

Corporate Actions: A Question of Standards

Inside Reference Data gathers leading industry professionals to discuss pressing issues related to corporate actions data and explores why standardization is key in today's market

How are firms currently solving corporate actions problems?

Brian Goldman, head of US securities operations at JPMorgan Worldwide Securities Services: Different firms have different strategies to solve problems with corporate actions. We believe some degree of all the following elements are key to a successful corporate actions strategy: continually automating systems, adherence to industry standards and retaining top corporate action talent.

Christopher Madigan, vice-president, global sales and marketing, Fidelity ActionsXchange: Corporate actions verification and reconciliation continue to be manual and labor-intensive processes, increasing the risk of potentially costly mistakes resulting in financial and repu-

tational liability for a firm. Obtaining high-quality, timely and accurate corporate action information continues to be the biggest challenge confronting investment managers, broker-dealers, hedge funds and custodians today. As a result, firms are looking to partner with providers who can deliver robust solutions that gather, validate and deliver timely, comprehensive and accurate corporate actions information to gain efficiencies, reduce risk and add value to the investment process.

Tom Dalglish, head of reference data, Bear Stearns: The trend seems mixed. On the one hand there is much greater interest in corporate action data cleaning services (eg, DTCC GCA) and offerings from the 'golden-copy' feed engines such as Asset Control and

GoldenSource. On the other hand, there is wide-ranging disagreement as to which corporate action data is better (Fidelity versus GCA, or Bloomberg versus Reuters DataScope)—although some of this is driven by cost, not quality. The net effect of these behaviors is... churn.

John Byrne, CEO and founder, Information Mosaic: Despite advances in technology and the evolution of messaging standards, many financial institutions—including some of the world's largest—continue to process corporate actions manually. Microsoft and 3M are the two biggest solution providers in the space, indicating the industry's inherent reliance on spreadsheets and 'Post-It' notes, as well as on labor-intensive processes. This exposes firms to significant risk.

The size of losses and risk exposure from modern global investing means firms must use similar levels of sophistication and techniques in front-office investing as in the decision on corporate actions processing. Advanced technology is now available to make this happen.

For example, modern, object-based code can be deployed to build rules engines that directly automate and replace manual processes. Rules templates can be designed that are easily replicated and modified to meet the complexity and varied requirements of the global markets. By taking advantage of web-based architecture, and by using available messaging standards



FIDELITY | ACTIONSXCHANGE
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Christopher Madigan
Vice-President,
Global Sales and
Marketing
Fidelity ActionsXchange
Tel: +1 877-777-5838
www.actionsxchange.com

such as XML, solution providers can seamlessly integrate systems, users, portfolio managers and clients in corporate actions processing.

Nat Sey, reference data business manager, Interactive Data (Europe):

Certain parts of the industry are highly standardized and some are highly automated. Few are both. The required tools to achieve automation and standardization of corporate actions messages are already to hand. The standards exist, as do the software and delivery technology.

Since its introduction in January 2003, ISO 15022 has made a huge impact and continues to do so. ISO 15022 is now widely used to achieve a large degree of automation, and for some, almost entire automation. Exceptions that require manual attention will always exist—the trick is to minimize them as much as possible in order to benefit from the associated reduction in cost and risk.

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John Byrne
CEO and Founder
Information Mosaic
Tel: +353 1 241 5200
www.informationmosaic.com

Global custodians have generally embraced the available standards and many of their counterparties have also bought in to the benefits. Most software vendors with solutions in this space have adopted ISO 15022, and data vendors have widely accepted the standard.

Randall Hopkins, vice president, global data products, Nasdaq OMX:

With corporate actions more-or-less exploding today, firms need to subscribe to more data feeds to ensure they do not miss any corporate action events. Firms are hiring more people to handle the increased data flow and the sheer number of new, different corporate action codes and standards. In effect, firms are attacking the problem simply by throwing resources at the problem. Nasdaq OMX, with our Corporate Action and Accounting Data product, is affording firms a smarter approach to corporate action data. This

product establishes a gold standard for corporate action data for OMX-listed and First North products by focusing on data quality, data timeliness and the range and depth of data coverage.

Max Mansur, senior product/market manager, Swift:

That sort of depends on what firms you are asking. We continue to see growth in the number of firms and scope of automation in corporate actions. Several CSDs globally are moving to automate the announcements using Swift and MT 564 messages. The global custodians continue to fight for resources to improve automation, especially in conforming to market practice. While Swift has offered to enforce the market practice defined by the Securities Market Practice Group (SMPG) on the network, the community has declined. The rationale is clear—the messages cannot be held up because a delay for failing to meet market practice introduces unacceptable risk. However, the same community has asked Swift to improve adherence to market practice! Our response is to offer a self-policing tool that can assess compliance to the SMPG guidelines for announcements. Specifically, the SMPG has produced an Event Interpretation Grid (EIG) and guidelines for placement of dates, periods, rates and prices in a message (with the rather obscure abbreviation 'DvE'). Since the ISO 15022 standard for Corporate Action Announcements, the MT 564, must accommodate 65 different event types, finding



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Interactive Data

Nat Sey

Reference Data
Business Manager
Interactive Data
(Europe)
Tel: +44 (0) 20 7825
8744
www.interactivedata.com

the right set of options to use is difficult. This is further complicated by whether the event is mandatory, voluntary, or mandatory with choices.

And to make matters worse, there are some accepted variations in different markets based on regulation or law. The EIG seeks to simplify the expression of these rules with a preferred global practice and exceptions provided by various national groups. So Swift has developed a Simulation Testing and Qualification Service (STaQS) that, beginning in May 2008, will let customers self-police their compliance with market practice. They can upload files of messages and receive detailed and summary reports to give them benchmarks against market practice. We expect the tool will help improve STP problems with corporate actions. It is very hard to automate instructions when every custodian provides a different form of announcement,

and none of them are compliant with SMPG. Hopefully at some point the tool won't be necessary because the market practice will be so widely adopted that it will be built into the ISO standard.

Deirdre Sullivan, vice-president, Telekurs (USA): A variety of factors have affected both the volume and complexity of corporate actions in recent years. Competitive and regulatory drivers have increased cross-border trading, and derivatives such as swaps have become relatively common portfolio holdings, for investment or hedging. As a result, corporate actions are also growing in volume and complexity. The risks associated with corporate actions in this environment are not small. We've heard some firms are reserving up to 10% of gross income against possible losses related to corporate actions, even while a lack of automation slows down processing and invites errors. At Telekurs, we believe nearly all human touch can be eliminated, and have designed our unique database to accommodate all reference data—including corporate actions—in coded, machine-processable form. The immediate benefits of coded data are clear, but coded data also enables linkage between, for example, securities and their issuers or between derivatives and their underlyings, which can facilitate automation, reduce errors and increase processing speed. After years of struggling with reference data and corporate actions in particular, we

have seen a dramatic increase in the number of firms adopting this coded data approach within their own reference data management strategies.

What are the biggest obstacles to automating corporate actions?

Goldman: Lack of standardized messaging across all event types is one of the biggest obstacles to automating corporate actions.

Madigan: The biggest challenges for firms trying to automate the corporate actions process are the lack of widespread adoption of data standards, internal data redundancies, cost concerns, the number of players involved in the corporate actions communications chain, and the ever-increasing complexity associated with corporate action events.

Recognizing their own resource and cost limitations, firms are increasingly looking toward external providers that have the expertise and experience to help them address these many obstacles.

Dalglish: There are several main obstacles: inconsistent field definitions for complex actions, broad disagreement in quality across content (particularly dates, dividends and ratios) and weak, or poorly adopted standards for capturing and comparing corporate action records. Often, feeds are internally inconsistent and difficult to 'link up' even within a single vendor's offering. It does not help that many of the leading feeds have 'free-format' reporting of the

corporate actions. This makes it difficult to automatically correlate multiple corporate action records—arriving over time—that all identify the same corporate event.

Byrne: In addition to the need for firms to deploy modern architecture, the industry needs to develop standards that are more adaptable and acceptable by all parties in the corporate actions life cycle. While much progress has been made in developing ISO-based standards, many institutions and some application and data vendors have yet to take advantage of them.

One could argue that the current ISO standards may leave certain tag fields of information open to interpretation, but it is still the most comprehensive set of published message types available to the industry. Solution vendors should view ISO as the blueprint for corporate actions messaging and use it to normalize non-ISO and proprietary formats. Application and data providers must work closely with Swift and the ISITC Securities Market Practice Groups to enhance the standard and increase adoption throughout the industry.

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Deirdre Sullivan, Telekurs (USA)

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NASDAQ OMX™

Randall Hopkins
Vice-President,
Global Data Products
Nasdaq OMX
Tel: +1 301 978 5256
www.nasdaq.com

Adoption levels by region varies, (EMEA versus US, for example), but the scope of ISO is global. To increase levels of STP within the corporate actions process, it is imperative for ISO standards to be adopted by non-bank participants such as asset and wealth managers.

Sey: The manual processing of potentially thousands of corporate actions a year is an extremely resource-intensive task. In addition, the risk involved in either missing or misinterpreting an important corporate action—coupled with differences in regional regulatory

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Randall Hopkins, Nasdaq OMX

and disclosure practices—are major factors requiring potentially significant contingency budgets.

If we think about dialect, although we may speak the same language we can still misunderstand. The same is true of the standards used in the corporate actions space. Market practice groups have done a great job of clarifying how ISO 15022 can be used, but stop short of insisting that it should only be implemented one way. And that’s where the trouble starts.

The flexible structure of ISO 15022 was an attempt to ensure the broadest possible range of users could employ the standard across all the markets that it was required to serve. However, without any form of regulatory mandate, many opportunities exist to cement different regional market practices rather than discussing how the global market could be best served.

The Securities Market Practice Group (SMPG) templates and the more recent Event Interpretation Grid have helped a great deal, but are not mandatory.

Also, MT564s can be constructed differently and still be ‘compliant’ as far as the standard goes—yet be very difficult to process if the chosen flavor is not familiar to your processing engine.

Hopkins: Corporate actions data is still very local, especially when it comes to mid- and small-cap listed companies. One definitely needs local expertise and knowledge to analyze the information of the corporate actions flow, and in many

cases this local analysis can only be manual. Nevertheless, in addition to doing manual accuracy checks, Nasdaq OMX uses automated data quality checks that ensure the utmost accuracy in our products.

Automation is also challenged by the multi-pronged and extensive lifecycle that can occur in the corporate action space. For example, there may be a long time frame between the first announcement that appears (eg, a proposal for a rights issue to raise money to finance a debt reduction), to a formal announcement (eg, where the terms for the rights issue are finally formalized and the actual decision made at an Extraordinary General Meeting). On top of that, there would be the ex date, the record date and finally the payment date, all for a single record. Although there are some standards offered today, such as ISO 15022, they do not cover everything, and the local knowledge is crucial if essential information is not to be missed. With issues now receiving multiple listings on several different exchanges with different local rules for ex dates, for example, automation can become very complicated very quickly.

That aside, downstream deployment of corporate action information in an automated manner is different. By selecting the proper source for corporate action data, firms can automate significant parts of the corporate action data processes and drive value into their organization while simultaneously eliminating costs.

Mansur: To understand these obstacles to automation, you have to understand the

“A recent event prospectus in the UK was over 300 pages and had key information to extract into a message from 80 different pages”

Max Mansur, Swift

origin of a corporate action. In most markets, lawyers produce offerings that are published as text, sometimes only available on paper. The text must then be read, or better stated, it must be thoroughly examined to interpret all the actionable components to put into a message. Until that step is taken, automation cannot begin. A recent event prospectus in the UK was over 300 pages and had key information to extract into a message from 80 different pages. The trouble with this is that multiple institutions do this interpretation for the same event, which means, downstream, automation is seriously hindered as the custodian must check the multiple sources to reconcile what they call a “golden copy.” And an investment manager may still get different due dates among other conflicting data from their several custodians for the same event.

But think about it—you only need to come up with such a manually expensive ‘golden copy’ process if you aren’t sure of the accuracy of your source! The issuer is not readily available to explain, nor do they take responsibility for, the confusing details of a complex corporate event. I’m not talking about a simple bonus or dividend, but a tender offer or exchange of holdings

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Max Mansur
Senior Product/Market
Manager
Swift
Tel: +1 703 365 6207
www.swift.com

or repurchase, the kind of event that has a long lifecycle with many variables. The issuers normally follow no standard—they describe the event in most markets with nominal controls. So when you trace back most of the problems with corporate actions, the original interpretation, as well as the many manual steps along the way, tends to introduce so many touch points that automation becomes problematic. The US community is struggling to push for at least a template of key data elements to accompany the prospectus, while Euroclear has developed a new ISO 20022 message set for its Issuer Agents. China and Japan are looking at requiring XBRL for corporate actions notification to the exchange or CSD. And, in a few markets, messaging to accompany the text is already required. Improvement is possible, as these examples demonstrate. But until the markets overcome such an enormous obstacle as initiating the

process with unregulated, non-standard text, efficient, comprehensive automation will be out of reach.

Sullivan: Given the high risks, it makes sense to reduce the high level of human involvement in CA processing, but there seems to be a resistance to automation—a sentiment that it “can’t be done.”

One of the largest obstacles is consistency of data—in terms of format as well as content. Issuers do not provide consistent information, and the original format of information dissemination is not at all consistent—sometimes paper, sometimes electronic, but almost always in a form unique to the issuer.

On the processing format side, ISO 15022 has gone a long way toward solving the problem, but given the relatively low adoption rate—perhaps due to content limitations—it is not yet an industry-wide solution. Again, at Telekurs we believe coding of corporate action data—indeed all reference data—is the key to automation.

What do you expect to happen in the corporate actions space going forward?

Goldman: The dynamics of corporate action schemes are always evolving, so it is very difficult to program for what is to come. Therefore, very flexible system solutions and standardized messaging are required to address the future corporate action environment.

Madigan: As corporate actions continue to increase in volume and complexity from both mature and emerging markets, we expect to see organizations shift from utilizing in-house solutions to implementing third-party corporate actions solutions. Driving this shift will be a greater focus on cost-savings and global risk management.

To that end, we also expect to see an increase in demand for vendor-hosted software-as-a-service corporate actions models. This is not only a more efficient and cost-effective way to deal with corporate actions, but gives firms greater flexibility over their operations by allowing them to optimize their resources and focus more fully on core revenue-generating activities.

Dalglish: It is likely that simplicity and costs will trump golden copy and enterprise data cleaning. Business units will make do with the data they can eke out from sources already available internally. It seems unlikely that we will see major spending in this area any time soon. This implies more manual interaction and continued dissatisfaction with corporate action data quality.

Byrne: As Swift becomes accessible for more categories of corporates and non-bank institutions, there will be a broader adoption of standards. As investors diversify into emerging markets and cross-border transaction volumes rise, exchanges will have to provide higher quality information. The increased complexity

of derivatives products will necessitate multi-threaded, simultaneous processing for a single corporate action, and this will place new demands on operational resources. Meanwhile, the front office will be under pressure to obtain updated corporate action information that may impact trading positions.

Sey: Two major developments are on the horizon. One is Swift's STaQS, which is currently being used in the payments world. This facility could provide an ideal way for market participants in the securities world to ensure their corporate actions messages conform to the broader market's view of how they should be constructed.

The other development relates to which ISO standard is used to convey corporate actions messages. At present, it is ISO 15022, but according to Swift, that will change over the next few years. Hitherto, the message has been that ISO 15022 would continue to be used for the foreseeable future for areas of business where it was already an established component. But it now appears that the MT564s will be replaced with an MX series of messages in ISO 20022.

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John Byrne, Information Mosaic

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Deirdre Sullivan

Vice-President

Telekurs (USA)

Tel: +1 203 328 3305

www.telekurs-financial.com

Hopkins: Nasdaq OMX definitely expects to see an even stronger trend towards automation for handling corporate actions in order to reduce the risks associated with manual data handling downstream. We believe we will also see more of the 'golden record' or 'golden feed' concept. To ensure quality in the feeds, local suppliers with their unique knowledge are the natural sources. With high-quality feeds from local suppliers, the number of data sources for a specific market can be kept down, thereby lowering costs. It has become clear that

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JPMorgan Worldwide Securities Services

the industry needs solutions to minimize investment risk, create cost efficiency and facilitate the creation of new instruments. It is for this reason that Nasdaq OMX has invested in the corporate action space.

Mansur: I think two major things will actually make a difference in the foreseeable future. First, market practice adoption will make serious inroads in day-to-day processing. A side effect of our creation of the STaQS tool is that the EIG is being improved. We gave a lot of feedback to the SMPG that they are adopting; all of it driven by the need to upload changes to the EIG and quickly put them into effect with minimal programming. This means many shops will be able to conform, will be interested in what the SMPG says, and will create a virtuous cycle of improvement and engagement in market practice. Second, the issuers will have to put some skin in the game. This may be partially voluntary, to avoid regulation, but in some quarters it will be imposed. The CSDs in Europe are expanding their issuer services, recognizing that better quality means better market efficiency. China doesn't want to repeat the mistakes of the past, so as it prepares to engage globally, it wants corporate actions to be solid, a reliable market function.

Sullivan: We expect to see two things: a greater reliance on 'golden copy' services such as the DTCC's GCA and Fidelity's ActionsXchange, as well as increased adoption of standard communications



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Tom Dalglish, Bear Stearns

formats such as ISO 15022. Both of these approaches will free humans for more complex problem solving, which is a much better use of the human resource.

The industry needs to evolve toward standards and/or coded data that can easily conform to any standard to achieve automation and efficiency. Vendors such as Telekurs go a long way to automating CA data, but the users, from the investment banks to custodians to depositories and lending operations need to work co-operatively to create usable, global standards.

What challenges arise from globalization?

Goldman: Different countries have different laws and governing bodies that implement different rules and restrictions. Different countries call things different names and adopt different standards. Quality and timeliness of information varies greatly in different parts of the world. We expect growth in cross-border corporate actions. This occurs when a security in one country results in a security in another country. These cross-border

corporate actions further increase a corporate action's complexity.

Madigan: The greatest challenge is dealing with lack of uniformity between data and markets around the globe. In mature markets, data is more readily available. Complications, such as under-developed infrastructures that can impede the free-flowing transfer of information, increase when moving further away from the US and Europe into emerging markets. This leads to more inaccuracies and/or incomplete data.

Additionally, cross-border transactions can create headaches for firms unfamiliar with local laws, accounting principles and compliance issues.

Dalglish: Primarily, globalization drives security master complexity, and wreaks havoc on systems not initially designed to be multi-currency, multi-exchange—and there are lots of these. The ability to provide corporate-action-adjusted pricing across secondary markets is more difficult than, say, a US-only view of the security. This, coupled with the difficulties surrounding reference data governance are significant challenges in the corporate action space. Groups looking for the 'best' international corporate action sources find their data models need to be modified to support secondary markets.

Byrne: Multiple market listings for the same company create many challenges as financial institutions look to process a single corporate action for all the listings.

Issues arise with corporate action naming conventions. An ‘exchange offer’ in the US is the processing equivalent of a ‘merger’ in Europe; an ‘exchange option’ in the Australian market is a ‘conversion’ in the US. The expansion and use of new regional markets will introduce more terms and event types, as well as new processing requirements.

Corporate actions applications must be able to allow for double tax agreements, and tax treaties as well as local tax processing.

Globalization requires currency and time zone functionality. To be a truly global system, a corporate actions processing application must be a multi-currency system that can store amounts in actual currency and convert on demand and in real time.

Market globalization also means increased volumes, so solutions need to be scalable and allow for system configurations at the most optimal processing levels.

Sey: Underlying events are not so different from one region to the next. As most of these investment firms and custodians are global—or at least have diverse holdings—very similar issues apply. The differences arise from the nature of the markets themselves. In a more homogeneous market such as the US, EDGAR (the Electronic Data-Gathering And Reporting system) facilitates electronic filings to the SEC. A uniform collection front end such as this is bound to promote consistency throughout the rest of the processing chain. When the initial route to market is not as uniform—as is the case with most

notifications made in Europe—encouraging uniformity is certainly more of a struggle.

Custodians, data vendors and software vendors have probably each built up thousands of man-years of experience in dealing with the opacity and interpretative nature of the corporate actions notification process. But the majority of issuance of corporate actions from companies is still at best, text-based, and at worst, paper-based. The challenge for the entire industry is to engage issuers or their agents into the process.

Hopkins: Globalization increases the demand on the suppliers of corporate action data to include more markets in their feeds. The new markets often have local specialities that have to be considered and addressed, such as exchange rate differences, time differences or different types of securities. For firms, the challenges are even more complex: on top of these local differences, there are also increased customer demands in risk mitigation and expectations of exceptional investment performance. The focus on quality reference data in recent months

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Tom Dalglish, Bear Stearns

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*Brian Goldman,
JPMorgan Worldwide
Securities Services*

and years shows that the industry has recognized the importance of reference data, which goes to the heart of Nasdaq OMX's initiatives in this area.

Mansur: Cross-border investing has jumped by leaps and bounds in the past few years, but what we call globalization is really global competition. For emerging markets to be competitive they must copy the best practice, to try to be as efficient or, as appears likely for China, to be more efficient than the best markets. The Giovannini barrier removal and MiFID is all about making the EU competitive. So the challenge for the markets and regulators is to build in efficiencies, such as the dematerialization of securities in Japan.

The challenge for investors is to get the same asset services for cross-border investments as for domestic. This puts a big squeeze on the intermediaries, the global custodians and their sub-custody networks. And not just for the usual corporate actions, but servicing that is on the fringe right now will increase in importance and will include tax reclaims—some estimate over \$10 billion

are left unclaimed annually. Class actions, securities lending, shareholders' meetings and proxy voting, know-your-customer, anti-money laundering and more fill a raft of servicing requirements that are compounded by globalization.

Sullivan: The single biggest challenge is effectively identifying securities. A common share of IBM is essentially the same in London as it is in NY and Tokyo, except it isn't the same. For example, the London share has a SEDOL, and pays in sterling, while the US share has a CUSIP and pays in dollars. Identifying these shares can be a challenge, and an effective security identification cross-reference database is critical.

What would be the best way to reduce the number of events that require manual attention?

Goldman: At the source. The corporate action industry has talked for years about requiring issuers to issue corporate actions in standard formats so that communication does not require human interpretation of text. We are not there yet, but this realization is picking up steam in the industry. We are beginning to see more market harmonization in the corporate actions space. Exchanges and depositories are beginning to work together to standardize corporate action processing. Standardized messaging, timely notification by issuers combined with flexible and real-time corporate action systems are the future of corporate action processing.

Madigan: Corporate actions, particularly voluntary corporate actions, are manually intensive. The first step toward minimizing the number of events that require manual attention is to closely evaluate a firm's workflow processes to determine how and where automation is possible.

Firms using a third party to increase automation have a number of choices, such as software and service providers. Ultimately, the best and most immediate way to reduce manual intervention is to source data from a provider who offers cleansed corporate actions information. The more accurate the data, the closer a firm can get to achieving straight-through processing.

Dalglish: The easiest way to reduce the number of manual fixes is to stick with one vendor and partner with them to improve data quality. This eliminates much of the system complexity, both technical (golden-copy engines across multiple feeds) and on the business side (no governance needed with a single vendor source). However, the best way is to invest in a strong reference data governance team, underpinned by a suitable multiple-source data repository.

Byrne: Some advances have been made in automating mandatory corporate actions. However, mandatory and voluntary (as well as mandatory with options) corporate actions have common processing steps: creation, entitlement calculations, notifications and allocations. For all types of corporate actions to be processed seamlessly

end-to-end, firms need a solution that can employ complex business rules globally and incorporate client election preferences. Automation of all these events is possible through the use of modern architecture. If an election preference has not been stored, and the portfolio manager or client needs to make a decision, embedding web and email access would reduce possible down time.

Sey: The result of the same event interpreted in two different back offices can often look significantly different when comparing them on a like-for-like basis. The challenge is to extract the intended and true meaning from the announcements.

As already mentioned, initiatives such as Swift's StaQS could provide an ideal way forward to ensure each organization's corporate actions messages conform to the broader market's view of how they should be constructed.

Any such remedial activities are great additions to the armory of processing tools, but the one thing likely to get us all closer to the goal of significant cost and

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risk reduction is successful engagement of the issuance community. If we can create a technology bridge between the existing unstructured event announcements and the highly structured world of event processing, this really would be a treatment for the cause as opposed to the symptoms.

Hopkins: Increased standardization is the obvious answer. First, if corporate actions were announced in the same manner in all markets, the providers of corporate action data would be sure to capture all announcements. Nasdaq OMX has already begun to see this in Europe with the new *EU Transparency Obligations Directive*. Second, more standardization and harmonization in actual corporate action events across geopolitical boundaries would help. There is still a lot of work to be done here. Overall, where Nasdaq OMX can introduce products that decrease the number of manual events for our customers, we view this as a win for us and the firms we serve. Our processing and disseminating corporate action data with a one-to-many network effect will reduce the multiplicative costs historically borne by the industry.

Mansur: The system of corporate actions, globally, is an open system as long as the issuers insist on textual announcements. The interpretation risk is significant and compounded by globalization because of announcements in local language, thus introducing translation risk. The number of corporate actions each year, globally,

remain fairly steady. There is generally a balance of mergers, spin-offs, new listings and de-listings. The change is primarily that there are more funds, more investment vehicles, more investors, and more global investing. This is generally good, but it amplifies the weakness in the system. So improvements to efficiency across all the intermediaries can help, and is definitely needed, such as the SMPG efforts at option numbering standardization. But those improvements can only go so far—we will remain limited by text-based initiation of a corporate event. And don't expect that every single event will be automated, but the manual steps should be those that require in-depth analysis and financial skills, not manually cross-checking between two MT 564s. It's getting old, this joke that STP in corporate actions means "straight-to-print."

Sullivan: Again, standardization is the key to a touchless corporate action processing environment. With comprehensive standards—that are widely adopted—data can be communicated and then processed in any format for downstream processing.

However, with standards, one problem is a reluctance to be the early adopter—it is expensive and time-consuming to adapt to standards if data has to be mined from multiple sources and formats. At Telekurs we've solved that problem by creating truly elementized data that can be easily transformed into any accepted format for automated downstream consumption.