

# ISSA 11 - Improving the Continuity of the Securities Infrastructure End-to-End

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## Introduction

Thank you for the invitation to join this week's symposium. The securities industry is well served by ISSA, and DTCC is proud of its long association and involvement.

We've come together to talk about "The New Securities Landscape" and "improving the continuity of securities infrastructure end to end". As we all know, this is a landscape undergoing considerable change. Every day, we can hear the whir of cranes and the roar of bulldozers moving through our industry. In some markets, we hear them leveling competitive advantages; in others, creating new barriers. We hear them loudly rearranging the old infrastructure ... building new pipelines ... erecting new bridges ... and installing new technology.

For the moment, at least, I would like to shut off that noise and damp down the dust. I would like to put aside our blueprints and plans, some of which appear to be in conflict. I would like the dust to settle long enough for us to take stock of where we seem to be headed, and what it is we're so busy building.

There is a seemingly endless debate in our industry about institutional structure – vertical this and horizontal that, silo this and spaghetti<sup>1</sup> that. Dr. Seifert says he considers the whole debate an exercise in semantics. While I am no more eager than Dr. Seifert to get caught up in semantics, there are some real differences in our views on ownership and whether profits get returned to shareholders or to the customers we serve. But under DTCC's umbrella we have not for profits, monopolies and a for-profit joint venture. Part depends on whether we're in a new product and services competitive environment or supporting fundamental infrastructure.

The responsibility to owners in a publicly traded corporation differs quite significantly from that of a mutually governed industry organization. And, in our changing landscape, different owners will have very different expectations.

Meanwhile, the infrastructure debate has taken on a life of its own. Like an old dog, it keeps coming back to scratch at the same spot.

## The two precepts

Consequently, instead of rehashing the debate, I'd like to suggest a different approach. In my judgment, there are really only two precepts – two ideas – we need to keep in mind. And both are straightforward.

The first, as in following my tale of cranes, blueprints and plans, is what architect Henry Louis Sullivan pointed out more than a century ago: *form follows function* or, perhaps more commonly stated *necessity is the mother of invention*.

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<sup>1</sup> Common reference to Crest and Monte Titoli Model

This is something intuitive that we all know makes sense. Insects that fly have wings. Birds that prey have keen eyesight. Tools that saw through wood have serrated blades. We all understand this. Form follows function.

Our industry is not immune to the laws of nature or physics. The forms and structures we create ultimately need to reflect the functions they perform. Insects without wings cannot fly. Birds of prey with bad eyesight get very hungry and eventually die off. This is what happens when form fails to follow function.

The other precept we need to bear in mind, it seems to me ... is who creates the demand for our services? Who determines the functions we need to undertake in *our* business in order to support *their* business?

Ultimately, of course, it is our customers – who may or may not be our shareholders. The needs and dynamic of our customers' business functions determine what we need to accomplish or transact on their behalf. That, in turn, shapes the forms we build.

All of us here today have come to recognize that globalization and demographic shifts and new technologies are profoundly altering our industry. In the end, though, the innovations we make and the products we launch are all part of the effort to serve our customers – or serve them better. Their business is evolving and expanding. Capital now flows increasingly across borders. They want our support in harnessing those flows. They are the drivers of change.

I would like to talk further about these two ideas.

- How form follows function in our industry.
- Then I would like to discuss what our customers are looking to have us do for them – and how we often shape the functions they need us to perform.

### **Function gives form: the DTCC case**

Since greater than 40 percent of you are here at ISSA for the first time, let me begin discussing how function creates form by using DTCC as an illustration. But I'd like each of you to think about what form organizations in your country have taken: is it natural (form following function?) or artificial?

Many view DTCC as a megalith underlying the U.S. securities industry. But DTCC's structure was never carved from granite or cast in concrete. Instead, it has proved to be remarkably fluid. We have developed and expanded over the years, changing our form as our customers asked us to take on new and different functions in response to growth, expansion and innovation in the financial services industry. We continue to do so. DTCC as it exists today did not spring forth fully formed.

Indeed, DTCC itself is not yet three years old. It was born of the integration in 1999 of The Depository Trust Company and National Securities Clearing Corporation. Those companies, in turn, grew out of Wall Street's paperwork crisis in the late 1960s and early 70s. Neither company, however, started life designed to serve a national market. They were formed initially to handle clearing and immobilize securities solely for the New York and American Stock Exchanges, and Nasdaq. The five large and busy regional markets in the United States<sup>2</sup> continued to maintain their own clearing and depository businesses.

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<sup>2</sup> Boston, Chicago, Cincinnati, Pacific and Philadelphia

At the same time, the Securities and Exchange Commission began its push for the creation of a national market mechanism. In order to give traders an opportunity to buy or sell a security on any market where the price was most favorable, and to encourage the price transparency that makes that possible, the regulators required the creation of links between the exchanges. The evolution of this interoperability was such that eventually brokers could have a trade executed on whichever regional or national market offered the best price.

The corollary to that was, if a trade could be executed on any market, it could also be cleared and settled by whatever organization offered a better price or more efficient service. In short, competition was encouraged. There was never any regulatory mandate for the U.S. securities industry to direct its post-trade business to the newly created clearing organization and depository in New York. By ensuring choice and price transparency, regulators left the decision of where trades should be cleared and settled up to the trading firms.

### **The years of consolidation**

Over the years, however, as trading volumes grew and regional firms became national companies, there was a chorus of complaints about the need to maintain separate collateral accounts at each clearing and settlement organization. Brokers and dealers also grew increasingly restive about the costs and inefficiencies resulting from the need to reconcile end-of-day balances with multiple clearing corporations, each having different and often incompatible rules and operations. There was also a growing realization that, with five<sup>3</sup> separate clearing organizations each running its own system, there was little opportunity to take advantage of the efficiencies that result from multilateral netting.

During these years, trading firms also found NSCC & DTC's growing array of services attractive – and a competitive advantage over the regional offerings. In this instance, size did matter to the industry. It led to more services ... better services ... greater opportunity to innovate and commodities processing mutual funds and insurance products ... and the capital to invest in meeting customer requirements.

The rest of this story is history. Concerned about rising costs, customers eventually steered the regional organizations into consolidation and centralization – a process that took a number of years to complete. What helped give it impetus, beyond the elimination of parallel and redundant systems, was the desire for a central collateral facility, the assurance of the clearing corporation's counterparty trade guarantee, and the realization of how a critical mass of volume in multilateral netting reduces costs.

In turn, our clearing corporation and our depository expanded to meet the new and larger stream of business now coming their way. The depository took on more of the tasks required to service its increasing number of assets, while the clearing corporation expanded to handle increasing volumes. In the mid 70s, for example, trading on the New York Stock Exchange averaged about 20 million shares daily. Last year, our markets, combined, frequently reached 4.35 billion shares per day.

I retell this story of consolidation – of form following function – for several reasons.

First, it's a success story, and second, it reflects the truism that market forces and customer concerns are what drive change in our industry. Thirdly, and I love the irony of this, particularly in the U.S., a country which holds federalism so dear, market forces created a monopoly.

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<sup>3</sup> NSCC, Boston, Chicago, Philadelphia and Pacific

Our customers drove this process. They were concerned about redundant systems and the resulting costs and inefficiencies. They understood the need for standardization, centralization and netting. They wanted a consolidated system that would function as effectively as possible straight through from trade ... to clearance ... to settlement. And they wanted a centralized infrastructure model that would return the benefits of reduced costs to the end users. In the end, they weren't satisfied until they had a clearing and settlement organization in a shape or form that could achieve those functions.

And this process continues. Just this year, for example, we have brought together under the DTCC umbrella separate fixed-income clearing organizations for government, mortgage-backed and emerging market securities. This further consolidates our infrastructure, and we did it at the urging of our customers. But customer requests need not result in organizational and/or structural response only.

### **Risk Management Initiatives**

Many customers have told us they want more effective risk management, but also want more effective use of capital. We're working hard at that.

For example, we have now launched a more aggressive value-at-risk management program in DTCC's clearing corporation. We have also become more aggressive in our cross-margining efforts. The agreement our clearing corporation, NSCC, has put into effect with the Options Clearing Corporation has already let us reduce margin requirements based on our ability to see how NSCC customers offset their open positions with futures and options. And we're exploring how to manage this issue seamlessly regardless of organization or location.

GSCC has been setting up similar cross-margining programs with the New York Clearing Corp., the Chicago Mercantile Exchange and the Board of Trade Clearing Corporation. This give GSCC a bird's eye view of a customer's business across several clearing corporations, so that it can observe a customer's positions as single portfolio. As a result, they can see what the offsetting positions and hedges are and make appropriate adjustments in the collateral requirements.

For all of us, risk is inevitably our companion. Wherever we go, it follows. It's part of the business. We constantly calculate risk. We always try to manage it.

Ten months ago, however, we came face to face with risk on a scale we've not seen before. In the chaotic hours and days following the attacks on the World Trade Center and the Pentagon, the risk to the entire trading and financial system – particularly in the U.S. – was considerable. There was fear in some quarters that this risk would prove unmanageable.

In the end, of course, we did manage it.

The system did not gridlock. Nor did it slip into an uncontrolled chain reaction of financial implosions. Instead, within two days, many were back at their trading desks. This was an extraordinary accomplishment by people working together throughout the industry.

Let me share with you briefly some of the steps we took at DTCC to contribute. Then I want to touch on some of the longer-range risk issues facing the industry.

Ten months ago, even though the equity markets in the U.S. did not open in the wake of the attacks, and even though sadly many of our colleagues and customers were lost or forced to

flee, we still had a big job to do. We still had billions of dollars in trades outstanding from the previous three days that had to be settled. We also had staff in shock and people who feared our headquarters might be the next target.

Nonetheless, we had to get this job done. If we didn't, it would have locked up billions of dollars, choking off liquidity, paralyzing the markets and undermining confidence in the financial system at a time when we could least afford it.

We were determined not to let this happen. So we went to work.

We made the decision to stay in our offices that dreadful Tuesday for as long as it took to complete settlement. Many of our phones were still working, and we were able to contact the bulk of our customers. While part of our staff assessed the needs of our customers for connectivity, we also reached out to our network of settling banks and the Federal Reserve to reconfirm our ability to make and receive payments.

A number of New York-based firms were effectively out of commission, at least for that day. But most of these firms were supported by their banks through the first settlement cycle. Eventually, we settled \$280 billion in trades – and breathed a little easier. But settlement was not without wrinkles. Out of a daily average of roughly \$110 billion in commercial paper, we had to recycle almost \$45 billion for later settlement.

Since it was clear that most of our employees couldn't work the next day at our offices in the financial district, in fact, they couldn't even get to work – we moved for the rest of the week to our alternate data sites. While we have decentralized capabilities that performed well, we now, like so many of our customers, looking at how we further decentralize and strengthen these facilities for the future.

Unfortunately, by the time I thought about leaving the building Tuesday evening, military patrols were already out on the street and transportation had been shut down. So I stayed put. Like some of you, I suspect, I was in my office for several days.

Wednesday I thought it might be easier. Most firms now had their backup offices running. But the collapse of World Trade Center Building 7 Tuesday evening severely crippled the phone system. At one point, we had 170 customer lines down, and I was even passing messages on for the Federal Reserve until they could get their phones functioning. Our technicians worked frantically – and creatively – to reestablish data connection and, in some cases, hand-delivered new modems and routers to customer backup sites all around New York. I can't describe the full impact on telecommunications, except to say many miles of new cable had to be laid.

Meanwhile, the Fed asked if we would be ready to support trading on the bond market on Thursday. The Fed was eager to begin pumping more liquidity into the economy. If the markets can trade, I said, we would clear and settle. I was confident that bond traders would find a way to do business, even if some of their trading systems were out. It was the payment systems I was most concerned about.

Throughout that whole week, by the way, some of the most critical work in our company took place overseas. As you know, several broker/dealers such as Cantor Fitzgerald had to piece their operations together through their London offices. For the first time, market executives in London found themselves clearing and settling trades in the U.S. system. This was a novel experience for them. So managers in our London offices, who are experienced in our systems,

worked deep into the night alongside our customers to walk them through these functions. We taught an overnight course in continuous net settlement.

Although we had to extend settlement deadlines on Wednesday to allow for late input, we did complete settlement for almost all of our customers. Now the challenge was Thursday.

I had hitchhiked on an emergency vehicle to get home. Now I had to figure out how to get through the police cordon and back to our headquarters building. Eventually I succeeded by calling in a favor and arranging for a ride in a Corrections Department vehicle. You might call this just one more example of New York resilience.

There was considerable discussion Thursday morning, about extending the period for clearing bond trades. Eventually, after a conference call with The Bond Market Association, the Fed, the SEC and others, we agreed to keep the T+3 cycle in place for corporate bonds and munis, but to extend government bonds to a T+5 schedule beginning the next Monday. So the bond markets reopened and trading volume was fairly high.

By Friday, we were beginning to feel we had come through the worst of the storm. By the end of the week, DTCC had completed settlement of nearly \$1.8 trillion in outstanding transactions. Now the focus was on preparing for the opening of the exchanges on Monday.

On Saturday morning, we bused several hundred employees into our primary offices. They began testing systems in preparation for Monday, and processed the backlog of physical securities that had to be taken into custody. Our systems staff went back at it on Sunday.

On Monday, the exchanges successfully re-opened. We saw record volumes on the New York Stock Exchange, on AMEX, and on several of the regional exchanges that day. The volume of mutual fund transactions, which had been pent up for nearly a week, doubled the previous record for orders, redemptions and exchanges.

We were able to clear all this volume without serious difficulty. The Street was back in business, fully engaged. And at DTCC, we came through bruised but hardly beaten. In fact, within 3 days following the attack, S&P cited our performance under the pressure of the crisis and reaffirmed its triple A credit rating for our depository and clearing corporation subsidiaries.

The risk to our financial system that had, a week earlier, seemed so menacing and frightening, was successfully contained ... effectively managed ... and ultimately overcome. I am very proud of the part that all our employees played in helping contain risk in the post-trade process and to the system itself. They were steadfast in their commitment to support our customers and the marketplaces.

But I extend my congratulations to all of you as well. In one way or another, all of us shouldered the load. This was the work of an entire industry – and an entire nation, an entire world – pulling together.

Risk, nevertheless, remains the traveling companion of this industry. As the industry changes – and we see some major changes taking shape – risk factors are likewise altered.

In addition, the events of September 11 have changed forever the model of how our industry should operate. Risks, particularly systemic risks on a scale we never anticipated, now stand out in bold relief.

We had tested procedures, back-up plans, alternative processing centers, evacuation procedures, even water, masks, light ... but anticipated that we would get out if our site lost power or failed.

We had not anticipated loss of personnel, inaccessibility to primary and/or back up facilities (because of transportation break downs or military activity) or loss of counter-party readiness, power, voice data communication as well as emotional impact on staff.

Consequently we need to make progress on two fronts simultaneously. We need to address how we manage risk associated with structural changes but also potential risks to our entire system.

At the same time, I believe we need to acknowledge, in our highly interdependent and global industry, that circumstances or activities in one part of the world's markets have tangible effects elsewhere. As you know, trading in Europe and Asia did slow when the U.S. markets closed. In the debate over horizontal versus vertical structure, we need to remind ourselves that both structures are vulnerable to the impact of market disruptions resulting from terrorism.

I'd like to suggest that it's time to explore other ideas about how to maintain end-to-end continuity in our global trading system in the face of severe threats to any single part of the system. In my opinion, the marketplaces need flexible trading and processing venues so that they can continue to operate even if parts of the market are taken out.

We might, for example, be able to find ways to use excess capacity in one market when a disaster or emergency has lowered capacity in another market. DTCC has excess capacity. Other clearing organizations and depositories also have unused capacity. Perhaps it is time to consider a post-trade infrastructure model that offers virtual capabilities and allows us to outsource capacity to other markets. This would keep the markets intact no matter how broadly they are disrupted, and help to maintain liquidity on a global basis. In effect, the infrastructure could become a distributed processing network with multiple channels – like the Internet. The key to DTCC's recovery on 9/11 was preparation, execution and luck. We need to insure that if luck is not with us next time we're even more prepared and can execute even better.

We should be talking seriously about subjects like this, with a view to the future and to finding common ground. On 9/11, we were lucky – and resourceful. In the future, we had better be even more resourceful ... and more prepared. I'm looking forward to working groups 3 & 4 discussions this afternoon.

### **Systemic Risk Questions**

In the meantime, we have some tough questions to ask ourselves following the September 11 attack. Most of these questions stem from the risk associated with concentration – or, as we used to call it – centralization.

One specifically involves the bond markets and that's the concentration of settling banks, or at least the proximity of their technology back-up sites. In light of September's events and the difficulties the industry experienced, I wonder ... will the industry continue to view this concentration as in its best interests? The Federal Reserve and The SEC have published a white paper on this.

The second question likewise involves concentration. Will firms continue to believe they need to keep their pools of professional experts and technical staff centrally located? Or will they create

multiple satellite sites that can assume these activities if necessary? We're already seeing a shift in thinking along these lines.

The third question that comes to my mind is whether concentration is a problem we need to bear in mind as we do contingency planning for telecommunications support. Broader dispersion would likely reduce risk by yielding a similar dispersion of switching and routing centers – and perhaps even offer multiple service providers.

And all of these questions lead into the last: whether it's advisable to decentralize our processing capacity and back-up operating facilities more broadly. We've already reviewed this at DTCC – and we're expanding to additional sites beyond our current redundant capabilities. We are working with the other Clearance & Settlement providers, both U.S. and internationally, to see how we can provide mutual back up both for IT and people. We'll soon have at least a significant proportion of the staff from any department located in another location. But it's a relevant question as well for most of the companies in the room today.

Making some of these changes will require time, sizeable investment and real overhead on management's time and on the way we manage in the future. In the current economy, where we all need to trim expenses wherever we can, this adds an extra burden. From a big-picture, cost-benefit perspective, however, managing risk and insuring safety must be the driving considerations.

We need to re-order priorities and tackle these questions now. Otherwise, we continue to be threatened with damage to the financial system that may not be repairable – and that's a risk I believe none of us is willing to take.

I believe we ought to continue dialogue throughout the industry on these questions now, and ISSA can play a leadership role in helping the industry find solutions, share best practices, and manage these risks.

Ultimately, what we're trying to do is create a post-trade business where the relationship between risk and reward has to do with intrinsic market forces, not with the mechanics of the industry's infrastructure.

We have made good progress in that direction. And we do not intend to let the events of last September deter us. We succeeded in managing the immediate risks we faced then, and I'm certain we can, deal with shaping of this industry's infrastructure. From this point forward, working together, we will only get stronger.

Thank you.

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