

Mathematics, Bonds and Financial Sophistication: When the Tail Starts to Wag the Dog

During the decades leading up to the current crisis, large international financial institutions were developing management models designed to mitigate risk and align management and stockholder interests. These models offered rigorous assumed risk estimates, risk transfer mechanisms and financial result based employee compensation systems: all fundamental risk management adjustment elements. Furthermore, governments encouraged the formation of large scale banking institutions in an attempt to forge the existence of sufficiently solvent and stable financial organizations capable of weathering financial turbulence.

For many of the institutions affected, however, these instruments failed to produce expected results. Due to conflicts of interest these tools were inappropriately taken advantage of and produced erroneous risk estimates that inflated employee compensation systems. This generated false signals and accelerated the process of badly evaluated investments. Furthermore, the risk mitigation instruments were used to process loans that were imprudently granted and fueled a speculative pyramid in the real estate sector. The confidence of large institutions in being too big to fail also acted as a disincentive for acting in an appropriately prudent manner. As a result, ***the tail started to wag the dog: what was meant to mitigate risk levels was inappropriately applied and ended up fueling risk instead.***

Mathematical Models that Didn't Turn Out to be the Goose that Laid the Golden Egg.

International investment banks had too much confidence in their mathematical models and the statistics used for estimating risks and profitability. They raised them up to the level of the goose that laid the golden egg. The banks, blinded by the benefits offered by capital markets, ignored the limits posed by their models. Any statistical model is always a hyper-simplification of an infinitely complex reality. ***Although models are necessary for being able to comprehend and synthesize just such convoluted situations, the suppositions on which these models are based need to be carefully questioned.*** Many risk models, for example, ignored the possibility of a fall in real estate values. Such a decline would cause an increase in payments in arrears and lower the recoupment rate of unpaid balances. As a consequence, the banking sector assumed that the securitization of mortgage based loan assets that had received a AAA credit rating not only offered substantial returns on investment but were also risk-free. **Banker felt they were simply taking advantage of a proverbial “free lunch”.** Later, a sharp decline in the real estate market drove

many in the banking sector into bankruptcy.

The Vicious Employee Compensation Model Circle

Much of the blame for the crisis has been placed on the excessive compensation packages awarded to international investment managers. This supposition ignores that fact that a large portion of this compensation was given in the form of shares of stock and stock options that could not be negotiated for several years and whose current value is practically zero. ***As a result, the failure of investment banks has resulted in the loss and ruin of the savings of a large number of investment bankers. Said bankers, especially those working in the Colletarized Mortgage Obligation (CDO) area, have been deservingly punished by the market itself for having badly managed the same during the years leading up to the crisis.*** Thus the aforementioned incentives have done what they were meant to do; tie employee compensation to the long-term financial results of the institutions in question. The problem is that these incentives are based on the supposition that human beings act rationally when reality has shown that common sense is easily blinded to the expectations generated by the lure of easy money. One example of this is the fact that exposure to sub-prime mortgage loans increased 10 fold in some of these banks between February 2006 and September 2007. This occurred in spite of the fact that the AAA sub-prime mortgage loan market was paying CCC prices for this type of issues. Real estate prices had begun to decline in May 2006 and sub-prime loan making institutions began to fail in December 2006. This included a bankruptcy filing by Dillon Read Capital Management in May 2007. This hedge fund is part of UBS, the bank that experienced the highest amount of losses due to the sub-prime crisis. In conclusion, ***employee compensation models combined with a biased and inappropriate measurement of risks created a lose-lose situation from which bankers certainly did come out winners; neither were they able to defend system stability or stockholder value.***

Too Big to Fail: The Security of Being too Large to be Allowed to Go Under

One of the factors that influenced expected employee compensation was that large scale banks were assured of the implicit security offered by government support; ***if the bets made went sour, the public treasury would come to their rescue.*** And this is exactly what has happened. Governments have propped up the large financial institutions that found themselves in serious hot water in order to avoid a bank rush like that occurring during the Great Depression of the 1930's. Even if things turn out well, however, the price paid for achieving this was absolutely enormous. This government rescue policy could, in the end, cause the occurrence of more inappropriate imprudence, by those banks holding the greatest share of responsibility for the crisis, when it comes time to channel the collective savings of society towards more productive investments.

It is also important to talk about what influence political interference and implicit public support for Spanish savings institutions has had on the Spanish economic

crisis; which has been especially virulent as compared to the crisis that has affected other countries. The financing of savings institution promotions has been proportionally much greater than that provided by the banks, which was generally handled in a more discrete manner. The former has inflated the stock of unsold housing units which is currently forcing prices downward and will leave the housing construction and sales markets in a depressed state that will last for years to come. ***The result is that a substantial portion of Spanish collective savings have been channeled into investments that have lost a significant percentage of their value. The result has been the subsequent destruction of wealth and consumption, a shortage of credit, lagging investment levels and, finally, stagnated economic growth and job creation rates.***

Possible Measures for Preventing the Occurrence of Similar Crises

Possible measures for preventing similar crises in the future are based on setting up alerts for discrepancies between the market price implicit risk estimate and corresponding internal bank estimates. This is what happened to the difference between the sub-prime loans and their AAA rating. Something similar could in fact already be in the works given the sovereign debt held by PIIGS countries, whose market value is being quoted with high differentials that reflect a significant risk of non-compliance, while corresponding credit agency ratings continue to be AAA; ***leading many institutions to believe that they are, once again, simply taking advantage of a mythical “free lunch”.***

Greater control over the performance of rating agencies – such as the publication of errors, a careful review of their claims of independence, required rotations, etc. – is also extremely important. Regulators must supervise and approve of the qualification systems used by ratings agencies. Given the fact that internal bank qualification systems are used for calculating regulatory capital requirements, regulator review efforts must also include rigorous inspection of these types of models. If not, it will open the door to arbitrary capital requirement regulations, something which has already occurred during the course of the current financial crisis.

Finally, banks must place greater emphasis on validating and questioning the suppositions on which risk models are based. Specifically, the banks must make a serious effort to evaluating financial stress scenarios (stress testing) without disregarding other possible situations, even those lacking historical precedent, which could cause sizeable losses.

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