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**“Credit Default Swaps on Government Debt:
Potential Implications of the Greek Debt Crisis”**

Thank you Chairman Kanjorski, Ranking Member Garrett and members of the committee for inviting me to testify today on this important and timely topic

Credit default swaps in general and sovereign credit default swaps in particular are relatively new financial products that are vexing regulators and policymakers who are striving to understand their role in the modern financial marketplace in the midst of the ongoing financial crisis. In what follows, I provide background on sovereign CDS instruments; the sovereign CDS market; the causes of the Greek debt crisis; CDS market participants and historical default rates; implications of sovereign CDS market growth for sovereign issuers and public policy; the market's relevance to regulatory reform; and additional policy implications.

Background on Sovereign CDS: Market, Terms, Trading, and Uses

Credit derivatives are a class of financial instruments that isolate and transfer to investors the credit risk generated in different types of lending transactions. Investors in credit derivatives are typically referred to as protection "sellers," agreeing to cover the cost if a pre-defined credit event occurs. For taking on the credit risk, the seller receives a payment from the protection "buyer."

While all credit derivatives are based on this principle, they differ as regards the specified credit event (payment default, restructuring, deterioration in creditworthiness etc...), the number and kind of underlying financing transactions (bank credit or bonds) and the form of derivative (option, forward, swap). In return for taking the default risk the protection seller receives periodic premium payments from the buyer (the "CDS spread"). (Deutsche Bank, "Credit derivatives: effects on the stability of financial markets," Current Issues, June 9, 2004)

Settlement may be offered in cash or physical delivery of the underlying bond or other debt obligation. Even where physical delivery is stipulated in the contract, cash auctions are used to supplement markets where there exists a lack of physical bonds.

While credit default swaps (CDSs) are the most common form of credit derivative, they only make up about sixty-five percent of the market for credit derivatives. Some twenty percent of the market is made up of synthetic collateralized debt obligations (CDOs), and the rest is a mixture of credit linked notes, total return and asset swaps, and basket and credit spread products. Hence, CDS are only one of many credit derivative products in a robust and innovative marketplace. (British Bankers Association 2006)

Most recently, indexes on a variety of CDS have come to be offered in the marketplace. In the sovereign credit space, the two main indexes are the CDX and the iTraxx. The CDX, a U.S. product, tracks 125 entities in the index, most investment grade. Index spreads should equal the average CDS spreads of the 125 underlying reference entities (to give zero basis). The iTraax is the equivalent index in Europe.

A CDS pays out based on a pre-specified “credit event.” The CDX’s only credit events are ‘bankruptcy’ and ‘failure to pay’ which is a narrower definition than that used for single name credit default swaps. The restriction is necessary because the individual CDS definition of a “credit event” also typically includes ‘restructuring.’ Beginning April 8, 2009, however, with the “Big Bang” ISDA protocol both CDX and individual CDS excluded restructuring (for U.S. issuers). CDS on European issuers like Greece, however, still include the restructuring clause, creating some behavioral and pricing differences for Greek and other European CDS relative to U.S.

Prior to the DTCC releasing data on net volumes, the only indication the market had of credit derivative volumes came from ISDA surveys. These gross numbers attracted media attention because of their size: some reported \$60 trillion of so-called credit default swaps. The gross numbers are misleading, however, because they include contracts that are offset or hedged by other contracts and don’t give any indication of the economic transfer that might occur in the case of default. As a result, only a small proportion of the total notional outstanding represents an unhedged risk to the marketplace.

Sovereign CDS Market Size, Growth, and Development

Until recently, the global credit derivatives market has been very opaque. Before the DTCC reporting, nearly all information on market volume was based on estimates and/or surveys among market participants. That is also the reason why the estimates of prior market activity differ greatly.

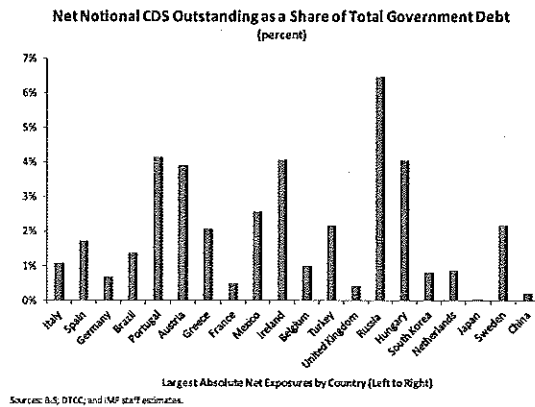
In the United States, all commercial banks are required to report their derivatives transactions to the Office of the Comptroller of the Currency (OCC). That means there is much more detailed historical information available on the structure of the U.S. market (at least for banks) than there is for other countries. After December 2004, the BIS began to release semiannual data on credit default swaps (CDS) including notional amounts outstanding and gross market values for single- and multi-name instruments. Additional information on CDS by counterparty, sector and rating has been made available as of December 2005.

While European CDS markets in total measure over \$36 trillion in notional principal, currently – even including all the single-name CDS on individual governments – there is only about \$108 billion in CDS outstanding on European sovereigns. That amount is miniscule compared to European government bond market outstandings of \$11 trillion, roughly 100 times the size of the sovereign CDS market. (Citibank, “Sovereign CDS: ‘You can’t blame the mirror for your ugly face’” March 1, 2010)

As of March 2010, sovereign CDS were prominent among the top 30 U.S. single name CDS contracts with the largest net notional positions outstanding, reported on DTCC. Ranked from largest to smallest at that date were Italy; Spain; Germany; Brazil; Portugal; Austria;

Greece; France; U.K.; Mexico; Turkey; Belgium; Ireland; Russia; Japan; and Hungary. Outstanding debt volumes of those countries are highly correlated with the size of these outstanding net CDS positions. Sovereign CDS volumes of all of those countries grew rapidly in the last year as stress on many of those country's fiscal conditions worsened. (Citibank, "Sovereign CDS: 'You can't blame the mirror for your ugly face'" March 1, 2010)

The figure below shows that net notional CDS outstanding as a share of total government debt is typically low for most every country of concern, the highest ration being for Russia, one of the few countries worldwide that has ever defaulted without later settling their debt for some negotiated recovery value.



The top five CDS counterparties in the U.S. have, for the most part, remained consistent for some years now. JP Morgan, Morgan Stanley, and Goldman Sachs have been among the top five counterparties in United States CDS markets since 2003. Deutsche Bank joined the top five in 2005. Barclays was in the top five in 2007 and 2009, replaced temporarily by Credit Suisse in 2008. UBS was among the top five in 2004 and 2005. Credit Suisse and Merrill Lynch made the top five in 2002 and 2003, respectively. (Fitch, "Global Credit Derivatives Survey: Surprises, Challenges and the Future," August 2009)

Causes of the Greek Debt Crisis

While it is widely held that unprecedented monetary and fiscal policy responses of countries worldwide have been successful at preventing a worst case scenario repeat of the Great Depression, the combination of rising fiscal deficits and continued monetary policy accommodation has raised concerns about the sustainability of public finances and fears of inflation.

Presently, the sense that fiscal positions of those countries will remain suppressed for the foreseeable future is widely held as inevitable, with ageing populations and pension obligations expected to create a further drag on economic growth. "The experience of Sweden and Japan in the 1990s confirms that, irrespective of the ultimate success of

government intervention, debt-to-GDP ratios are likely to deteriorate significantly in years to come.” (Deutsche Bank, Fixed Income Outlook 2010, 11 December 2009) As a result, the recent uproar about Greece’s fiscal woes and possible debt default are viewed by many as merely a “canary in the coal mine.”

It is hard to argue that Greece is not to blame for its difficulties. As of December 2009, Greece had the highest fiscal account imbalance as a percent of GDP of all the Euro-area countries and Britain, at -7.7%, and its projected 2009, 2010, and 2011 balances were second only to Ireland. It is not surprising, therefore, that Greece’s five-year CDS was trading at the highest spread of any of those countries at the time, at roughly 300 bps versus an average of 73 bps for the area overall. (Deutsche Bank, “European SOV risk in transition from systemic to specific,” Dec. 9, 2009)

Greece has long been a candidate for fiscal crisis. “It has run deficits averaging 7.8% of GDP since 1988. It spends 7% of GDP on public administration compared to 3% for the Eurozone. Its direct tax receipts from personal and corporate income are only 7.2% of GDP compared to 13.5% for the Eurozone. It has a retirement age of sixty-one compared to sixty-seven for Germany. The income Greece gives to pensioners in their first year of retirement is equal to 105% of their last year of employment compared to 43% in Germany, 66.2% in France, and 80.2% in Italy. Greece increased defense spending by 11% last year to 2.8% of GDP compared to a Eurozone average of 1.7%. Greece has the largest defense share of GDP in Europe. Its traditional rival, Turkey, spends only 1.7% of GDP on defense. The previous conservative government had a small parliamentary majority and raised the public sector share of GDP from 45% to 52% in search of votes. The recently elected Socialist Party had a history of running large fiscal deficits during the 1980s and 1990s.” (David Hale “Why Europe Is Reluctant to Rescue Greece?” David Hale Global Economics, April 14, 2010, Volume 08.08)

Moreover, Greece has been in default for more than half of its history as an independent country. Greece defaulted four times in its modern history. The first default occurred during the War of Independence during the late 1820s.¹ The second default came in 1843.² The third default came in 1893.³ The final default came in 1932.⁴ (David Hale “Why Europe Is Reluctant to Rescue Greece?” David Hale Global Economics, April 14, 2010, Volume 08.08)

¹ The Greeks had borrowed from British investors at high interest rates and with large commissions. They borrowed to finance the construction of three frigates, but only one was actually delivered after the fighting ended.

² The defaults were on loans taken out during the War of Independence and to establish a Bavarian prince as the new King of Greece in 1832. The funds went to pay for the troops and civil servants which he brought with him from Bavaria.

³ This default was on loans for projects that were pursued to modernize the country such as for construction of railways, ports, the Corinth Canal, and three battleships for the Navy. Prime Minister Charilaos Trikoupis attempted to slash the interest rates on loans by 70% and raise taxes to repay the loan, but he lost the 1895 election. The new government started a war with Turkey over Crete and suffered a humiliating defeat. The great powers Britain, France, Germany, and Russia then intervened to mediate a peace treaty and offered Greece a new loan to pay compensation to Turkey. As a result of this intervention, they also established the International Finance Commission to supervise Greece’s fiscal affairs. It established monopolies on salt, gas,

With such a history, investors are right to be suspicious, so that blaming the messenger will still not erase the fact of Greece's difficulties. While the CDS market has taken some time to develop, ISDA maintains rightly that "The most commonly traded CDS, including sovereign CDS, are simple and relatively liquid." Moreover, ISDA points out that modern CDS markets are "...far from opaque. Market participants and the general public have ready access to data to evaluate market activity. The amount of outstanding CDS and weekly transaction activity for the 1,000 largest names [including sovereign CDS] are publicly available." (David Oakley, "Sovereign CDS top ISDA agenda," FT.com, March 15 2010 <http://www.ft.com/cms/s/0/41693c04-3068-11df-bc4a-00144feabdc0.html>)

Moreover, the market for sovereign CDS is much smaller than the underlying market for government bonds. ISDA also notes that "The activity and outstanding volumes in the Greek CDS market need to be contrasted with the outstanding volumes in the Greek government bond market, which exceeds \$400bn. None of the data can possibly lead to a conclusion that a market of \$9bn can dictate prices in the \$400bn government market." (David Oakley, "Sovereign CDS top ISDA agenda," FT.com, March 15 2010 <http://www.ft.com/cms/s/0/41693c04-3068-11df-bc4a-00144feabdc0.html>)

So while some still express concern that the CDS tail is wagging the Greek dog, it is hard to conclude – given the weak fiscal situation, the dire need for spending cuts, and the miniscule size of the CDS "tail" – that CDS markets are to blame for the Greek drama, or are even magnifying the situation to any substantial degree. Of course, as of this hearing, Ireland, along with Italy and Portugal, are being pressured similarly, for similar reasons.

Market Participants and Historical Default Rates

Defaults are nothing new, even for sovereign entities and municipalities. There exists a long history of defaults throughout world, as well as U.S., history. George H. Hempel (*The Postwar Quality of State and Local Debt*, NBER 1971) provides the definitive guide to the history of U.S. state and municipal defaults. Between 1839 and 1929, a significant number of U.S. state and municipalities defaulted, culminating in spikes associated with the crisis and recovery decades of the 1870s and 1890s-1900s, as well as the 1920s.

While those periods culminated in annual defaults totaling around sixty per annum (even if persisting for several years around that peak), the period 1933-1942 saw an increase in the magnitude of defaults to peaks in the thousands. By 1933, recorded defaults approached 2,000, and by 1935 and 1936 they were in the range of roughly 10,000, per *month*, across all sectors and categories.

matches, and playing cards and tariffs on Piraeus Harbor to raise funds for repaying Greece's debt. The IFC maintained an office in Athens until 1978.

⁴ This default resulted from the Great Depression and the need to accommodate a large influx of refugees from Turkey after 1923.

By 1938, there existed consistent reporting of municipal and state defaults that recorded some 353 defaults totaling \$210 million between 1938 and 1966, leaving behind \$134 million of recoveries and just over \$76 million in admitted losses.

More recently, S&P reports that the five-year transition rate for AAA-rated local and municipal debt over the period 1975-2009 was 27.4%, with 10.9% of that resulting from ratings that were withdrawn and 16.4% resulting from ratings that were downgraded (almost exclusively to AA). For local and municipal debt initially rated BBB, only 48.9% remained BBB at the end of the five-year period. 12.9% had been upgraded to A, and 11.8% downgraded to BB and B. 26.4% of initial BBB ratings had been withdrawn, completely. (<http://www.standardandpoors.com/ratings/articles/en/us/?assetID=1245207200986>) S&P reports that the sovereign speculative grade rated fifteen-year default rate over the same period was 29.66%. (<http://www.standardandpoors.com/ratings/articles/en/us/?assetID=1245207089474>)

Changes in Per Capita Net Debt and in Net Debt Per Thousand Dollars of Assessed Valuation, 1922-32

States	Per Capita Net Debt			Net Debt Per \$1,000 of Assessed Valuation		
	1922	1932	Per Cent Increase	1922	1932	Per Cent Increase
States with serious default problems						
Arkansas	5137.20	\$ 51.03	168.8	\$461.18	\$157.50	192.2
Florida	357.74	95.96	252.0	985.73	233.17	322.7
Louisiana	169.05	69.18	144.4	216.32	81.30	166.1
Michigan	157.66	94.09	67.5	94.65	61.01	55.2
New Jersey	278.61	116.40	139.4	163.81	93.16	81.2
North Carolina	164.84	69.03	138.8	188.21	72.48	159.7
Ohio	129.89	112.25	15.7	64.38	64.33	.1
Texas	125.93	73.71	70.8	176.44	105.36	67.5
Weighted Average	170.99	60.94	90.1	136.09	78.50	73.4
States with no defaults in 1933						
Connecticut	\$ 98.59	\$ 70.33	40.2	\$ 51.00	\$ 51.43	d
Delaware	121.20	98.52	23.3	99.56	98.86	.7
Maryland	158.28	81.43	94.4	94.57	71.76	31.8
Massachusetts	101.77	82.30	23.7	58.66	57.59	1.9
New Hampshire	67.91	36.16	87.5	46.70	26.09	79.0
Rhode Island	158.55	79.38	99.7	76.26	47.04	62.1
Vermont	75.50	34.93	121.9	61.64	39.03	57.9
West Virginia	86.33	46.58	65.3	80.72	33.69	139.6
Weighted Average	103.96	71.83	51.7	66.79	53.03	26.0
For all 48 states	141.17	79.90	77.3	107.63	69.71	54.4

Sources: Bureau of the Census, *Financial Statistics of State and Local Governments, 1932 and Public Debt*, Washington, D.C., 1932 and 1934 respectively.

d = slight percentage decline

Source: Hempel, George H. *The Postwar Quality of State and Local Debt*, NBER 1971

Hempel further demonstrates that what we are experiencing today in Greece, as well as among some state and local entities in the U.S., is all too common. The table above shows that states with serious default problems after the Great Depression had taken on far more debt in the previous ten years than states that had no defaults. While debt for all entities rose in the Great Depression, the per capita net debt increase for states with serious default problems rose an average of 90.1% over the previous ten-year period, while that for non-defaulting states rose only 77.3%. Net debt per \$1000 of assessed valuation for defaulting

states rose an average of 78.5%, compared to 69.71% for non-defaulting states. Hence, even historically, default is not a threat without a substantial debt load.

Still, although the need for CDS on sovereign and municipal debt may be justified, the market remains in what you could characterize as the middle stages of development. As recently as 2003, relatively few market participants traded in credit derivatives. "In December 2003, according to the OCC, only 26 out of more than 2,200 U.S. commercial banks participated in the credit derivatives market as protection buyers; 16 acted as protection sellers. The seven most active domestic banks in the U.S. credit derivatives market accounted for 98% of the total volume originated by U.S. banks." (Deutsche Bank, "European SOV risk in transition from systemic to specific," Dec. 9, 2009)

High concentration results in substantial individual counterparty risk concentration and exposure. With some obligations (usually reference debts without investment-grade status), it can be difficult to find a counterparty at any given time. "This is especially true when the market is under strain. At such times there is a danger that trading may be impossible – which also means there can be no reliable [market] pricing." (Deutsche Bank, "European SOV risk in transition from systemic to specific," Dec. 9, 2009)

That concentration has raised the specter of counterparty default as a major systemic risk. Nonetheless, counterparty bankruptcy – as demonstrated in the recent crisis – is extremely unlikely. Similarly, while a major market participant may withdraw voluntarily for strategic reasons, this is also unlikely in a market that is growing steadily as more and more banks and other financial services providers join. The more likely adverse scenario – one that we did see demonstrated in the crisis – is that concentration intensifies due to mergers and acquisitions among the top market participants, constraining counterparty choice and risk even more acutely. (Deutsche Bank, "European SOV risk in transition from systemic to specific," Dec. 9, 2009)

As sovereign and municipal CDS markets mature, however, it is expected that new entrants will greatly reduce the existing market concentration. It can reasonably be expected that, "in trading, though, a certain degree of concentration will remain, as high sunk costs are a barrier to the market entry of new participants." (Deutsche Bank, "European SOV risk in transition from systemic to specific," Dec. 9, 2009) Hence, while risk may decline among individual market participants, it may rise at the central counterparty clearing entity envisioned in regulatory reform. Recently, the IMF has opined that the magnitude of risk to be assumed at the proposed CCP is of an order of magnitude in the neighborhood of some \$200 billion. That estimate should not be dismissed.

Implications of Sovereign CDS Market Growth for Sovereign Issuers and Public Policy

Some have pointed to CDS as creating problems for sovereign debt financing. It is hard, however, to see the case. While CDS provide transparency by aggregating market views of

the probability of default and recovery, CDS – in and of themselves – do not create additional volatility to those views.

The view of CDS as creating volatility comes from observations that CDS spreads can widen quickly before a credit event, reflecting demand from CDS protection buyers. Since the cash bond market may be illiquid cash bond prices may not move, creating the illusion of stability against which CDS market volatility looks odd. In that case, however, CDS markets are really providing a more continuous pricing of the risk behind the debt, therefore yielding a more “market efficient” view of the evolving potential for a particular credit event or set of credit events.

Some of the fear arises because CDS markets may be dominated by fast-moving hedge funds, while cash bond markets are dominated by buy-and-hold real money investors. The signals from the two markets may therefore be at odds during distress. Academic and practitioner literature has shown that pricing between the two can diverge, creating even more fear that something amiss is going on. That divergence, however, has been shown to be bounded by some fundamental institutional and value differences between CDS and the underlying debt contracts.

The problem is that while default probability is rising, probable recovery is falling. Hence, CDS spreads move in magnitudes greater than mere default probability alone, leading some to cite the volatility as an untoward aspect of CDS prices. But while this observation serves as a warning against using fixed recovery expectations, it should not serve as an argument against CDS, altogether. In situations where expected recoveries are scant, it merely means that more complex models of stochastic recoveries need to be taken into account in valuation and margining.

Recovery rate assumptions are less of a problem for sovereigns, however, as sovereigns have the power of taxation to (eventually) mitigate investor losses. As a result, sovereign CDS spreads are not as volatile as corporate and financials, mitigating industry and regulatory concerns. Of course, the sovereign could also inflate away their debt value in a purposeful currency devaluation, particularly developing countries. While such action would undoubtedly increase CDS volatility, it is hard not to argue that the increased CDS volatility that would arise from such expectations would not be appropriate.

At the end of the day, many feel that “...any assessment of whether CDS prices are appropriate is bound to be essentially anecdotal... The track record is too short and the number of credit events is too low to provide a reliable basis.” (Deutsche Bank, “European SOV risk in transition from systemic to specific,” Dec. 9, 2009) Moreover, problems due to purportedly or even actually unreliable pricing models should not be seen as too important in the medium term. They are a natural evolutionary implication of adolescent financial market products: similar problems were observed in the early days of interest rate and currency derivatives, yet did not automatically lead to market failures or inherent instabilities.

Moreover, the absence of a generally accepted pricing model used by all market participants at the present stage of market development can be a good thing, reducing the danger that the industry and regulators coalesce around an inaccurate measure of market risk and/or value. When a single model is accepted by all market participants, all respond in the same way to signals from that model. Hence, uniform risk models can lead to herd behavior, with market participants interpreting market developments in the same way and taking similar action. Herding around inaccurate models can lead to market instability. When markets are strained, such herding can precipitate unnecessary crises, such as the 1987 stock market crash.

Indeed, in the recent crisis overreliance on value-at-risk (VaR) models led to considerable strain when it became known that those models were clearly inadequate. Approximately 60% of the survey participants in Fitch's most recent Global Credit Derivatives Survey acknowledged as either very important or critical the need to recalibrate VaR models to take account of data shortcomings and stressed market conditions, compared with 45% in the previous year. (Fitch, "Global Credit Derivatives Survey: Surprises, Challenges and the Future," August 2009) That concern, combined with the proposed regulatory changes to capture jump-to-default and migration risk within VaR models is clearly going to increase the cost of trading credit derivatives and consequently may have an impact on volumes and bid-offer spreads.

In fact, Fitch also reported that, "The biggest change in risk management issues over [2008-2009] relates to the reduced reliance on models and the increasing use of more qualitative forms of analysis to supplement models. This is indeed a welcome change and should be viewed as a positive from a risk management perspective." (Fitch, "Global Credit Derivatives Survey: Surprises, Challenges and the Future," August 2009) It would be foolish, therefore, to force a new model upon the industry before research has shown a reasonable degree of convergence in measuring CDS risk and pricing.

Interestingly, it should also be noted that, "45% of the respondents in the Fitch survey disagreed or strongly disagreed with the view that the availability of CDS had lowered loan underwriting standards with 27% being undecided." That observation supports the view that institutions use CDS primarily as a trading instrument and as a means of taking a position in the credit markets rather than as a hedging tool for their loan books. (Fitch, "Global Credit Derivatives Survey: Surprises, Challenges and the Future," August 2009)

Last, it should be noted that little of the above is relevant to CDS written on U.S. Treasury debt. The market for CDS on U.S. sovereign debt is not especially large -- \$11.1 billion in gross notional and \$2.2 billion in net notional amounts. The reason is simple: a U.S. Treasury default would have dire implications for world economic growth and currency values. As is true for the OTS market in general, the major dealer-banks are the market makers for U.S. CDS. U.S. dealers generally do not participate in the CDS market on U.S. Treasuries because the market realizes that buying credit protection on the U.S. from a U.S.-based bank is probably a futile endeavor for if the U.S. cannot meet its obligations, neither would the U.S.-domiciled dealers. Similar effects are being demonstrated among Greek banks, today.

Nonetheless, some U.S. CDS contracts are denominated in Euros in order to avoid the currency risk implications of a U.S. default, instilling elements of quanto risk. In the end, it just doesn't make sense to use U.S. bank-issued CDS as a hedge against a U.S. credit event. Still, some uses for such CDS could be to hedge against rising credit spreads, generally, managing a country risk limit, or betting on rising credit spreads. In all cases, however, the protection provided by the CDS is fully expected to expire worthless. (Singh 2010, forthcoming)

Regulation of CDS Markets and Relevance to Congressional Regulatory Reform

Like most OTC market, the CDS market does not lack regulation, merely government regulation. Over the development of CDS markets, regulation and standardization has been imposed by ISDA, the International Swaps and Derivatives Association. Such industry-based regulation has promoted both domestic and cross-border standardization that efficiently fosters industry development.

In 1999, the International Swaps and Derivatives Association (ISDA) first drew up standards for trading in credit default swaps that are now included in most CDS contracts. In mid-2003 a revised version of the ISDA rules came into effect, integrating earlier amendments and clarifying a number of additional points. Importantly, the 2003 rules took into account regional differences in debt restructuring used in Asia and Japan ("full restructuring"), the USA, Australia and New Zealand ("modified restructuring" or mod-R), and Europe ("modified modified restructuring" or mod mod-R). The 2003 rules are also more specific regarding guarantees and the conditions that trigger a debt repudiation or moratorium in the case of emerging market sovereign credit derivatives (e.g. EM sovereign CDS). (Deutsche Bank, "Credit derivatives: effects on the stability of financial markets," Current Issues, June 9, 2004)

The year 2009 brought significant new developments in ISDA regulation for CDS. Recent ISDA regulatory changes in the March/April 2009 Big Bang protocol included further clarification on credit events by means of a determination committee that issues binding classifications where necessary. Additionally, the March/April Big Bang provided for standardized auction settlement in case of credit event where significant cash bond market dislocations exist.

In June 2009, ISDA introduced new market conventions for many products, including standard coupons for North America and Europe (25/100/500, upfront fee, full first coupon, recovery rate for calculation is set at 40% on industrial and sovereign). In July, 2009 ISDA's "Small Bang" protocol introduced rules for auction settlements applied to a restructuring. In September 2009, ISDA standardized coupons for EEMEA (100/500) with upfront fees, provided for quarterly coupons (previously semi annual), and set a fixed recovery rate, 25% (EEMEA) for calculation. All of those changes were designed to make CDS more standardized, especially to facilitate central clearing.

Nonetheless, it can be argued that the ISDA efforts remain incomplete, although in my view necessarily so as this is an evolving market. In the context of the Greek crisis, it is known that many Greek sovereign CDS positions were taken (intentionally) outside the main 14 dealers who have to report to DTCC. Moreover, the DTCC, due to its ownership structure, is not willing to share information with European regulators due to concerns that confidentiality restrictions in different countries could lead to cross-border litigation. While some of the known transparency issues may improve via CCPs, moving the critical mass of OTC derivatives from the dealers' books to the CCPs is the primary effort, not transparency, per se. The proposed regulatory reforms do not address directly sovereign CDS. Hence, a lot of these issues will remain unaddressed for the foreseeable future.

Overall, the danger that a CDS buyer may deliberately trigger a credit event remains theoretical. There are no known cases of adverse behavior that had directly impacted debt borrowers because those borrowers are known to be struggling financially, anyway.

In summary, the CDx market in general was subject to an unprecedented number of defaults in the latter half of 2008. The consensus view of all Fitch's 2009 Global Credit Derivatives Survey participants was that "...the auction-based protocol mechanism set up by the industry functioned effectively. The participants also pointed out that the effectiveness of the mechanism was dependent on cooperation and consensus from all market players, adequate transparency, reliable supporting infrastructure and the commitment of sufficient resources from all players. While all credit events were dealt with in an orderly manner with no major disruptions, one notable feature of most settlements was that net cash settlement amounts were a fraction of the notional amounts outstanding. 94% of participants also noted that there were no major differences between the settlement processes of Europe and the U.S. Survey participants would like to see greater standardization and were supportive of the move to hardwire the auction settlement terms, centralize infrastructure facilities and standardize procedures in determining credit events." (Fitch, "Global Credit Derivatives Survey: Surprises, Challenges and the Future," August 2009)

Additional Policy Implications

While my opinion is that the sovereign CDS market is working smoothly, some elements could still use reform in seeking standardization and maturity. For instance, starting April 8, 2009, with the Big Bang ISDA protocol both CDX and individual CDS will not include restructuring (for U.S. issuers). CDS on European issuers like Greece still include the restructuring clause. That means the CDS prices in different countries still mean different things, which will hinder coordinated industry development of pricing models and applications.

Moreover, while CDS price dynamics will appear to be unusual for some time to come, that is to be fully expected given the nature of the contracts. Financial markets are deleveraging and that deleveraging will be reflected in sovereign and other CDS markets. As the private

sector shrinks and de-risks its balance sheet, sovereign entities are taking the other side of the trade to avoid a depression, necessarily weakening their fiscal conditions in doing so.

Negative basis – where CDS trade at levels *below* the cash value of the corresponding credit risk – is the price paid to rotate credit from levered investors (such as hedge funds, private equity) to real money investors (insurers, pension funds, institutional investors etc). The only way to do that is to sell assets from the “levered” part of the global financial system to the “unlevered” part (i.e. to cash investors). The negative basis that existed in the U.S. until late January 2009 therefore suggested pressures to reduce leverage exceeded the demand for cash bonds.

Bank balance sheets (already weakened by sub-prime losses) could not fund additional cash bond inventory, including even AAA rated bonds. The highly levered “shadow” banking system was no better off, their collective capital base being insufficient to cope with the losses stemming from the steepest fall in asset prices. Thus, leverage had to come down (especially by hedge funds), but it had nowhere to go. As a result, a market premium (lower price) developed for cash bonds relative to higher priced CDS, the negative basis. Such sizable dislocations (negative basis) during distress is unusual. Again, however, the CDS is just reflecting market dynamics, not dictating those dynamics.

In sum, therefore, I am not convinced sovereign CDS deserves its current negative press, and fear that a ban or restriction on trading could easily backfire. Bans on trading activity tend largely to reduce liquidity, forcing a reversion to a world where sudden and unhedgeable price jumps occur when information about underlying fundamentals is occasionally priced into an illiquid market – that is, when someone finally trades. Sovereign CDS provides an efficient way to trade – and to hedge – credit exposures to governments, as well as a more continuous way for governments to “poll” their fiscal decisions more continuously in the marketplace. If governments do not like that transparency, it seems they doth protest too much.