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I. Role of OTC Derivatives in the Financial Crisis.

A. OTC interest rate derivatives did not cause, amplify, or materially spread the financial crisis*. OTC interest rate derivatives, which provide valuable interest rate hedging opportunities to global corporations, investors, and individuals, and enhance global resource allocation efficiency had absolutely no material effect whatsoever on the financial crisis.

B. OTC currency (i.e., foreign exchange) derivatives did not cause, amplify, or materially spread the financial crisis*. OTC currency derivatives, which provide valuable foreign exchange hedging opportunities to global corporations, investors, and individuals, and enhance global resource allocation efficiency had absolutely no material effect whatsoever on the financial crisis.

C. OTC equity derivatives did not cause, amplify, or materially spread the financial crisis*. OTC equity derivatives, which provide valuable stock market and individual stock hedging opportunities to global corporations, investors, and individuals, and enhance global resource allocation efficiency had absolutely no material effect whatsoever on the financial crisis.

D. OTC commodity derivatives did not cause, amplify, or materially spread the financial crisis*. OTC commodity derivatives, which provide valuable energy, commodity, and agricultural hedging opportunities to global corporations, investors, and individuals, and enhance global resource allocation efficiency had absolutely no material effect whatsoever on the financial crisis.

E. OTC credit derivatives in general, and credit default swaps (CDS) in particular, had absolutely no role whatsoever in causing the financial crisis.

F. OTC credit derivatives in general, and CDS's in particular, played a role in delaying the crisis. From March 2005 into the Fall of 2006, AIG-FP sold $80 billion worth of CDS's on mortgage-backed bonds of various types (CDO's). The sale of these CDS's enabled the underlying CDO market to continue to grow in what we now know to have been a bubble, a bubble that started well before AIG-FP started selling these CDS's. Had AIG-FP not written these contracts, and had nobody else emerged in their place, the U.S. real estate and CDO markets could not have continued to grow at the rate they did. Accordingly, the bubble would have been shorter-lived and the resulting financial crisis would have been less severe. Without this CDS activity, there would have still been a financial crisis, but it would have come earlier than September of 2008, and would have been less severe.

II. Causes of the Financial Crisis, Amplification, and Spreading.

A. Background: Owning one's own home has been part of the American Dream since there was an American Dream. So has accountability for one's own decisions. And so has the right to fail. These principles, among others, created a vibrant residential real estate market in the United States, the largest in history, with on the order of 60% of American households owning their own homes.

B. In the last fourth of the 20th Century, the U.S. Government decided to extend this part of the American dream to the next group of potential homeowners (e.g., The Community Reinvestment

Act). Arguably, this is a commendable goal. Since these would consist of households who didn't then-currently own their own homes, it can be concluded that these would be homeowners who could not have previously afforded to own their own homes. Clearly, resulting subsidies and guarantees would cost somebody, presumably, the American taxpayer, money. It is now clear that this government-induced policy, as it was implemented and enabled by both the public and private sectors, was very costly indeed. The cause of the financial crisis clearly began with the implementation and conduct of this government-created, government-sponsored, and government-managed program.

C. For the program to succeed at all, there had to be, and there were, many enablers. For the result to turn into a bubble, whose lancing led to a financial crisis, there had to be many "bubble enablers". Among the key bubble enablers, all of whom have been identified in the popular press, there were: loan officers and lending firms who lent money to borrowers with no loan documents; loan officers and lending firms who lent money to borrowers who they knew could never pay them back; loan officers and lending firms who lent money to borrowers who they knew could never pay them back unless their homes materially, and continuously, appreciated in value; the U.S. government's open-ended, and poorly supervised, subsidies and guarantees to Fannie Mae and Freddie Mac, and their subsequent implementation; financial firms who created, sold, and held assets that they knew were of dubious value; monopoly powers granted to existing rating agencies by the U.S. government; rating agencies who either were ignorant of the collapse of underwriting standards in the industry or ignored them; the Federal Reserve Board for failing to recognize the bubble and its consequences and pursuing a monetary policy that enabled, in fact subsidized, the stretch for yield by the investor and origination community; federal regulators' liberalization and forbearance that further fueled investors reach for yield; BIS/Basel capital adequacy rules conveying excessive incentives for financial institutions to hold AAA rated securities, invariant to actual quality; and, finally, institutional investors who abandoned their standard of duty for their own due diligence. All were guilty of amplifying and spreading the crisis.

D. The largest cause of the overvaluation, and thus the magnitude of the eventual collapse, in values of CDO's has received little, if any press. Namely a fatal lack of communication within the origination/distribution/investment community.

1. To understand this, one must know that, among the critical inputs used by Structured Product Departments of the underwriting financial institutions to determine the value of the tranches of CDO's for sale are: expected % defaults and expected % foreclosures of the mortgages in the CDO, and the expected future volatility of the traded prices in the eventual market. The employees on the Structured Product desks were, generally, technical experts, mathematicians, who used past data to predict these three future variables. They had almost no knowledge of credits, or actual or projected credit conditions, or, most importantly, underwriting standards. For Sub-Prime CDO's, these originators projected that there would be some increase in defaults, foreclosures, and market volatility. But they had no way of knowing how severe the deterioration in lending standards had become in the real estate lending markets in, say, Peoria.

2. But many employees from other areas of these same firms should have had a better understanding of precisely that. These other areas *did* focus on those underwriting standards from their own perspectives. But, since these other areas of the firms generally had no knowledge of how Structured Products were priced, they did not generally understand the implications of what they knew about collapsed underwriting standards for those other areas of their firms. In other words, in the language of corporate governance, the silos weren't communicating.

3. Thus, the firms were unknowingly producing and selling products, not only to their customers, but also to their own firms (trading desks, top of the house investments, etc.) that were overpriced, not by a little bit, but by staggering amounts. It is difficult for me to imagine the

alternative, namely that they were *knowingly* selling staggeringly overpriced assets to their own executives---Lehman Bros, Merrill Lynch, Goldman Sachs---(but, if this were true---if employees *knew* the assets were virtually worthless---there should be detailed internal emails and memos discussing these values).

4. Those financial institutions where some members of the firm, either initially or eventually, realized the implications of the above and then communicated this to senior management, were in a position to hedge their exposure and to stop originating the business. Those who never did, sustained eventual unacceptable losses. As did all of their customers.

5. But there was one set of organizations in the middle of this sad financial crisis that was perfectly situated to see what was happening and to stop it. Namely, the rating agencies. The rating agencies have precisely the two qualities needed to have done this. They have: 1) structured products departments who vet the pricing coming out of the originating banks; and 2) Credit Departments whose job it is to understand the underwriting and credit environment in the markets. Their entire function is for these two groups to communicate to determine the appropriate rating for each security. Additionally, they had access to non-public information and had a fiduciary obligation for discovery, without the competitive pressures that faced the underwriters. The rating agencies either---incompetently---didn't know the credit environment and its implications, or---tragically---ignored them. In either case, they failed in their only mission.

6. Furthermore, the financial markets had evolved in such a way that many, if not most, institutional investors and financial institutions had an incentive to rely solely on the ratings agencies and had largely abandoned much of their own due diligence efforts. Required and incented by domestic and international regulatory bodies to use the rating agencies, and incented by loose monetary policies and relaxed regulations, the institutional investor and financial institution community was relegated to reach for yield and search for better returns among rated securities. Accordingly, their own standards of due diligence, asset diversification, and non-concentration in asset classes collapsed, which made the failure of the ratings agencies fatal.

7. Interestingly, a handful of market participants *did* finally pick up on what was happening. Several Institutional Investors (including famously, some hedge funds) saw the real estate bubble, the collapse of underwriting standards, understood (or found out) the mathematics of how CDO's were created, and put the whole sorry mess together. Famously, they began looking for ways to get out of the market, hedge their holdings, and/or short the market. In short, they did their due diligence---the job that investors had thought, wrongly, that the ratings agencies had been doing all along. In doing so, they also brought this knowledge to the attention of some of the underwriting financial institutions.

8. This brings us back full circle to CDS's. Once some market players saw that they had a staggering problem (or, for some, a staggering opportunity), they searched for some market participant---some *extremely credit-worthy* market participant---who would be willing to sell them hedges. And they found AIG-FP and its CDS appetite in the Spring of 2005. Had they found no one to do this, the financial crisis would have still happened, but probably in 2006-7. And, since the bubble would not have lasted as long, the crisis would have been less. But nevertheless staggering. Finding a source for hedging allowed the business to continue for another year or so. With the resulting financial crisis being larger.

9. I should add that I believe the writing of $80 billion of naked, unhedged CDS's by AIG-FP in 2005-6 was an act of incredible corporate irresponsibility. In my opinion, the irresponsibility should be shared by three groups: 1) senior AIG executives who abrogated their responsibility to their shareholders by failing to properly supervise AIG-FP; 2) senior AIG-FP executives who pursued a reckless business activity that was antithetical to its business plan and culture; and 3) executives at the financial institutions who purchased large amounts of

CDS's from AIG-FP without questioning the total amount that was being sold by AIG-FP to the entire market ("If I have bought *this much*, how much have they sold to my competitors?").

10. It should be noted that, whereas AIG-FP and CDS's should be included in the list of "bubble enablers" for this crisis, in my opinion every single market participant in II.C. above is at least equally guilty. The Fed's monetary policy, federal regulation liberalization and forebearance, and the rating agencies especially so.

*Market ignorance about specific counterparty exposure will always have some effect on liquidity and spreads. In the case of the financial crisis, this may have contributed to liquidity concerns in some small, immeasurable way.