

Good morning. It's a pleasure to see so many colleagues from around the world. I'm grateful for the opportunity to set out a few of my thoughts today at this 15th ISSA Symposium.

We are now, thankfully, 21 months past the worst of the global financial meltdown following the failure of Lehman Brothers in the fall of 2008. Since then, all of us here have been busy putting out various fires and instituting remedial changes in how we operate, both in our marketplaces and across markets. Here in Europe, still more financial fires have flared in recent weeks. As the theme for this year's symposium suggests, however, it's time for us as an industry to look beyond the present and set the frame for the future.

After all, others are already doing that for us. The U.S. Congress, for example, wants to move OTC derivative activity onto formalized trading platforms and clearing houses. Here in Europe, the European Commission and several national regulators are moving forward to craft new regulatory structures for these and other investment instruments. The reality is that legislative and regulatory bodies throughout the world are moving broadly to set new rules and restrictions for the financial community. International organizations overseeing our industry are establishing – and enforcing – new, more stringent standards. Thankfully, global supervisors are beginning at least to acknowledge the desirability, and the challenges, of setting globally consistent regulations and oversight, and are trying to avoid a blizzard of conflicting national or regional provisions. And in the industry's infrastructure organizations, we all are working our way through these changes and through the lessons from the past several years to ensure that we can maintain the degree of reliability and risk mitigation that proved so crucial at the height of the collapse and in the ensuing shake-out.

Of course, it's not easy to look beyond the present while the sovereign debt crisis and other aftershocks from the financial collapse continue to unsettle the markets. And even as legislative bodies focus on solving the problems of the last crisis, the problems of the future are already emerging. One example is what's now described as "the flash crash," the nearly 1,000-point drop and just as precipitous recovery in the U.S. Dow Jones Industrial Average in less than twenty minutes last month. It's a sign of how pervasive technology and technology-based trading have become...and a signal that the impact of this phenomenon is not well understood.

Against this backdrop of uncertainty, political pressure and changing technology, there's a strong recognition throughout the industry and its governmental overseers that we don't have the luxury to indulge in a prolonged exploration of how to respond to these challenges. We already know the key challenges we face involve risk, technology, transparency, the globalization of the markets and the interplay between them. As always, this ISSA symposium provides an especially useful forum to focus on these issues, since we are able to do so among colleagues from all across the globe, informed with perspectives from all of the markets. How we respond to these challenges will directly shape how we operate and how we cope with the global changes in our industry, even in the context of new rules and new expectations.

The principal theme of all of these challenges is risk. The financial turmoil of 2007 and 2008 drove home in a fundamental way the need to dramatically reframe how we think about risk. That experience made abundantly clear that risks that at one time might have

been manageable because they were largely contained within the confines of a single financial institution have become far more dangerous because they now routinely spread throughout the broader financial system as a result of the far greater interconnectedness among the constituent firms within the system. Exacerbating this broader risk is the reality that, in globalized markets, the activities, investments, risk management techniques and exposures of individual firms are now far more aligned and far more integrated than they have ever been before, so that, as a particular risk is realized, the likelihood that many or all of us will respond in exactly the same way creates a source of additional risk.

The experience of 2008 showed that we can cope with one firm going down, but if a contagion spread to multiple companies, we'd face a "risk pandemic" conceivably all across the globe, with potentially severe results. In other words, risk management can no longer be considered to be simply a bilateral issue, between two counterparties, or between an infrastructure organization and its individual members. We now see that understanding risk from the perspective of the system as a whole is critical, and acting to contain risk at the level of the system as a whole is equally critical.

And I think how we actualize our response to all of these new dimensions of risk will similarly be a principal theme of this year's Symposium. Let me contribute to that with some thoughts on these issues from the vantage point of our infrastructure organization – some thoughts about a few conceptual issues we all have developed a deeper understanding of in the past few years, and, as always, a discussion of some of the more pragmatic tactical responses that we at DTCC are focusing on. Hopefully these will be useful in framing the discussions over the next few days.

Interconnectedness

One conceptual issue relates to a startling realization we all came to in the early days of the crisis. So quickly during those early days it became frighteningly clear that interconnections in the industry were far deeper and far more extensive than any of us had imagined. We were all horrified to discover that the legendary "butterfly effect" – that a butterfly's flapping wings in Brazil supposedly can set off a tornado in Texas – now has its financial analog – that defaults on subprime loans in a trailer park in southern California can whip up a financial storm that can severely impact, and perhaps even bring down, financial institutions half a world away. It is now a truism that financial institutions are far more interconnected with each other, in far more extensive ways, than ever before. Understanding how to address that exponentially greater interconnectedness will be a crucial part of building on the lessons of the recent crisis.

Now interconnectedness, of course, is not anything new – interconnectedness is intrinsic in the existence of markets. Interconnectedness is not something that we don't know how to address and control – one of the factors driving the evolution of the industry's infrastructures was, in fact, the need to mitigate the risks of interconnections within a particular industry segment – within the users of a particular market, for example, or among the financial institutions in a particular region. So why did this type of interconnectedness become so serious and so threatening?

I think an argument can be made that the levels of interconnectedness that exist in the industry now have grown far beyond the reach of the mechanisms the industry has evolved to deal with the issues interconnectedness presents. Institutions in Germany are now exposed to financial assets originating out of the United States. Trading organizations headquartered in Asia may be exposed to financial liabilities on debt originating from the Euro zone. Is the need to further integrate the infrastructures, which the industry evolved precisely to deal with this issue, part of the solution to the problems

of these intensified interconnections that we are trying to formulate? Does this far higher degree of industry interconnectedness suggest that the industry's infrastructures should – at long last – interconnect globally to be able to provide the greatly expanded coverage and risk management capabilities that appear to be imperative for today's globalized markets? Certainly these are questions worth debating during our time here at Wolfsberg.

Innovation

Another conceptual issue arises from our experience in recent years in coping with the flood of new, innovative financial instruments, trading strategies and techniques that seemed to proliferate every time we turned around. There are many, many issues here – from dealing with the complexity of these new instruments, a topic we'll touch on later, to much more existential questions about them – their utility and even, for some commentators, their ethics. But one interesting issue is less frequently referenced, and one reality of the crisis has gone almost completely unobserved.

I'll also discuss later some of the history of the work over the past decade with credit default swaps, but let me point out one aspect of that work right now – the reality that thanks to all of that work, which involved substantial leadership and effort from officers and staff from many of the institutions represented at this conference, the operational infrastructure supporting the credit default swap markets was largely in place, sound and resilient by the time the crisis began in 2007. Had it not been, the severity of the crisis would unquestionably have been exponentially worse – imagine the impact in September 2008 if we had not had any sense of the extent of industry credit default swap obligations on Lehman debt – who was on the hook, and for how much. Imagine the impact if the transfer of 250,000 open CDS contracts naming Bear Stearns as a counterparty had taken months to accomplish in the summer of 2008, rather than the two weekends that it actually took, thanks to the robust infrastructure that the industry had succeeded in putting in place. As in the Sherlock Holmes story *Silver Blaze*, it was "the dog that didn't bark in the nighttime" and certainly one of the unheralded success stories that, I would argue, dramatically mitigated the severity of the crisis.

But the point isn't just that the industry succeeded in averting a problem that could have dramatically worsened the crisis. That experience also points out the critical elements of dealing with future innovations, future new instruments as they get created, and what a processing framework to mitigate the operational risks of new instruments might look like. The CDS experience demonstrated that:

1. Processes for ensuring the electronic capture of the new instrument's details, including automated confirmation and matching of trade information, should be developed and put in place early in the life cycle of a new instrument, as perhaps the first step in establishing the necessary processing framework.
2. As "secondary market" trading of the new instrument proceeds, the automated confirmation process must extend to capture that activity.
3. As market activity evolves, the automated confirmation process should be leveraged to establish some registry of activities and resulting positions. This clearly also can establish the basis for an appropriate form of transparency in the trading process and in open positions, both to supervisors and to members of the public.
4. Again, over time that registry should evolve to encompass the broad set of market activities in the new instrument, no matter how standardized or how tailored (and therefore difficult to confirm electronically) – even bespoke instruments or contracts

must be recorded. As I'll argue later, that registry should cover all activities. Given the reality of today's globalized markets, that registry also must be a global registry, reflecting trade input from all over the world.

5. Again, over time, that registry should begin to support "post settlement" activities in the new instrument – the equivalent of what we'd think of as "corporate actions" in the securities world. In the CDS repository we manage, for example, the last several years have seen extensive reliance on the repository to handle various market events, typically credit events such as bankruptcies, as well as the automation of routine payments.

I believe this outlines what we can think of as the early stages of the "life cycle" of any new innovative instrument, and the type of operational support that has to be considered as the first set of "must haves" as a new instrument is developed and brought into the marketplace. I won't spend the time to compare this to how the industry's infrastructures for more traditional asset classes developed, but if you do, you'll see that this actually tracks reasonably closely. I'd suggest that one expectation that we all must impose on new instruments as they develop in the future is precisely that they follow that type of standard structure for developing the requisite processing infrastructure. Again, perhaps a challenging topic we can discuss further over the next few days.

Pragmatic approaches

But, beyond these conceptual questions, building on the lessons of the past will, of course, also involve the pragmatic work of creating new capabilities to address vulnerabilities that have been revealed. As a general principle, I think the experience of the last two years has clearly underscored the importance of adopting central clearing in all instances where there is sufficient market activity to make central clearing viable – you can think of this as a sixth "must have" in the list I just described, that should happen as the market for a new instrument matures. For example, as soon as we have final regulatory approval, we're prepared to launch a central counterparty for the U.S. mortgage-backed securities market, where the value of trading last year was nearly US\$100 trillion. We're convinced that establishing a trade guarantee for this market will be one of the biggest steps we can take toward more complete risk management. In fact, we already have plans on the drawing board to guarantee mortgage-backed securities trades as soon as they're matched, which would effectively transform three decades of industry practice by accelerating the trade guaranty and ensuring that it applies from the moment of the trade through its ultimate settlement. We're confident this approach will cut both costs and risks for the industry, and our aim is to complete the foundation for these additional changes in the next year or so.

Broadening Membership

Another pragmatic step that the crisis revealed is the need to extend the reach of the central infrastructure more broadly into the actively trading community. For example, the Mortgage-Backed Securities Division of our Fixed Income Clearing Corporation has always accepted buy-side institutions as members. Although many had chosen not to participate, they came to regret that decision in the aftermath of the Lehman failure, when – to their shock – the clearing corporation made good on its members' trades, but did not accept responsibility for making good on non-members' trades, as, of course, we could not. For those firms, having to go through the legal exercise of submitting claims and trying to recover their losses from the Lehman trustees brought a new appreciation for the risk safeguards and benefits a central counterparty can offer its members. As a consequence, we've experienced a surge of interest from buy-side firms that want to become direct members. In turn, we're speeding up our procedures for bringing in new

members, and we've gone to our regulators with a request to let us bring certain institutions into our clearing organization for government securities trading as well. After all, the more participants whose business is covered by appropriate clearing procedures, the more we can mutualize risk and the more we can monitor risk across an entire industry segment. The members of this audience will appreciate the balancing act that we'll have to take on here. Since these potential new members will absolutely depend on your continued services to be able to participate in the clearing infrastructures in this new way, we will have to collaborate to determine how this can proceed in a way that helps mitigate risk for all.

A broader challenge

The broader challenge that the financial collapse poses to all of us, though, is the challenge of rethinking the fundamental industry processes to determine how these processes need to be re-architected in ways that help promote the health of the entire system. I think the infrastructure organizations can contribute very much to this rethinking – we are uniquely positioned to understand where vulnerabilities are building up and where risks may be lurking that need to be brought under control. We need to actively work with our members, market authorities and other industry participants to identify risk issues embedded in our processes, and in broader industry processes, and work to address them. And we need to undertake these efforts in a way that promotes the global view of these issues, recognizing that, in a globalized industry, addressing these issues on a national or regional level provides only a partial solution, at best. Let me give you some examples of the kinds of efforts I have in mind.

Condensing the settlement cycle

How can we act to identify risk issues in generally accepted industry practices, and act to address them? Well, here in Europe, there's already a market-wide effort under way to focus on one instance of just such an issue, with the progress European markets are making in their discussions on the possibility of compressing the standard settlement cycle from T+3 to T+2.

In our industry, we've long recognized that one of the easier ways to mitigate risk is simply to reduce how long we're exposed. It's always been apparent, for example, that the risks faced by market counterparties, and their depositories and clearing organizations, reflect, in part, the cycle time between trade execution and the related settlement. The shorter the settlement time, the less counterparty risk you run, and, as a consequence, the fewer fluctuations you have in variation margin, and the less time you have to keep margin posted.

Obviously, it would make life easier for all of us if we used a consistent settlement convention to reduce risk and costs across the globe. And obviously there's considerable interest in this idea in Europe, where German markets settle on T+2, while other equity markets employ T+3. If you're an investor buying securities in a T+2 market and selling them in a T+3 market, you may suffer a 24-hour gap in funds.

My understanding is that a working group under the European Commission's Clearing and Settlement Advisory and Monitoring Expert group has informally voted in favor of moving the European settlement convention to T+2, but hasn't yet made a formal recommendation to put the project into motion. We understand the group first wants to assess whether the U.S. and Japan will go along, which strikes me as a very reasonable question to ask.

Just how much interest there is in the States to work toward a shorter cycle, however, isn't evident – and I should be quite clear here that we at DTCC ourselves haven't come to a conclusion on this issue. For one thing, the work that's been done recently in Europe on this initiative isn't widely known in the U.S. market. For another, this idea has been off the U.S. industry's radar for a number of years. The last time we looked to shorten the settlement cycle for U.S. markets was nearly a decade ago. The plan at that time was to switch to settlement on T+1, and the momentum moving us in that direction seemed to be strong. Even the chairman of the Securities and Exchange Commission at the time was urging the industry to speed up settlement.

What happened, though, is that 9/11 and its aftermath changed the U.S. industry's priorities. Costs were a major factor, with the rough estimate for the industry to switch to T+1 being about US\$8 billion, at a time when it was clear that the industry would also have to make substantial investments in beefed-up business continuity capabilities. Operational risk was another factor – there was concern about how we could fix settlement issues in a one-day cycle. And there was little pressure from markets in other parts of the world for us to undertake the change. It wasn't until 2001, as many of you will recall, that the UK and Ireland moved from T+5 to T+3.

I anticipate, however, that Europe's consideration of moving equities to T+2 will spark renewed debate on this issue in the U.S. and elsewhere. Because a reduced settlement cycle clearly reduces risk exposure, I expect the U.S. industry will want to give it serious consideration, particularly in view of the volume of equity trading in U.S. markets. Unfortunately, however, the industry in every region is also going to have to cope with a host of new rules and regulations coming out of financial reform efforts. So it may take a while before this issue gets a full hearing.

Nonetheless, unlike the changes in the industry that will flow out of the financial reform efforts under debate, the move to T+2 is a change the industry can more or less make itself. It's also a step Europe can take on its own – with or without participation by other markets. In today's global marketplace, however, it's a big step to adjust one region's timetable for settling securities trades, and yet on the other hand, with the heightened interconnectedness we now see, making that change only in one region may not be enough to achieve optimal results.

My understanding is that this project is likely to be a complex, 3-to-5-year initiative, and if so, it seems a surprising priority to propose at this time – but perhaps that makes it another great topic for debate during ISSA this week. As more detail about Europe's plans in this regard becomes available, it will become easier for those of us in other markets to assess the desirability of the initiative. Clearly the crucial questions will relate to the balance between the anticipated risk reductions and the cost outlays – including opportunity costs of other industry needs – of making this change.

CPSS-IOSCO reviews

Another reminder of how we need to prioritize risk issues with an eye to systemic consequences came only two weeks ago from the International Monetary Fund, which published its assessment of the extent to which DTCC's depository and our two clearing organizations are adhering to the international recommendations for central counterparties and securities settlement systems. These recommendations, as you know, were promulgated in the 1990's by the Committee on Payment and Settlement Systems here in Switzerland and the International Organization of Securities Commissions.

As infrastructure organizations are expected to, DTCC has assessed its compliance with these sets of recommendations, most recently last year, and published the results on our

Web site. Our regulatory supervisors, of course, also evaluate our performance against these guidelines. Increasingly they are serving as the framework for our own internal risk analyses of our activities and new service development efforts, and our dialogue with our Board and our members on these issues.

And while DTCC's clearing organizations and depository received quite favorable marks, the IMF review also left us with several recommendations on moving the bar on risk matters that merit very careful consideration.

For example, the assessment suggested that DTCC should consider improving finality by adopting "settlement matching" – a convention that is typically used in many other settlement infrastructures. With a majority of our trades centrally matched or affirmed very soon after execution, settlement matching, of course, has never been the practice in the U.S., and making such a change in a market with our volumes would be difficult at best. What is receiving renewed consideration, however, is placing greater emphasis on the mandatory use of confirmation/affirmation systems – or central matching systems – for institutional trades prior to their introduction into the settlement process. This is an idea that has been considered several times in the U.S., since it eliminates the potential for after-the-fact disagreement about the terms of an institutional trade. Some market participants are now urging that this be brought back into debate; if the drive to further shorten the settlement cycle gathers strength, that issue unquestionably will be coming up again.

As you would expect, the IMF assessment of the U.S. clearing and settlement system also focused on intraday liquidity issues, and measures to respond to the liquidity stresses that became so apparent in the markets during the crisis. In this regard, again, there's quite a bit of attention being paid to the liquidity demands that infrastructures place on their members, and the resources that the infrastructures, in turn, may need to meet their own liquidity challenges in a market crisis. We are implementing this month capabilities that will significantly strengthen our members' ability to withdraw funds intra-day from the settlement system, so that liquidity can be injected back into the money transfer system earlier in the day. We are also looking at the potential for fundamentally redesigning the structure of our services for money market instruments, such as commercial paper, again to help reduce intra-day liquidity demands. Here, of course, what would be involved is not just a few "tweaks" to a processing system, but a fundamental rethink of how the industry conducts a particular business. That type of top-to-bottom reconsideration of how particular businesses work is precisely what the new world will be demanding of both the industry's infrastructures and of all of us as industry participants.

The technology question

But again, even as we try to grapple with these risk issues, we have to recognize that the ground itself continues to move under our feet. And those kinds of seismic shifts are particularly evident in the evolution of the technology that now underlies our business...and its impact on market and systemic risks. It's no exaggeration to say that technology has become so powerful in the last few years that the markets we serve, particularly in the U.S. but elsewhere on the globe as well, are now overwhelmingly propelled by machines rather than humans.

Can I ask you all to participate in a bit of an experiment? Can we all blink our eyes concurrently, on the count of three? In the fraction of a second that took, literally thousands of computer-generated buy and sell orders poured into the world's exchanges. In fact, in less than the blink of an eye, computers solicit price quotes from dozens of trading platforms, calculate how to trade, work through a risk analysis, and then

generate a buy or sell order. In turn, almost all those orders are matched in that very same microsecond – and then cascade into the clearing organizations and depositories we operate.

On our systems at DTCC, messaging traffic alone now runs into the many millions a day. Our data bases answer queries more than 2.4 billion times each day, which is about 28,000 times a second – or far faster than any of us can blink.

The impact of this technology on the risks we confront is considerable. In just a few short years, high-speed trading has changed the way markets function more than anything else over the centuries. Computers quietly trade in and out of individual equities, index funds, exchange-traded funds, foreign exchange funds and exchange-traded futures throughout the day – and that's just in the securities world. Most clearing organizations guarantee trades effectively at the point of execution, which means that as executions occur thousands of times in the blink of an eye, the exposures from the guarantee of those trades changes thousands of times in that same instant.

In U.S. markets, high-frequency trading now accounts for an estimated fifty percent or more of all trading volume. In Europe, high frequency trading is approaching 40% of all trading volume. The question people have increasingly been raising is whether the exchanges and, by extension, the post-trade infrastructure, are prepared for the implications of all this volume and velocity.

The answer, to judge from the “flash crash” that took place in U.S. markets on May 6, is that perhaps we have a ways to go. It appears that high-frequency trading programs that link numerous markets and asset classes were caught in a sort of self-re-enforcing dynamic to sell shares – and ended up pushing the equity markets into free fall. As uncertainty about the direction of the markets increased, several high-speed trading shops even shut their systems down, assuming the exchanges might cancel some of the trades, which they eventually did.

Since then, as you may know, the U.S. Securities and Exchange Commission has instituted a new series of “circuit breakers” or “stop-trade” orders in hope of preventing such market volatility. The new circuit breakers may help calm turbulent equity markets, at least temporarily, but I don't know anyone who thinks they address the root problems inherent in super-fast computer trading systems that link together a crisscrossing web of markets, exchanges and trading platforms. Perhaps more useful for the long run is the other proposal the SEC made in response to the crash: It wants to collect – and put in a single repository – real-time trading data from all U.S. stock and options markets. Whatever steps are taken, it seems to me that figuring out the root cause of the “flash crash” and the necessary feedback loops into the marketplaces should be high on our agenda.

We've already seen several instances of what Wall Street calls “fat fingers,” which is when trading goes wrong because someone made a typing error when entering a buy or sell order. Sorting out the residue from these mistakes can take days. But what could happen, for example, if someone set on destabilizing the markets intentionally plants a bug in a computerized trading program? It could wreak havoc. Or what would happen if people are intent on crashing the systems that support the markets or sustain the market infrastructure? We all know that there are people in our world who are well organized, well funded, technologically advanced and...malicious. If they can penetrate highly secure government systems – and they already have – the odds are they're working to get into our systems as well. In turn, we're working very hard to keep them out.

So I would put the need to understand and manage this technology high on our agenda. At the same time, I think we all understand that technology is a two-edged sword. While it has the potential to threaten our activity, we can also use technology to bring greater transparency and efficiency to markets, to the processing and understanding of information that can affect the markets, and to some of the more opaque financial instruments traded on the markets.

Transparency

Another lesson that the past two years have highlighted is the critical need for far greater transparency in the markets. It became abundantly clear over that time that many market participants were trading in and holding assets about which they understood very little – hence the overreliance on the rating agencies – and in some cases positions had built up sufficiently to sink large multinational corporations without anyone being any the wiser. Many reform proposals focus on addressing one or another aspect of these transparency issues.

But an article in *The Economist* last March points out a major obstacle to coming to grips with these issues. Entitled “Data, data everywhere” the article outlined how companies are trying to work with the flood of data each of us maintains to derive business benefit from it. Let me cite a few statistics from the article:

- The total amount of data in existence in the globe today is estimated to be roughly 1.2 zettabytes – a zettabyte being equal to 1,000,000,000 terabytes.
- That amount of data – 1.2 zettabytes – is equal to about 67 million times the contents of all of the books catalogued in the U.S. Library of Congress.
- Only about 5% of that data exists in “structured” form, meaning in a form that permits a computer to analyze the data – usually through using a language like XML. So of those 1.2 zettabytes of data globally, about 1.1 zettabytes – 63 million times the complete contents of the Library of Congress – are in a form where a human has to intervene to interpret and understand the data – something that is clearly far beyond our capability to do.

So let me argue that, as we struggle with the need to introduce far greater levels of transparency in the markets, one of the key challenges will be dramatically increasing the volume of market data available in structured form. Making the broad volume of securitized assets in the marketplace truly transparent will demand that the data about those securities be released into the marketplace in some type of structured mark-up language that permits it to be consumed in large volumes, instead of in a form that requires direct human intervention to interpret the data.

In this regard, one of the key technologies, we believe, will be XBRL – or Extensible Business Reporting Language. It supplies a way to tag and electronically identify specific types of information within a document. In other words, it brings transparency, because it enables information and data to be presented in a structured way that is easy to see and easy to understand. In Europe and other jurisdictions, the use of XBRL already has wide acceptance for various financial disclosure and reporting requirements, and its application in U.S. markets is growing.

At DTCC, our immediate efforts have been focused on using this technology to bring transparency, greater clarity – and ultimately – reduced risk and cost to one of the market’s most complicated and error-prone activities: corporate actions. Our aim is to build a corporate actions taxonomy or event classification system based on XBRL to provide for the dissemination of all corporate action data in structured form – and I’m very pleased to say that we are expecting to release the first draft of that taxonomy for

public comment in about two weeks, on June 17th. What we want to do is make it easy and inexpensive for issuers to tag or electronically capture and identify key data as they prepare corporate action announcements, and we believe that the ultimate responsibility for identifying the data in this way has to rest with the originator of the corporate action. If we can do that, we think we can eliminate the high error rate associated with processing corporate actions, not to mention the extremely expensive steps that companies currently take to ensure that they understand and are complying with everything contained in the action document.

We view this as the U.S. instance of a much larger global project, and we are certainly reaching out to our counterparts around the globe to invite them to leverage this work to craft their own taxonomies for corporate actions in their own markets. A crucial component of this effort has been the involvement of SWIFT as the secretariat for the ISO messaging standards, with SWIFT, XBRL US and DTCC working together to ensure that the XBRL corporate action taxonomy for the U.S. is fully congruent with, and mapped to the new ISO 20022 format that's now starting to come into widespread use. U.S. issuers and corporate action offerors will be able to use the XBRL standards they are accustomed to using in communicating to the marketplace, and marketplace infrastructures and intermediaries will be able to directly and automatically translate that XBRLbased disclosure to an ISO 20022 format disclosure for onward communication to their clients and others involved in the markets, wherever in the world they may be based.

Structured securities

We see other places where XBRL might be applied as well. Structured finance products such as collateralized debt obligations, for instance, could benefit enormously from XBRL. As we've all seen, these are financial instruments that have fallen deeply out of favor, in part because their complexity and the difficulty in analyzing the financial flows within the instrument caused a complete collapse in their market prices as the crisis began several years ago. Many investors, including sophisticated investors, have complained that they couldn't or didn't understand what they were buying.

Again, by using XBRL to tag the key elements of the underlying assets electronically, issuers could make clear what they're selling and buyers would find it much easier to understand what they're purchasing. Sometimes I feel we're fighting the same kind of battle over CDOs that Louis Pasteur fought over milk. It took him years to convince people that, simply by boiling raw milk, they could have a product that was not only safe but could more easily be converted into other products. Now pasteurization is a universal practice. I'm convinced that use of XBRL could bring an equally universal degree of transparency to complex financial products.

The Trade Information Warehouse

Meanwhile, transparency and technology are key to another international issue that's a very hot topic right now...and that's the use of credit default swaps.

As many of you may know, DTCC stepped into the credit default swap business seven years ago at the request of our own customers. They were worried about the excruciatingly slow and expensive process of matching CDS contract data and the growing backlog of unmatched contracts. They also wanted a place to hold or store the contracts once matching was complete. By leveraging technology we already had, we were able to build a matching engine in short order, and within a year or so we had whittled the dangerous backlog down to nearly nothing. Last year, we put this technology

into a combined operation with Markit, and that joint company, MarkitSERV, now runs the matching business.

In the meantime, we also constructed a Trade Information Warehouse where we could store all the CDS contracts we'd matched, as well as the legacy contracts that were in place before we even stepped into the business. Our Warehouse now contains more than 2.3 million credit default swap contracts with a notional value of some US\$24.5 trillion. This includes nearly all the contracts outstanding worldwide, and we manage these contracts throughout their lifespan, performing critical functions such as automated calculation, netting and central settlement of payment obligations, as well as settlement of credit events such as bankruptcies.

During the financial crisis nearly two years ago, the Warehouse played a key role in damping down worries and speculation on the size of outstanding contracts by making data on the contracts public, and by helping to manage the credit events that caused some of the contracts to pay out. As we all know, however, CDS contracts have become a lightning rod for criticism from political bodies and regulatory agencies all around the globe since the beginning of the financial crisis. Interestingly, some weeks ago there was growing controversy about swap contracts involving the sovereign debt of Greece, but once we released data on those contracts to the regulators involved, that controversy seems to have eased, with that data used in public commentary by some of the supervisors involved; nonetheless, the controversy continues, although now it focuses on other ways in which CDS are traded.

Where do we stand at DTCC on these issues? Well, we're very concerned about one facet of this problem in particular – and that's the prospect of seeing what is today a consolidated and virtually complete record of outstanding contracts fragmented into different repositories in different countries on different continents. And the reason we have such a strong opinion about this is quite simply transparency.

Think about the implications of scattering records across countries and continents. If French regulators have to look in a dozen different trade repositories to see what kind of credit default swap contracts may be outstanding on French companies, the likelihood is that they'll never find all of them, at least not very quickly. Contract records could be scattered across repositories in the U.S., here in Europe, in Japan, in Dubai and other places. Nor is it likely to be apparent to the regulators what they're looking at, since the offsets to contracts residing in one of the databases might be residing somewhere else. After all, a contract could easily have been written between a Swiss financial institution and an Australian financial institution on the underlying French entity and then have been sold or assigned to yet another party located in Brazil. Even if they eventually find all the data, they'll have to build a system to verify and analyze it.

We, on the other hand, have been collecting all that information in our global repository, and we publish data weekly on all the contracts we hold, including a breakdown by currency. In addition, we have consistently said that all interested regulators should have access to the data if they need it, and we've expressly begun making data, including counterparty position data, available as appropriate to the regulators involved. As you know, there's a global group called the OTC Derivatives Regulators' Forum that's considering what guidelines companies should follow in response to data requests by regulators, and we have explicitly affirmed that we'll be abiding by the disclosure standards the forum develops. In the meantime, we're developing our own protocols to allow access to our data for regulators with a material interest.

Still, we remain concerned about the prospect that data on the CDS market will be fragmented across the globe. Several weeks ago, for example, Japan not only decided to

require that most CDS contracts written there be handled through a clearing house, but also authorized the clearing houses to establish their own data repositories. But the authority to do something doesn't necessarily mean that actually doing it is the best course of action.

So, let's make this another topic for ISSA's spirited debates this week. To me, the logic of a single, safe, neutral repository for individual derivative asset classes is compelling – especially in new markets that have been global from the start. And with globalization pushing even longstanding infrastructures together, why would we repeat – and not go beyond – the past when we know that once globalized, markets – and industry segments and counterparties – have so much to gain from connecting their strengths?

And with that plea, let me end my remarks. Thank you for your interest. While this is the 15th Symposium, it is actually only my first time at Wolfsberg. But the ISSA Symposium is renowned for its three decades of fostering active dialogue, debates and, ultimately, progressive thinking and action around industry issues, and I look forward to this session's continuation of that grand industry tradition.