July 22, 2008

Dr. Darrell Duffie
Dean Witter Distinguished Professor of Finance
Stanford University
Graduate School of Business
518 Memorial Way
Stanford, CA 94305-5015

Dear Dr. Duffie:

Thank you for testifying before the Committee on Banking, Housing, and Urban Affairs on July 9, 2008. In order to complete the hearing record, we would appreciate your answers to the enclosed questions as soon as possible.

Please repeat the question, then your answer, single spacing both question and answer. Please do not use all capitals.

Send your reply to Ms. Dawn L. Ratliff, the committee's Chief Clerk. She will transmit copies to the appropriate offices, including the committee's publications office. Due to current procedures regarding Senate mail, it is recommended that you send replies via e-mail in a MS Word, WordPerfect or .pdf attachment to Dawn_Ratliff@banking.senate.gov.

If you have any questions about this letter, please contact Ms. Ratliff at (202)224-3043.

Sincerely,

CHRISTOPHER J. DODD
Chairman

CJD/dr

Questions for the Hearing on "Reducing Risks and Improving Oversight in the OTC Credit Derivatives Market"
July 9, 2008

Questions for Dr. Darrell Duffie, Dean Witter Distinguished Professor of Finance, from Senator Crapo, with Responses:

1. Should market participants have the broadest possible range of standardized and customized options for managing their financial risk and is there a danger that a one-size-fits-all attitude will harm liquidity and innovation?

Response: A one-size-fits-all approach would indeed harm innovation. Standardization allows simpler methods for mitigating some of the market infrastructure problems that we have experienced, through easier trade documentation, clearing, and settlement. The appropriate degree of standardization, however, involves a tradeoff with the benefits of innovation and customization to customer needs. Generally, I believe that the markets should be left to determine how much standardization is appropriate. The safety and soundness of financial markets can be regulated more effectively, in my view, by other methods than mandating standardization of financial contracts.

2. Is there a danger that centralizing credit risk in one institution could actually increase systemic risk?

Response: The centralization of risk in one institution, such as an exchange or a central clearing corporation, could increase systemic risk if that central institution is not carefully designed and well capitalized. One approach to centralizing credit risk, exchange-based clearing, has proven to be extremely safe over many decades, including through a number of serious financial crises. A central clearing counterparty for the over-the-counter derivatives market could be essentially as safe as exchange-based clearing if it is similarly well designed and backed by significant capital or guarantees. So long as the institution into which risk is centralized performs as designed, it will reduce systemic risk, because it reduces the average level of exposure of counterparties to each other. The performance of a risk-centralizing institution is absolutely critical, however, for if it experienced a failure, the systemic effects could be grave. Because systemic risk is a cost borne by the public for which no single financial institution bears responsibility, there is a natural and important role for regulation in monitoring the careful design and ongoing safety of risk-centralizing institutions.

July 30, 2008

Dr. Darrell Duffie
Dean Witter Distinguished Professor of Finance
Stanford University
Graduate School of Business
518 Memorial Way
Stanford, CA 94305-5015

Dear Dr. Duffie:

Thank you for testifying before the Committee on Banking, Housing, and Urban Affairs on July 9, 2008. In order to complete the hearing record, we would appreciate your answers to the additional enclosed questions from Senator Reed as soon as possible.

Please repeat the question, then your answer, single spacing both question and answer. Please do not use all capitals.

Send your reply to Ms. Dawn L. Ratliff, the committee's Chief Clerk. She will transmit copies to the appropriate offices, including the committee's publications office. Due to current procedures regarding Senate mail, it is recommended that you send replies via e-mail in a MS Word, WordPerfect or .pdf attachment to Dawn_Ratliff@banking.senate.gov.

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Sincerely,

CHRISTOPHER J. DODD
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Questions for the Hearing on "Reducing Risks and Improving Oversight in the OTC Credit Derivatives Market"
July 9, 2008

<u>Questions for Dr. Darrell Duffie, Dean Witter Distinguished Professor of Finance, from Senator Reed:</u>

1. The explosion in credit derivatives basically occurred during a time when corporate defaults were near record historical lows. But a few months ago, Moody's Investors Service projected that the junk-bond-default rate is likely to climb to a range of 7% to 7.5% in the next 12 months – substantially up from the current rate of less than 2%. If these projections are correct, what might the implications be for credit derivatives markets and those markets' corollary impact on overall financial markets?
Response: The market infrastructure, including documentation and settlement mechanisms, should be able to accommodate this increase in default activity, and if current improvements continue as expected, substantially higher levels of default activity within another year or so. Default by a systemically important financial institution, however, would be very disruptive. Separate from the issue of infrastructure, substantially more defaults would obviously not be good for the general stability of financial markets and the performance of the economy. Speculative-grade default rates exceeded 10 percent in the 1989-91 recession and the 2001-2002 recession, so the forecasted corporate-debt default rate is not an especially alarming one in an historical context.

2 Can you clarify how involved pension funds are in OTC credit derivatives? How equipped are pension funds to make determinations about the risks involved in credit default swaps, and are they provided with adequate disclosures about the potential risks?
Response: According to the best available data, from the British Bankers Association, pension funds are somewhat active in the credit derivatives market, but probably account for less than a few percent of global volumes. For reputational and legal reasons, dealers have some responsibility to verify that pension funds and any less financially sophisticated counterparties are aware of the risks that they take in derivatives positions such as these. Obviously, investors such as these, who are not normally specialized financial investors, would find it prudent to become aware of the risks on their own. In many cases, they have relevant internal controls. Any large entity responsible for trading on behalf of individual investors should have controls ensuring that trading activity conducted on its behalf is done by properly educated and informed representatives. Pension funds use credit derivatives both to offer risk protection to others, and also to protect themselves from default risk, by buying protection from counterparties. Even when exposing themselves to the risk of default of the borrowers named in the credit derivatives contract, pension funds and other protection sellers are taking much the same risk as if they had purchased direct debt obligations, such as bonds, of the named borrowers. Bonds subject to default, for example corporate bonds, are indeed normal investments for pension funds. From this point of view, the main distinction between

direct bond investments and credit derivative protection selling is that credit derivatives do not require up-front cash. This means that the availability of pension fund capital is less of a brake on the risk appetite of the pension fund. In addition to creating exposures to the default of the borrowers stipulated in the credit derivatives contract, there is also exposure to the performance of the credit derivatives counterparty, for example a dealer. Normally, this risk is remote, but it should be considered, and it is present whether the pension fund is buying or selling protection.

3 We understand that during the leveraged-buyout boom in 2006 and early 2007, a number of credit default swaps grew substantially in value before details of certain buyout deals were publicly announced, raising concerns over issues of possible insider-trading. Would you please comment on this issue and what regulatory actions might be needed to reduce such insider trading?
Response: Yes, these concerns have been raised, and there are other potential situations of moral hazard arising from private information. For example bank lenders may have more information about a borrower's credit quality than the rest of the market, and participate in credit derivatives trading on that borrower. Members of creditor committees of defaulting firms are sometimes charged with representing other creditors, but may potentially not have disclosed that they have offset some or all of their economic exposure through credit derivatives. Although I am not a legal expert, it is my understanding that those with inside information or related conflicts of interest are restricted in their credit derivatives trading by existing laws and regulations, for example, those enforced by the Securities and Exchange Commission, and liable under those laws and regulations in much the same manner as when buying or selling (or short selling) the underlying debt obligations. Disclosure is important in these circumstances, and it is my understanding that legal disclosure requirements are not as clearly defined or as demanding for credit derivatives as for outright asset positions. It would be best, however, for you to obtain more expert legal opinions, for example from the Securities and Exchange Commission. It is highly beneficial to have the relevant laws and regulations in harmony with those of other jurisdictions, because the credit derivatives market is global.

4 What have we learned from the CDO and MBS problems that we can apply to the credit derivatives markets? Have we spotted the lessons learned and begun to apply them?
Response: In many cases, credit derivatives were the vehicles by which CDO and MBS losses were transferred from one investor to another. To the extent that one wants to make it more difficult to transfer CDO and MBS losses, or default losses stemming from other asset classes in the future, one could attempt to slow down or reverse the growth and efficiency of the credit derivatives market. In my view, that would be a mistake. Risk transfer through credit derivatives allows those who want to buy protection, or to obtain diversification, to do so more efficiently. Moreover, credit derivatives prices are important sources of information on the financial health of borrowers, and on the valuation of portfolios of debt. (I will say more about that in response to one of your

other questions.) With regard to the abuses and other failures that occurred in the MBS and CDO markets, it is natural to think of credit derivatives as devices that enabled investors to transfer to each other the losses as they occur, rather than the cause of the losses in the first instance. (As a matter of terminology, some would consider a CDO to be a form of "credit derivative," although I am using the term "credit derivative" in this context in the narrower sense of a default swap contract, of the sort that was discussed in my testimony.)

5 What kind of data and pricing information should be available to regulators to help them oversee this market, especially with more trades going to The Clearing Corporation? Will more data be available by having a central clearing entity? Would even more data be available by having an exchange?
Response: Some credit derivative pricing data are already available for selected high-volume CDS contracts from some financial news sources, such as Bloomberg, from some brokers, and from specialized information vendors, such as Markit Partners. Unfortunately, these data are not especially comprehensive, and are often only suggestive of actual transaction prices. In my view, it is worthwhile to consider a move toward the availability of transaction-level data in the CDS market in a manner analogous to that already available in the over-the-counter bond market, through the system known as TRACE. Prices for the vast majority of OTC corporate bond trades are now available to essentially anyone through TRACE. This allows investors to more easily "comparison shop" when trading, and in principle allows regulators simpler access to price information for their own purposes, for example when attempting to detect potential insider trading. Dealers could in some cases be adversely affected by TRACE-like transparency in their profit margins on credit derivatives trades. Some investors who are attempting to create or offset exposures would be adversely affected by having some of the information regarding the size and prices of their trades (although not their identities) revealed to the market, causing prices to move against them before having completed the change in their overall position.

A central clearing corporation for the over-the-counter market would, according to the proposed design, play much the same legal role in a credit derivatives trade as any non-clearing counterparty. I am not aware of any currently proposed mechanism by which cleared trades would result in any more public disclosure than uncleared trades. A clearing corporation would presumably be a repository of a significant amount of trade information, along the lines of an exchange clearing corporation. Whether and how this information would be accessible to regulators is unclear to me. The Deriv/SERV information warehouse (which already includes the majority of inter-dealer credit derivative trade execution data) exists independently of the existence of a clearing corporation, and would presumably have much the same information, if not more information. An exchange would indeed provide much more data on prices and volumes for a given CDS contract than the does the current OTC market, at least for any derivative that achieves liquid market conditions. This would be the case even with the

advent of TRACE-like transparency for the OTC market, although the superiority of exchange-level transparency over OTC transparency would in that be dramatically reduced with TRACE-like OTC transparency. As a final note, transparency is generally desirable for a financial market, but there are some good reasons to allow investors (and the dealers that represent them) to retain a significant degree of privacy. For example, privacy creates better incentives for investing in fundamental financial research (for example, regarding the financial health of borrowers), and through that, more incentives for prices to reflect correct information.

6 In your testimony you note that a clearing entity provides more or less the same benefits as an exchange. Can you elaborate on what these benefits are?
Response: In my testimony, I was restricting attention on this point to the benefits associated with the clearing function for dealers. (A clearing corporation is not a trading venue like an exchange, so one would not compare the benefits with respect to trade execution, price discovery, and so on.) For each dealer-to-dealer trade, an exchange clearing house and an OTC central clearing counterparty effectively becomes the buyer to the dealer that is selling, and the seller to the dealer that is buying. In both cases, OTC clearing and exchange clearing, dealers are therefore protected from exposure to each other's default so long as the clearing entity remains solvent. For this reason, as I indicated in my testimony, it is important to ensure that an OTC central clearing counterparty is well designed. It should be well capitalized and adhere to other high standards for clearing entities, such as those of CPSS-IOSCO. I presume that regulators will ensure this, and will monitor such a clearing corporation carefully on an ongoing basis. If this were not the case, my answer would obviously be different. Exchange-based clearing has been extremely safe and effective over many decades, and OTC-based clearing can be so as well. Obviously, failure of a clearing entity (whether exchange-based or OTC-based), or even the onset of fear of such a failure, could be calamitous.

7 Your testimony notes that exchanges provide price transparency. Do you think that price transparency is an important feature for this market to have, given the increasing counterparty risks?
Response: Yes, price transparency is highly beneficial, not only for reasons of counterparty risk, but also for other reasons that I have mentioned in response to your earlier question.