

Keynote Address by Donald F. Donahue, Chairman and Chief Executive Officer
The Depository Trust & Clearing Corporation
The Americas' Central Securities Depositories Association (ACSDA) General Assembly
March 11, 2010, Tampa, FL
Transformation through Innovation: Gearing up for what's ahead

Buenos días, everyone. Good morning. I'm delighted to be here, and I'm delighted to see all of you.

ACSDA has attracted an impressive global assembly, with attendees from Argentina to Azerbaijan...from Uruguay to Ukraine...from Venezuela to Vietnam...from all over the world. So it's a special pleasure to host you in Tampa, which has been DTCC's "second home" for five years now. As many of you know, our Southern Business Center, with more than 500 employees, is just up the road from here.

* * * * *

We meet at a time of great challenges for our industry, but also a time of great accomplishments. The accomplishments of ACSDA-member markets in Latin America, for example, are incredibly impressive.

The fact is Latin American economies and markets have emerged as major factors on the international economic scene. In equities last year, for example, two of the top four performing markets in the world were the Buenos Aires Stock Exchange and the Lima Stock Exchange. In bonds, the Bogota and the Santiago Stock Exchanges were in the top ten worldwide. In stock options trading volume, the number four ranking in the world last year went to BM&F BOVESPA.

What market observers see in Latin America is eye-popping – a region with record-high international reserves, manageable external accounts, modest government debt burdens and comparatively healthy financial systems that were not exposed to "toxic" assets or highly dependent on external funding.

Market observers also see a growing number of strong corporations, many of which compete globally, and they see an equally healthy financial infrastructure that has played its part in helping to raise and marshal capital. Overall growth across Latin America this year is estimated to run near four percent—a strong recovery from last year.

Still, a more telling figure about the prospect for sustained growth is probably the expected public sector deficit as a percentage of GDP. And here again, Latin America has a surprise for us. As a percentage of GDP in 2010, the government deficit in Latin America is forecast to be 2.8 percent. Compare that to 9.5 percent in the U.S. and 11.4 percent in Spain.

Under these circumstances, we're pleased that DTCC has established depository links with four of our *hermana* organizations in ACSDA—and is working to complete closer ties with two more. Still, with 25 CSDs as members of ACSDA, we'd like to develop more connections, particularly as economic and trading activity picks up.

The theme for this conference is “Regional Collaboration, Global Partnerships.” It seems fairly obvious that the more we can collaborate, the more we can find ways to promote innovation and help our respective members and their customers do business globally. For, after all, our industry continues to transform itself right before our eyes into a business that’s increasingly global—and more competitive. Factors driving this transformation include what we’ve learned over the past two years about the magnitude and complexity of the risks our industry must contend with, as well as the international regulatory response to that deeper understanding of risk. Additional factors are the rapidly accelerating capabilities and cost of the technology we use, and the urgency with which our customers are looking for innovative ways to hedge their risks and costs.

As an industry, we need to innovate in response to all of these challenges – and this is the major theme I want to explore today.

Innovation in Response to Risk

First and foremost must be the challenge of dealing with risk. With the experience of the last two years, we have no higher responsibility than to respond to that challenge. So how do we need to think about innovating to dramatically reduce the risks inherent in the operations of our organizations? Well, I could spend my entire time on that issue, but let me focus on three areas that we need to address:

As you may know, several years ago a market commentator named Nassim Taleb published a book focusing on what he referred to as “black swans” – the extreme market events that we assume border on the impossible but actually happen with some regularity. Of course, his warning was unbelievably timely, since the black swan to end all black swans showed up only a few months after his book was published. To use his image, one area in which our organizations in particular all need to be far more innovative is in what we can call “black swan keeping” – understanding that the true resilience of a market infrastructure, such as those we all represent, is reflected in how effectively it supports its members during precisely the most extreme market events. In the moments when the market is verging on complete melt-down, success in assuring our members that their risks with us are still very well controlled and effectively managed has been and will be absolutely critical to preventing total market panic.

Still, however successful we were in 2008, we need to intensify our focus on meeting that challenge. How can we make our risk models even more resilient? How can we strengthen our financial resources to ensure settlement even in very severe default scenarios? How can we improve our warning systems for setting off an alarm when unusual transactions that create major exposures are in the pipeline? The common wisdom says – correctly – that one of the few systems that consistently worked right in the recent crisis was the clearing and settlement infrastructure. But we must understand that this means, among other things, that the pressures on the infrastructure next time will be even more severe. And we have to prepare for that now.

Managing Systemic Risk

Another aspect of our business demanding innovation, we believe, is the role of market infrastructures in thinking about and addressing systemic risks. Again, a hallmark of the recent crisis was its systemic nature. Risks that might have been completely tolerable within the confines of one financial institution became far more dangerous when they spread throughout the financial system as a whole. Exposures that seemed manageable in one firm’s portfolio became deadly when it became clear they were buried in many firms’ portfolios, with the prospect that horrendous losses would ensue if all of those firms tried to liquidate the positions at the same time.

So we now see that understanding risk from the perspective of the system as a whole is critical, and who can contribute better to that understanding than the market infrastructures that essentially embody that system?

In the future we clearly will need to take on much more of a role in helping to assess the health of the whole system, and in working with market authorities to understand where vulnerabilities are building up and where risks may be lurking that need to be brought under control. DTCC recently brought on board a Chief Systemic Risk Officer to take on precisely that task, and it is an area where all of us need to become much more creative in our thinking and more innovative in our planning.

At DTCC, we're very proud that we began preparing for the failure of Lehman Brothers in the summer of 2005, three years prior to the event. That's not to claim that we knew that that was what we were doing – not at all. But we launched that year a practice of doing simulation exercises of our procedures for handling a participant failure, deliberately simulating the possible failure of our largest participants, to understand what issues a failure would present and what difficulties we might have to address. When Lehman actually failed in September 2008 we already had lived through several such failure simulations, including a test of Lehman itself failing that we had done only three months before.

“What if” Exercises

This kind of planning and actually practicing for the most extreme events as a way of understanding the new challenges we face is a third area in which market infrastructures need to be much more innovative in the coming years. We will have to become much more practiced at stress testing our systems, particularly our risk systems; at scenario planning to identify stress tests we should be trying; at “reverse stress testing” – assuming that we've experienced a shock that has caused us to fail; and then working backwards to figure out what vulnerabilities could have produced that result. Expanding those efforts to include our members would make for even more robust exercises. Sharing our scenarios with our members, and asking them to share theirs with us, would also help prepare all of us even more effectively.

As I said, I could go on and on about the demands we all face to respond innovatively to the new understanding of risk issues. There will be, I expect, a lively discussion of just these challenges in some of our panels today – the session immediately following on “Strengthening the Global Financial Infrastructure,” and another this afternoon on “Managing Risk in the Post-Crisis Environment.”

The Rise of the Machines

But, of course, even as we try to grapple with these risk issues, the world around us continues to change. Just when we think we've figured out how to respond to a particular risk problem, changes in the environment redefine the problem completely. We're always aiming at a target that is shifting its shape, moving its position, turning up where we least expect it. What challenges – and opportunities – for innovation does this relentless pace of change create?

One of these key changes is the evolution of technology, 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 U.S. markets we serve, and increasingly markets elsewhere in the globe, are now overwhelmingly propelled by machines rather than humans.

Sometimes, by simply blinking my eyes, I can remind myself of the extraordinary leaps technology is forcing our industry to take. In the fraction of a second it takes me to blink, not one, not two, not three, but literally thousands of computer-generated buy and sell orders pour into the world's exchanges. And almost all of those orders are matched in that very same millisecond—and then cascade into the clearing organizations or depositories we operate. Messaging traffic alone on our systems at DTCC runs into the many millions a day, and our data bases answer queries more than 2.4 billion times each day...or about 28 times a second. That's also a lot faster than I can blink.

Think of the impact of that change on the risks we confront. Most clearing infrastructures guarantee trades effectively at the point of execution, so just as executions occur thousands of times in the blink of an eye, our exposures from the guarantee of those trades change thousands of times in that same eye-blink. Our systems for monitoring those exposures also have to keep up with that blindingly fast movement in our own risk profile. Another challenge for the future is to figure out feedback loops back to the marketplaces, to give us more control over the activities of our members when they are clearly heading in a direction that imposes intolerable risks. To cite just the obvious example, how do you stop a computerized trading program that some bug has caused to go haywire?

So we need to come up with innovative solutions to the reality that our risks and exposures change in less than the blink of an eye. For example, margining processes that pull margin once or twice a day now need to move firmly into real-time systems that can keep up with trade flow. Systems that basically relied on markets to control what's coming through them now have to become more interactive. We have to find innovative responses to these very challenging demands.

Reshaping the markets

Just as technology is accelerating how we must innovate, changes in market structure are similarly bringing new issues to the fore. And I'm not just talking about the growth of multilateral trading facilities in Europe, or the restructuring of exchange market shares in the States. We're also seeing a renewed focus on how financial infrastructure organizations need to be configured to compete in a global business environment.

I'm old enough to remember a time in the U.S. where the equities markets were regionalized – when, if you were a company located in the Midwestern states, your stock probably traded on the Chicago Stock Exchange, or if you were on the West Coast, it traded on the Pacific Exchange. We've long since seen regional markets become national markets. But in this decade, these markets are rapidly turning into transnational ones. Just to cite two examples – by year-end, the stock exchanges of Chile, Peru and Colombia should be well on their way to completing their integration into a single operating unit, supporting trading across those three countries. Meanwhile, as another example, BM&F BOVESPA and the CME Group announced last month that they are deepening their global strategic partnership. And as traditional markets transition to a new way of functioning, all of us will be involved in transactions that routinely cross borders as well as different regulatory and market environments.

But we also have seen the evolution of markets that are truly global from birth – markets where firms routinely trade across the globe instruments that originate from all around the world. One that we are very familiar with is the OTC derivatives market, and the challenges of our work in support of the market for credit default swaps illustrates how innovation has to work in these fully global markets.

While credit default swaps – CDS – have existed since the mid-1990s, the market grew relatively slowly until the early years of this decade. About eight years ago our members first came to us for help in clearing up their huge backlog of unconfirmed OTC credit default swap contracts – a challenge that was familiar. After all, standardizing and automating a largely manual process is at the core of much of what we all do. So, as you would, we looked around to see how we could address the problem and realized we were able to repurpose some existing software for this task. By mid-decade, we had cleaned up a multi-billion-dollar contract backlog and automated the whole confirmation process. And what was one of the very clear by-products of that? Trading volumes that had been perhaps one or two thousand tickets a day zoomed to five and ten times that amount, as automation made the market far more scalable.

But this innovation led to another. As we cleared up these backlogs, the logical next question was what to do with the contract details and where to store them. Since we, like you, operate a securities depository, it didn't take us long to realize that creating a depository-like registry to store and service these contracts was the

answer. So we built what we called the Trade Information Warehouse, loaded all the outstanding and new CDS contracts into it, and quickly found out how valuable it was. The global industry now relies on the Warehouse records to handle a broad range of downstream activities in a fully “straight-through processing” manner, and the major operational risks associated with these markets ten years ago have been almost entirely resolved.

The interesting thing about this activity is how clearly it illustrates the growth of a truly global marketplace. Today, the Warehouse holds records on more than 2.2 million credit default swap contracts worldwide. These contracts involve more than 1,700 financial institutions, most of them what we’d think of as traditionally “buy side” firms, many of them directly interacting with an industry infrastructure for the first time. Those counterparties are located in 52 countries around the world, transacting with each other and supported by a global infrastructure exactly as if they were just across the street. The CDS contracts they are trading involve assets originating from more than 90 countries around the world. So it is literally the case that someone sitting in Europe will routinely trade with someone sitting multiple time zones away in Hong Kong in an asset that originates from the Americas. And all that activity is recorded in and supported by a global infrastructure. Further, market participants and, increasingly, all of the global regulators involved are convinced that this market process needs to have one global infrastructure – that derivatives of a particular asset class should be recorded in one, global information registry with everyone in the globe interacting with that registry, supporting the necessary market transparency.

I think that’s the paradigm shift that we will increasingly experience – that new markets will be truly global markets, requiring truly global infrastructures, from their creation, and that traditional markets will increasingly be leveraging their capabilities across larger geographies, demanding the same from their infrastructures. To go even further, the CDS market has become of great interest to the global regulatory community, as you all know, and our global infrastructure for CDS now routinely interacts with regulators and supervisors across the globe. These agencies have even formed the Global OTC Derivatives Regulators’ Forum to establish – we hope – a truly consistent and global set of standards that will apply to the operation of all infrastructures supporting these global markets, including DTCC’s Warehouse for CDS, the new global repository recently established in Europe for interest rate swaps, and the global repository we will be launching later this year for OTC equity derivatives, among others. So my conviction that we are in the midst of a sea change in terms of the globalization of market structures is paralleled by the same type of change in how regulators are going to be carrying out their responsibilities – on a global scale, in a consistent way, all around the world.

Information, Not Data

One of the key issues that these regulators are focused on introduces yet another area in which we must bring state of the art innovation to our industry – the whole issue of data and how data are communicated to everyone involved in the markets.

We’ve told the story several times of how we realized what a gold mine of data we had in the Trade Information Warehouse at the time of Lehman’s failure eighteen months ago. You’ll all remember how very fragile the markets were at that time, and perhaps a week or two after Lehman formally failed a rumor panicked the markets that the payments other firms would have to make under credit default swaps on Lehman’s debt totaled more than \$400 billion – another massive hole that could sink the finances of the global industry. We were able very quickly to look at the Warehouse records to determine – and publish – that the actual exposure was only about \$6 billion, a number that everyone perceived to be much more manageable. Recognizing the value of that kind of information, we launched some weeks later a practice of publishing weekly statistical reports on the state of the markets, and today we release extensive data each Tuesday evening through our website.

Here, again, we have the germ of a prospect for new, innovative businesses for all of us. Some of you may have

seen the report in last week's Economist magazine entitled "Data, data everywhere," which had a number of fascinating descriptions of ways in which companies are mining the data they possess to learn far more about their customers and what drives the choices they make. Think about that in the context of our business. We all sit on a wealth of data about financial transactions, about financial assets, about financial exposures. How can we use those data to improve information flow to the markets? How can we use those data to help understand the kinds of risks that are evolving in the markets? What kinds of new products and services can we offer our members based on these data to help them in their own businesses and activities?

The questions seem simple, but let me illustrate how truly complex they can get with a few more details from the Economist article. We're all familiar with megabytes and gigabytes as measures of quantities of data, and I'm sure many of you know what a terabyte is. But how many of you know that a petabyte is a thousand terabytes? Or that an exabyte is a thousand petabytes, or a million terabytes? Let's go one more – a zettabyte is a thousand exabytes, or a million petabytes, or a U.S. one billion terabytes. The article estimates that the total amount of data in existence in the globe today is roughly 1.2 zettabytes – a staggering sum.

But data without understanding, data without analysis, are just raw material. To make data useful, it has to be analyzed, it has to be thought through, it has to be turned into information, with intelligence about what it means and what conclusions it suggests. The sheer volume of financial market data now coming out, and the sheer amount of detail that is needed to understand today's financial instruments, represent a real burden on and challenge for the investors in our markets. Turning those data into information, and finding ways to help our members and their clients understand what it means, is an enormous opportunity that we are perfectly positioned to exploit.

There are a number of ways in which we can do that, but let me focus on one. The Economist article, again, indicates that only about 5 percent of the world's data exists in "structured" form, meaning in a form that permits a computer to analyze the data – usually by using a computer language like XML that was designed to store and transport data. So of those 1.2 zettabytes of data, about 1.1 zettabytes – 63 million times the complete contents of the U. S. Library of Congress – are in a form where a human has to intervene to interpret and understand the data – something clearly far beyond our capability to do. And when the data involve urgent matters – all of the financial flows behind a complex new security, for example – all the more reason why we need to be very active in promoting the much wider use of "structured-form" data in order to communicate.

One clear instance involves corporate actions. As we all know, corporate action announcements typically come flowing into the market from many different sources. Simply comparing and scrubbing the data in the announcements for accuracy is a major and expensive undertaking. Then there's the challenge of disseminating the announcements—on time—to all the agents and interested parties such as investors and their investment managers. All of those challenges are immeasurably worsened by the reality that virtually all corporate actions data are not in "structured" form – they're usually in some type of paper document that requires someone to read and interpret it.

Now, though, there is a technology available that can make the job of processing corporate actions easier through the use of XBRL, or Extensible Business Reporting Language. XBRL allows key data in a prospectus, an announcement or other document to be tagged or identified electronically so that data handling can be automated. Many companies now use XBRL to make required financial disclosures, and more are doing so all the time. One of our goals is to have issuers use XBRL in corporate action announcements. To achieve that, we're working with XBRL US to build an event classification system based on XBRL which we hope to have ready by mid-year. At the same time, we're working with SWIFT to map this new system to the new ISO 20022 messaging standard by the end of 2010.

Our aim is that, ultimately, when issuers announce a corporate action using XBRL, the information can be

immediately reconfigured into messages that can then be distributed and understood worldwide. If we can achieve that, I'm confident it will drive significant changes in how we handle a major part of our business worldwide, and cut costs and risks substantially for us and our members. Michele Savage of XBRL US will be talking more about this in a session later on today.

Conclusion

So there are many ways in which we can work together to help manage the new risks and challenges we all face. I hope during the rest of the conference we'll have an open and frank exchange on how we find common ground and new areas of potential collaboration. I am reminded of the observation expressed by Mario Vargas Llosa on the power of words:

“Si queremos un mundo más libre y equitativo, entonces tenemos dos tareas primarias: aprender sobre nosotros mismos y la experiencia de otros; e imaginar – futuros deseables y realidades alternativas.”

[“If you want a freer and more equal world, then we have two primary tasks: To learn about ourselves and the experiences of others; and to imagine desirable futures and alternative realities.”]

Together, I believe we can create that future – and shape the new realities in anticipation of the next decade. I look forward to our dialogue.

Thank you.