses. The latter suffer because of the confusion between current value losses and expected future losses. This confusion is rooted on the wrong assumption, common in credit risk models used by the industry, that credit risk does not carry a premium. Investors are then supposed to behave toward credit risk events as if they were risk neutral, using objective probabilities to price these claims. This assumption contradicts all the literature on state price and price kernel estimation (Barone-Adesi, Engle and Mancini, 2008 and references there). If that literature is considered, it becomes apparent that risk cannot be related simply to default frequency, omitting the specification of states in which events are most likely to occur. Prices in well-functioning markets take those interactions into account automatically through risk premiums. Removing the marking of values to market creates, even in quiet markets, a wedge between value and regulatory capital that pushes managers to invest in the states with the highest risk that is not priced in search of regulatory arbitrage. In fact their compensation is usually tied to profits that they try to achieve with the smallest invested capital. Herding behavior ensures then that this risk becomes systemic. When, predictably, things go wrong, the ill definition of capital delays the necessary bank recapitalization.

The necessary amount of regulatory capital is reached under the Basel agreements by weighting asset classes by risk weights. These weights are calibrated on historical data bases. They do not take into account that market volatility changes through time and that the riskiest assets in each risk class may be sought by managers gaming capital requirements. Therefore capital requirements are doomed to be inadequate in periods of stress. In a crisis such as Bear Sterns, capital requirements may be satisfied long after economic capital and investors' trust has vanished. Perhaps current capital requirements provide a necessary initial commitment, but they are largely useless in regulating ongoing business. In practice, all the institutions find convenient to hold just the minimum regulatory capital. They move quickly from capital adequacy to forbearance in a crisis. Regulatory capital compliance becomes then just a guideline for forbearance policy.

The real systemic weakness of capital requirement from the perspective of control theory stems from their nonlinear interaction with regulatory capital. Capital requirements are either nonbinding at all, in good states, or simply unfulfilled. This nonlinearity destroys the predictability of the response of complex financial systems to policy initiatives, such as the TARF. In fact, banks that were to sell assets today, even above their market

values, could find themselves short of regulatory capital. That causes a logjam in asset markets, already illiquid because of buyers' aversion to uncertainty. The resulting impasse could have been prevented by regulation prescribing a more gradual response to declining capital. This is not allowed by some current proposals being currently considered. As an example, the Turner proposal, to require higher levels of capital in good times and lower requirements in a crisis, is unlikely to do more than institutionalize forbearance. It will leave banks with lower capital requirements in higher volatility environment and be likely to produce then the same nonlinear response of current regulation.

Current capital requirements are fetters on the workings of financial markets in times of stress. They cannot adjust to changing market risk without becoming procyclical (Brunnermeier et al., 2009), aggravating stress conditions. For this reason we attempt to introduce below, under pillar V, alternative devices to address changes in risk over time.

**Pillar II: Supervisory Review Process.** The main flaw with the second pillar is that it does not address incentives and skills of the relevant parties. Under most of current regulation, board members and senior managers are lumped together, which may be an accurate view of the current unhappy state of affairs, but ignores the needs of good governance. A strong board, independent of senior management and reflecting stockholders' interests, rather than clients', should be the first line of defense. Legal reforms to strengthen stockholders, such as not allowing managers to count silent stockholders as supportive, or allowing the CEO to chair the board, are necessary. A prohibition of loans to directors, as required by British law, should be extended to related parties and major stockholders. In such a framework it becomes meaningful that risk managers report to the board. Reports should encompass subsidiaries and also provide a view of risk for the consolidated group.

Supervisors are necessarily dependent on the know-how of financial institutions in the development and assessment of risk models, especially for new instruments. It becomes necessary therefore to introduce some penalty function that provides incentives for honest risk disclosure. The current method, of multiplying by two or three capital requirements if internal models fail backtesting, does not provide a monotone incentive to continuing model improvement, introducing another nonlinearity. Paradoxically, under a formal interpretation of capital rules, an internal model that estimates risk to be always zero would satisfy capital requirements with a zero penalty for its inaccuracy. Furthermore, current regulation does not provide any incentive to address rare events, such as a general decline of American housing prices. This shortcoming is due to the thoughtless use in banking regulation of Value at Risk, that neglects adverse events associated with low probabilities.

Value at risk was introduced in the private sector to estimate large possible losses. The uncertainty on the shape of the far tail of loss distribution and limited liability made further modeling unattractive in that context. However it is obvious that those extreme outcomes, neglected by value at risk, are of paramount importance to regulators and lenders of last resort. The current proposals of a global regulator for macro risk may attempt to address this issue, but risk setting up new conflicts with financial institutions and other regulators. To reduce these potential conflicts, our new pillars will attempt to address this issue through providing direct incentives to banks.

**Pillar III: Market Discipline.** Disclosure requirements were waved by regulators in a number of cases in the recent crisis. In an extreme case, it has been even alleged that Bank of America was induced by regulators not to disclose material information. If true, such a blatant violation of market transparency may have damaged

stockholders. A policy of incomplete disclosure over time is damaging the operation of capital markets. The attempt to bypass transparency, through a large use of government guarantees to facilitate transactions, has destroyed the incentives to a correct allocation of capital, bringing Western countries toward the path of mismanagement that destroyed the Soviet economy.

The reason regulators have been forced to choose such a damaging course of action rests with the lack of an efficient clearing mechanism for defaulting large banks. Once a crisis erupts, regulatory enforcement takes a second place to attempts to contain damage, though few events are more damaging than a protracted lack of transparency. To avoid this quandary, it is necessary to have the tools to deal efficiently with the failures of large banks. Living wills are attractive in theory, but their legal reliability is questionable. The FDIC model to seize insolvent banks should be extended to large banks. All the insolvent banks should be immediately seized and auctioned off as quickly as possible. Their stockholders should not be protected. Bondholders may be protected, subject to a haircut. Deposit insurance schemes may be maintained. Though they provide incentives for banks to take more risk, our new pillars below should provide enough balance.

It is necessary to remark that, if large failed banks are bought by another bank rather than the public, a more dangerous asset concentration may ensue. The temptation of deeming banks 'too big to fail' may then become irresistible. It is of paramount importance then to encourage spinoffs or downsizing by imposing size-related penalties. Pillars 4 and 5 will provide the instruments for that.

### 3. The New Pillars

**Pillar IV: Risk Reserves.** The stability of the financial system requires that the risk appetite of large agents be limited at all times. Being capital requirements inadequate to moderate risk appetite, especially once economic capital has become much smaller than regulatory capital, it is necessary to introduce a stronger incentive to bond financial institutions through time. To achieve this end, institutions should keep large interest-bearing deposits with the central bank. The amount of these reserves should be calibrated on the amount of risk institutions take. To prevent pro-cyclical increases, risk in this context must be based on risk weightings, as currently done under the first pillar. In case a bailout becomes necessary, its cost should be the senior claim against these funds.

**Pillar V: Risk fee.** The fourth pillar provides some incentive for banks to moderate their risk appetite, but it does not solve all the incentive problems. To prevent procyclical effects, risk reserves in fact cannot be closely related to market variables. Therefore risk reserves are unlikely to moderate risk appetite after very large economic losses, they do not help in limiting the size of very large institutions after rescues of failing competitors, may become useless when banks need to be encouraged to take risk. To align regulation to market realities and smooth bank response to regulation through time, it is necessary to introduce a risk fee. Banks should pay a fee based on their expected shortfall over a given horizon (three years, for the sake of argument). This fee should be reviewed monthly or quarterly to calibrate it to changing risk and discourage gaming behavior. Surcharges and discounts related to size, or other relevant variables, may be announced in advance to ensure that large banks adjust their investment policies. Adjustments however should be infrequent, or predictable, to limit credibility concerns. The fifth pillar should mostly ensure that the time variation in market risk is not leading to perverse effects in bank behavior, such as the adoption of doubling up strategies.

Our fifth pillar moderates risk much more effectively than the proposed tax on bank bonuses. In fact taxes on bonuses are payable only when risks pay out, they provide no incentive to take less risk. Actually, bonus taxes may provide an incentive to myopic politicians to water down the supervisory process.

**Pillar VI: Delayed variable compensation.** Regulation of financial institutions often fails to recognize that individual employees' incentives are often not aligned with the firm. Compensation based on short-term performance may induce excessive risk-taking behavior, especially if retirement or job changes contribute to aggravate agency problems. To address this issue, performance-related compensation should not be paid out until employees or managers leave the firm. Even then, it should be paid gradually and at least partially linked to the value of risk reserves. This arrangement seems to be preferable to the reliance on fixed compensation only, that essentially discourages risk-taking, by leaving employees exposed only to the risk of catastrophic losses.

**Pillar VII: Separation of finance and commerce.** The previous pillars are based on the idea that decision-makers' interests are found within the firm. They will fail if decisions are determined mostly by private benefits external to the firm, such as clients' quest for cheap financing. A separation of ownership and control of financial firms from nonfinancial interests is necessary for the incentives provided by the first six pillars to be effective. Otherwise financial firms may not pursue the maximization of their own value. Financial stability is then compromised. To protect stability, restrictions on equity ownership and board composition are necessary and all financial firms should be subject to the same regulator.

**4. Conclusion.** The financial crisis of 2008 has called into question the soundness of current financial regulation. The stock market rally of spring 2009 has encouraged many observers to believe that the current regulatory framework can be maintained, perhaps with minor adjustments. In this brief overview the main shortcomings of financial regulation are identified and some tentative remedies are suggested. We are confident that it is necessary to address the problems we highlight. Otherwise regulation risks becoming a major cause of financial instability, rather than a moderating influence. Perhaps simpler solutions than the ones we propose exist. However, if they are not identified and implemented, it may be necessary to shore up regulation along the lines we suggest. Alternatively, the current financial architecture may be abandoned in favor of a return to the separation of investment from commercial banking or some other arrangement.

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