R. SHRIVER ASSOCIATES INC.

DEATH OF A THOUSAND CUTS:
Strategic Peril and Potential in the New Market Data Industry

Written by Tee Williams, R. Shriver Associates

EXECUTIVE SUMMARY

Firms in the market data industry stand at a watershed. On one side of this great divide is the traditional business strategy of vertical integration. Like great sausage machines, vertical integrators take in raw data and transactions at one end, pass them through a proprietary process, and deliver a range of customer services at the opposite end. But on the other side of the watershed lies the future of the market data industry. It is a set of vendors and utilities that sell components of data and/or processes that can be interchangeably fabricated to meet the very specialized needs of customers, offering a richer and less expensive set of services.

The irony is that many of today's vendors do not fully understand their precarious position, or at least they do not behave as though they understand.

The creation of this watershed comes from four forces: Technology, standards, market fragmentation and service commoditization. Together these forces have permanently changed the economics of being a market data vendor and this mandates that business strategy must change as well.

Historically it was very expensive to be a market data vendor. Vendors manufactured their own computers, and built and owned their own distribution networks. These costs were barriers to competition and protected vendor margins. As powerful low-cost computers have developed and standard operating systems and network protocols have evolved, these barriers have eroded.

Today, vendors are finding that the vertical integration that formed their defensible advantage — data collection, normalization, storage, processing, distribution and display — has become a liability. In the future, the defensible advantage of a business will not be vertical integration. It will be a more discrete component of business data content or function.

An analogy can be found in the computer industry. In 1980, IBM relied on proprietary products and services. Competitors like Honeywell, Control Data and NCR competed by offering "me too" products. But today's computer industry is vastly different. Firms like Intel, Cisco, and Microsoft, offer products that can be integrated and services that work with other vendors' hardware and software. The defensible advantage has totally shifted.

For the market data industry, the future holds an environment in which different parts of collection, processing, storage and distribution tasks will be provided by separate firms that specialize in areas where they have or can create a defensible advantage.

Exchanges are at a similar watershed. Historically, they have had their market data fees—a primary source of revenue—protected by the absence of competition. But exchanges will find that these fees are not as well protected in the future. The example of the Island ECN—choosing to print some of its trades in Nasdaq securities through the Cincinnati Stock Exchange instead of through Nasdaq—should be disturbing to exchanges. This suggests that exchange participants that become dissatisfied with a given market center can "vote with their feet." That is, if an exchange is unresponsive, an alternative market can capture participants and market data revenues by being more responsive.

Organizations that do not modify their business model to adapt to the new reality will, over time, find themselves the victims of the "Death of a Thousand Cuts." Continual losses in customer base and incremental increases in their cost structure will drive them to extinction.

What then will the future be like and how should it be planned for? In the future market data services are likely to be created from components that are assembled by users themselves or by integrators who price their services based on time. Some services now offered by vendors may be provided by consortia or as mutualized monopolies.

3781 Halfway Rd. • The Plains, VA 20198 • (540) 253-5682 • FAX (540) 253-5683 • teewilliams@earthlink.net

Pricing is likely to change. Product pricing will make sense only for independent components. Integration will be offered "by the hour" by integrators. New schemes may be needed to pass revenues on to vendors that do not have direct contractual relationships with users.

An environment such as we describe, even if it is thought to be only a scenario for intellectual debate, must raise questions for all who use market data:

For vendors: Do we believe that the environment has changed in such a way as to make traditional business models ineffective, and if so how should we react?

For exchanges and content creators: How do we balance legitimate complaints about our pricing policies against the need to maintain our revenue stream? How do we ensure that market data gets the strategic attention it deserves?

For users: How do we plan to source market information in a fragmented environment and how do we develop an architecture that integrates many disparate uses of information with minimum redundancy?

INTRODUCTION

2003 finds a general malaise in the market data industry, particularly among market data vendors. Exchanges and content providers are doing relatively well, as they resist pressures from their members and/or their customers to lower market data fees. Users of market data are generally dissatisfied by both the price and quality of the market data they receive.

The question facing the industry — content providers, vendors and users — is this: Is the current disaffection in important sectors of the industry purely the result of bad economic times or is something more fundamental at work? Industries, as they evolve, are subject to both cyclical and secular change. Cyclical changes are the result of normal economic forces during a business cycle. Normal change is best addressed by fundamental business strategy adjustments. Prices or pricing policies are modified to reflect changing conditions and competition. Products are added, changed or discontinued based on customer demand. Customer service is used to build brand loyalty and to overcome normal aggravation that arises from time to time in all business relationships.

Periodically, however, *secular* changes occur. Secular change implies change that occurs very infrequently. When change is secular it marks a watershed. The entire business topology is rent and whole business models must be rethought. We believe that the market data industry is at just such a point of dramatic change. The four horsemen of the market data apocalypse: Technology, standards, customer-fragmentation and service-commoditization are wreaking havoc on an industry that had been stable for many years. Business colossuses now quake with indecision, as they fear for their survival.

It is important to understand that secular change is not the same as "instantaneous change." Indeed the change we are discussing here began in the mid to late 1980s and is still playing out. What is occurring now is the realization by many firms that the symptoms that seemed to be mere irritants ten years ago are not going away as one would expect them to do over time. Instead, the problems are becoming worse. Dissatisfaction is becoming more intense. The old remedies no longer work.

IT IS A TOUGH TIME TO BE A VENDOR

The market data business for equities as it is commonly understood had a golden age from the late 1950's to the mid 1980's. During that period, the business was highly profitable for the firm that held the dominant position in the market. Scantlin Electronics, Bunker Ramo, Ultronics and finally Quotron, as Scantlin was renamed, successively dominated the marketplace and reaped near-monopoly profits. More recently Telerate dominated the market for fixed income from the mid-1970's to the end of the 1980s, while Bloomberg became ascendant from the late 1980s to the present. Outside of the United States, Reuters dominated the market for equities, fixed income and foreign exchange from the 1970's to the late 1990's.

With the possible exception of Bloomberg, most of the market data industry is far less profitable today than it was historically. A number of firms are in serious financial disarray. The financial downturn of the early 2000's explains part of the problem, but a number of firms face problems that will not be corrected purely by the end of a cyclical downturn.

This state of affairs raises several questions for the industry. Specifically:

- What has happened to cause the current malaise?

- How can it be that market data is more important today than ever to those trading in the market and yet the firms distributing the information are doing so poorly?

- Do the problems that currently exist for market data firms suggest that the firms are simply executing basic business activities poorly, or do they suggest a fundamental market shift? That is, is the execution poor or has the economic climate changed in such a way to require a new business model?

This white paper finds that current business models of some firms have indeed ceased to function properly and new models are required. We suggest an analog that may be helpful in creating new business models.

The ghost of market data past

In the golden age, market data vendors that became successful were protected from competitors by immense barriers to entry. The vendors themselves manufactured many of the processors that were used in market data distribution. Networks were created using proprietary protocols that were optimized to permit large (for the time) data volumes to be transmitted through relatively slow circuits. The vendors owned the networks. Combined, these factors created a huge fixed investment that a new vendor had to make before they could begin to sell their services.

Customers — primarily sell-side traders, sales personnel, ForEx dealers and bond traders — had to have market data terminals because the terminals provided the information needed to price and trade securities. Also, the vendors provided a distribution mechanism to all of the customer's retail branches and trading rooms.

Vendors charged, and customers paid, for both the content the vendors provided and the data distribution capacity based on the strategic importance of both the information and the distribution capability. The prices were not directly related to the cost of production. This is known as value pricing and means the vendor could receive near-monopoly profits. A study we conducted in 1986 found that the average price of a U.S. equity market data terminal was about $480 per month in nominal dollars exclusive of exchange fees. In many non-U.S. markets prices averaged several thousand dollars (U.S.) per month.

To be sure there was a dark side to this market environment. Value pricing was possible because only one vendor was in a dominant position at a time. When Quotron controlled market data, GTE (which had bought Ultronics) and Bunker Ramo were barely profitable and had a difficult time trying to dislodge customers from Quotron. Large changes in market share between vendors typically occurred as a result new technology that allowed a new vendor to take share from the entrenched vendor. For example, Quotron was able to win share from GTE and Bunker Ramo by a superior distribution strategy that gave it economic advantages.

Several of the vendors that achieved ascendancy then ceased new investment in an effort to milk profits. When Ultronics was purchased (first Sylvania and then GTE) the parent companies liked the cash flow it generated but were unwilling to invest. The tendency of dominant vendors to cease investment created great dissatisfaction among customers because the vendors would not respond to the customers' needs. Customers had very few alternatives and paid dearly for what they believed to be inadequate service. But for vendors willing to make the investment and fight for share, life as the dominant vendor was sweet.

The ghost of market data present

The beginning of the end of the golden age came in the mid 1980's when Merrill Lynch, completely frustrated by their inability to get Quotron satisfy its needs, decided to build their own quote vendor — Imnet. Imnet was by any measure a failure as were other smaller-scale attempts by Morgan Stanley and E.F. Hutton to build proprietary quote services. However, these efforts demonstrated two important facts about the market data industry at the time. First, large users of market data were irritated enough with the state of market data to demand change and were prepared to invest heavily to get better service. Second, becoming a quote vendor was still tough. Although vendors no longer had to build hardware, being a vendor was still more difficult than it appeared to be.

Now the equities market-data business has become unattractive. The business is still demanding. The technological barriers are lower. Computer processing power is relatively cheap and efficient; standard network protocols exist; and distribution bandwidth is readily available at modest costs. The current

barriers exist because of the costs of contracting with exchanges and content creators, data normalization and maintenance. The process of negotiating contracts with disparate market centers is expensive and time consuming. Collecting information; putting that information into a database; converting each market's data structure into a common format; and developing a consistent symbology is costly. It is also expensive to design and build an effective storage architecture, and to maintain information that is constantly changing in both content and format. Finally, even with standard protocols and vendors such as Savvis and Radienz offering special networks, developing a distribution methodology that provides information where and when it is needed is costly for vendors. What is hugely frustrating to vendors is that users do not appreciate the magnitude of these costs and the value vendors add in sourcing market data. Users simply take market data for granted. Users expect market data to be cheap, yet demand that services be tailored to the user's unique needs.

The information requirements of the customer universe have also changed. Securities sales personnel were traditionally a major segment supporting the market data vendors. Historically these sales personnel were primarily engaged in touting individual securities to customers. Today, sales personnel are now more focused on asset management and building client relationships. Therefore traditional market data is not as valuable as it once was to sales people.

Dealers, the second major group supporting vendors, need market data more critically than they ever have. However, dealers are much more likely to get data directly from exchanges and/or through broker/dealers acting as vendors. Dealers are likely to have Instinet, Arca or Xetra terminals that provide execution and market data. Dealers still have terminals that may be operating vendor software, but the vendor market data on these terminals is not the preeminent source for trading decisions it once was. Moreover, the user firm may own and manage substantial parts of the information infrastructure.

Other parts of the customer environment have become increasingly diverse and fragmented. It was always the case that there were many customer segments and each segment had unique needs. In the past, however, small segments could not get, and for the most part did not expect, information tailored to their needs. To get the information the customer wanted, the customer often bought services that they not need. For example, research or back office personnel might have to pay for real-time quote information in order to get access to their firm's internal information that was distributed over the vendor's network. Now users with lesser needs are finding alternatives that satisfy their demand. They can choose not to get traditional market data information or to use a low cost service. Users can now use either the company's own private network or the public Internet to receive company information and perhaps limited market data. Users are much less dependent on the services of a quote vendor.

The result of these changes for full-line vendors is the "death of a thousand cuts." The business is still expensive and difficult, but customers are less bound to the vendor and it is relatively easy for small vendors to target small special-needs segments.

A separate negative for vendors occurred in the late 1980's as Thompson's ILX subsidiary entered the business and began to compete on price. By cleverly targeting sales networks with a lower-priced service, ILX killed the opportunity to price based on value. Competition is now a function of managing costs and providing services as cheaply as possible. The Internet has further eroded profitability making very cheap services available to those whose needs are limited. Now we find that the price of a U.S. equity terminal is well under $100 per month in nominal dollars exclusive of exchange fees. The fall in price is even more precipitous when inflation is considered.

IF THE BUSINESS IS SO BAD, HOW DO YOU EXPLAIN BLOOMBERG'S SUCCESS

Reuters, with foreign exchange (ForEx) and Telerate and then Bloomberg with fixed income (or fixed interest) discovered that a vendor could become very successful by finding an underserved market and then offering services that meet the need of that market. Reuters provided a facility for dealing in ForEx to replace the traditional Telex/FAX networks. Telerate figured out that bonds are different than stocks and they provided a mechanism for dealers to advertise their products and inventory to the dealer's customers. Both one-to-one dealing and page-based advertisements have been eroded by alternative services. Bloomberg has, by contrast, managed to stay profitable and grow.

Bloomberg has provided a series of significant services primarily for fixed income or fixed interest. Initially, an exclusive arrangement with Merrill Lynch permitted Bloomberg the opportunity to develop products in cooperation with a supportive user. Both Bloomberg and Merrill benefited from the

arrangement. Bloomberg provided analytics and details on bond terms and conditions that were not available elsewhere. Bloomberg also benefited by riding a trend in the market where buy-side trading moved from a largely clerical function into a professional activity and the Bloomberg terminal became the tool of choice and a status symbol.

Interestingly, Bloomberg's early success did not come primarily at the expense of the other vendors. For the most part, Bloomberg identified market segments that were not being served and provided them with needed services that were not available from other sources.

More recently Bloomberg became the first to take advantage of its points of presence to create an interactive instant messaging facility. Bloomberg also used its presence on the trading desks of the buy and sell sides to create proprietary markets. In a proprietary market the dealers offer their inventory to their customers, and the customers can purchase from or sell to the inventory. Bloomberg has also created portfolio management tools and other valued services that are offered at no incremental charge. The constant flow of new products and services has had the effect of making the Bloomberg service increasingly important to its users.

By continuously adding value, Bloomberg has staunched the natural tendency to price erosion over time. In the current bad market Bloomberg has raised its prices successfully, although with considerable customer grousing. At the same time, however, Bloomberg has worked with their customers to help ensure that each customer makes optimum use of the terminals they have.

Bloomberg has been successful and maintained high prices by understanding customer needs and creating products that meet those needs. They have also worked hard to make their products and services more useful to their customers. This suggests that it is possible to be successful by focusing on customer service and satisfaction.

Is it possible for another vendor, Reuters or ILX for example, to achieve the same success (i.e., high prices and high satisfaction) that Bloomberg has had simply by providing better customer service and developing more desirable products?

It is difficult to see Bloomberg as a template for other would-be dominant vendors. Much of Bloomberg's initial success occurred because of fortunate circumstances that cannot be easily replicated. Merrill's support was critical to Bloomberg, but support alone is not enough to guarantee the success of a new vendor. The support of a group of dominant bond firms led by Salomon, the preeminent primary government bond dealer at the time, was not enough to sustain the Electronic Joint Venture (EJV) as a competitor for Bloomberg.

Bloomberg is a better example of how to run a business that is already successful (i.e. by listening to and servicing customers) than it is a model for how to create a similar firm. Further, we wonder if the historical Bloomberg model of a closed, integrated vendor can be successful in the long term.

INFORMATION IS MORE IMPORTANT THAN EVER

The irony of the malaise that besets the vendor community is that market data is more important than it has ever been. Fragmentation of the trading markets and disparate investment and trading styles are making information about the markets more critical now than it was in the past. In Europe, the most active markets — the London Stock Exchange, Deutsche Borse and EuroNext — trade many of the same securities while Eurex and LIFFE compete for futures volume. In the U.S. the NYSE, Nasdaq and the ECNs trade the same securities, the CBOT and the CME fight BrokerTec Futures for futures volume, and six options exchanges compete to dominate the same contracts[1]. In this environment information about the markets is critical to sound order routing decisions.

Beyond order routing, reference data has become more important, instant messaging is becoming a necessary means of communications between the buy and sell sides, and analytics fed by real-time market data is more important than ever before.

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[1] Some of the competition among markets has cooled with the global market slump. Nevertheless, unless there is contraction among the markets, forcing trading into a limited number of venues, competition among markets will return when the profitability and trading activity rebounds.

The question is: How can an industry be in such disarray when its primary product is growing in value?

CAUSES OF THE BREAKDOWN

There are several reasons for the breakdown in the traditional market data business model. First, here has been some concentration in the industry. In particular, the number of sell-side dealers has declined due in part to the trend of firms to concentrate dealing into a few large dealing rooms rather than a many smaller rooms. Moreover, overall trading in foreign exchange has declined due to declining volatility and the Euro, which has reduced the number of active trading pairs. In spite of this decline, there has been steady growth in buy-side trading. Therefore net change in the overall number of potential users is unclear.

Two other factors that have contributed to the declining prospects of traditional vendors are technology and standards. Technology and standards have eroded the barriers-to-entry in market data and have weakened the hold vendors have over their customer base. Technology in the form of cheaper computer hardware with huge computational capacity and networks where bandwidth is relatively inexpensive have substantially reduced the fixed investment required to be a market data vendor. Twenty-five years ago Quotron designed and manufactured the Model 800 controller on which it constructed its network and central ticker plant. Standards, such as the Internet protocols and the Windows and Unix operating systems have eroded the historical barriers. In effect, the scale economies no longer favor full range vendors.

Lower fixed cost has meant that new competitors such as ILX could become market data vendors and take share from established vendors by competing primarily on price. Also, large customer organizations have forced vendors to unbundle the prices of their services. Customers have then elected to do part of the market data service themselves. For example, customers have chosen to deliver the vendor's data over the customer's own communications network. This leaves the vendor with a distribution network serving only a small part of the customer base, yet the cost of the network is not reduced in proportion to the loss of revenue. This has reduced profitability.

At the same time that profitability has declined, customer fragmentation has increased with smaller and smaller segments demanding unique information packages. Small, specialized customer segments have proven uneconomic for large full-range vendors. By contrast, small vendors that target these niches have a difficult time growing to serve other niches because there are few scale economies.

Finally, the information and services provided by the vendors is increasingly available though sources other than traditional market data vendors. Some of these sources, such as broker/dealers, are willing to offer the information free or at highly reduced cost to their customers as an inducement for order flow. Other sources such as Internet gateways use advertising as the means of payment making the data seem "free" to the user. The net effect is to reduce the profit potential of full service vendors.

SIMILAR INDUSTRY BREAKDOWNS HAVE HAPPENED BEFORE

It is sometimes useful in understanding a cathartic event to examine other events with similar characteristics that have happened elsewhere. We warn that analysis by analogy, while helpful, is not perfect. Conditions in different periods and different industries are never exactly the same. The changes therefore, however similar, will have important differences.

The computer industry in the late 1970's and early 1980's bears striking similarities to the market data industry of the late 1990's and early 2000's. A fully integrated computer company — IBM — dominated the computer industry in the early 1980's. IBM provided computers, operating systems and applications to users who were obliged to take its offerings.

The "Bunch" (Burroughs, Univac, NCR, Control Data and Honeywell) provided "me too" competition for IBM based on minor differences in price or performance. Smaller competitors were also emerging. DEC and Hewlett Packard sold minicomputers to specialized markets. A new set of competitors including SUN and Apollo sold workstations to engineers and Apple and Radio Shack sold microcomputers to hobbyists.

We believe that in understanding how the computer industry evolved from 1980 to the present is instructive for market data vendors. In particular we believe that the way that decisions made by the competitors that existed in the computer industry in the early 1980's shaped their future survival and/or performance.

Today, the structure and competitors in the computer industry is much different than it was in 1980. Many of the competitors in 1980 no longer exist or exist as part of different organizations. Examples of firms that have disappeared include many members of the Bunch, DEC, Apollo and Radio Shack.

The new dominant companies in a much larger computer industry now focus on only defensible portions of the total industry:

- Microsoft dominates operating systems and business applications
- Oracle controls databases
- Intel rules computer chip design
- Cisco is preeminent in routers

Only Apple still offers anything like the product offerings of 1980 including hardware, operating systems and applications.

IBM continues and is a large successful company, but it has had to change its strategic direction to do so. Moreover, decisions that IBM took in the early 1980's nearly destroyed the company. Specifically, as IBM struggled to defend its fully integrated mainframe business, it failed to take advantage of the personal computer that it created. Further, by keeping its operating systems and databases, software proprietary IBM lost the dominant share that it had in those sub markets prior to the early 1980's. Finally, IBM lost both the opportunity to adopt new better software for its hardware and the chance to develop software that could work on other companies' hardware.

WHAT DOES THIS MEAN FOR MARKET DATA

Two important messages can be drawn from this analogy. First, if we look at the market data industry in twenty years it is likely that the competitors will have changed significantly. This is not startling. What is more interesting is that the firms that dominate market data in 2020 will probably not provide fully integrated services. One can conceive of a user using RIC (Reuters Identification Codes) to access Bloomberg data distributed over a Thompson ILX network to a SLK Redi display. Some of this is happening now. Interestingly, Bloomberg, which would seem to have the most to gain from holding to the closed vendor model, is moving rapidly to offer its services on an unbundled basis according to some customer reports.

More importantly, it is hard to believe that vendors can be successful using the "irritation defense" as a corporate strategy. (The irritation defense suggests that it is possible to keep customers not by providing services they want and need, but rather by making it too irritating for the customer to switch to another vendor.) Vendors that continue to employ the irritation defense will likely lose their position in the industry. Moreover, these vendors may forfeit the chance they have to exploit defensible niches now control. These niches could give the vendor a dominant position in the new, open industry that will emerge.

After looking at exchanges, data creators and users, we will return to explore possible business models for the future.

THE EXCHANGES AND CONTENT ORIGINATORS: THE SOUND OF DISTANT THUNDER

Compared to the market data vendors that are mostly in disarray, exchanges and content providers seem to be doing relatively well. In Canada, Europe and the U.S. exchanges are protected either by lack of competition and or by consortia. These conditions have the effect of protecting content fees from price competition. As a result exchange *prices* for content have been stable, or subject to moderate growth over the past four decades.

We have seen in the last several years that user irritation has failed to have any impact on exchange fees. Market data user groups in Europe have been formed to pressure both exchanges and vendors to lower prices and improve service. The London Stock Exchange has received increasing criticism for its monopoly in listed company financial news. Bond traders on the Continent are seeking alternative places to display their quotes and record prices and the TradeWeb alternative bond market is growing dramatically in Europe in spite of bad market conditions.

In the U.S. the Seligman Committee met to address exchange fees for market data and failed to have any impact other than an inconsequential recommendation for competing consolidators that would have no impact on the level of rates. Although no conclusion was reached, the meetings revealed the level of user dissatisfaction.

The most interesting event was Island, the ECN, electing to print some of its trades and display its quotes in Nasdaq securities through the Cincinnati Stock Exchange instead of Nasdaq. This suggests the major threat to exchanges: Members can elect to print trades through competitive markets if the dominant exchange is too imperious in its policies or if the level of exchange market data fees become the center of focus for members.

Members and users of traditional market centers are making threats to abandon those centers. Investment banks in Canada have actively considered creating a new market in competition to the TSE. Jiway, though unsuccessful, shows that member firms are willing to create competitive markets when the member/user believes the market is not responsive. Support for competitive markets may represent the only way to create price competition for market data.

An important related concern for all exchanges is whether to become a market data vendor in competition with the existing vendors. Almost all exchanges provide some direct distribution of market data. A few like EuroNext and the CBOT have services that are competitive with traditional vendors. The Internet has made it possible for exchanges to offer market data directly to user segments without the costs of creating a network. Most exchanges are also exploring new, exchange-branded services that promise increased revenues. The line separating exchanges offering small, incremental revenue services directly to special users and exchanges in head-to-head competition with vendors is difficult to draw.

One has to wonder why an exchange would want to enter a business that has prospects as bleak as we have suggested the business of market data vendor to be. Yet many have foundered on the rocks of market data having heard the Siren's song, as the venture firm that assembled Bridge Data and Citibank (with its investment in Quotron) will attest. Therefore, exchanges may be forgiven for not being immune to the song's appeal.

The most deadly threat for marketplaces and content providers, which have evolved in a situation of near monopoly, is to fail to understand that the business is changing. Arrogant decisions by content providers can cause users to seek or create alternative sources. Failure to respond quickly and meaningfully to legitimate user concerns can cause the "phone to stop ringing," not because the problem has gone away, but because the customer has gone elsewhere.

Finally, most exchanges and content providers pay lip service to the strategic importance of market data. The Deutsche Börse has declared itself to be a computer services company and Bob Britz, co-president of the NYSE has declared in 2002 that: "The NYSE is a factory that produces information." Yet market data does not play the central role in exchange strategy that its economic importance would suggest. Market data is treated as a "cash cow" whose sole purpose is to fund trading initiatives or mitigate the trading costs of members. Therefore, making strategic changes in market data, particularly those that may negatively impact short-term revenue will be nearly impossible even if the changes are for the long term benefit of the franchise. A strategic view of market data is doubly important for those exchanges that have or plan to de-mutualize.

THE USERS OF MARKET DATA: "I CAN'T GET NO SATISFACTION"

The major factor in the user community has been the increasing diversity of needs as multiple markets and different trading styles have created dissimilar needs for market data services. While diversity has always existed, technology now makes it possible for each segment to find services tailored to the segment's unique needs. The result is the fragmentation of services in the market data industry described above.

The current reduced profitability for investment banks globally has forced all market segments to focus on cutting costs. Market data ranks as a major component of those costs. Exchange fees are one component of costs that has been resistant to any downward pressure on prices. The question is: Will current user irritation concerning exchange fees turn in to concerted action or will the irritation pass once market conditions improve as has happened in the past?

In an environment where there are multiple possible places to execute trades, information about markets, which we define as more catholic than simply prices and quotes, is more important than it has ever been. Users must come to understand the strategic significance information to their core businesses and then

evaluate how to source that data without wasting money. In the third quarter of 2002 two global investment banks reported significant losses and one reported (given the market conditions) stellar performance, all as a result of trading. We believe the difference was the result of the profitable firm's strategic investment in information and the systems to harness that information in support of trading activities. This suggests investment can be prudent even in a time when not investing seems the best course.

We have noted the potential for creating competitive sources for market data by printing trades and posting quotes in different markets. However, competitive pricing centers create a problem for the user in how to combine disparate data streams and maintain a clear, real-time picture of the overall market.

Perhaps the most interesting issue in the user community is the method of payment. Currently "soft commissions" or "soft dollars" are under intense scrutiny globally. The sharpest focus is in London as the result of the Myner Report. Mr. Paul Myner, Chairman of Gartmore Investment Management (a U.K. investment management firm) issued a report in March of 2001 on institutional investing in the U.K. market. Among other recommendations the report suggested changes in institutional compensation and payments, and stated the "[a]doption of this recommendation would mean that current inefficiencies and complexities associated with practices such as soft commissions and commission recapture would be likely to cease." However, the use of soft dollars to pay for market data terminals has been a major cause of the increasing use of these terminals, particularly among the institutional buy side. Twenty years ago, few institutional investors used market data terminals other than those few firms that had professional trading staffs. The end of soft commissions would not stop all institutional use of market data terminals but it would diminish the density of high-end terminals and cause increased use of low-cost alternatives among buy-side firms.

The end of soft commissions is unlikely to occur no matter how much concern arises over its dubious ethical foundation. At least two serious inquiries and one outright ban has occurred in the U.S. over the last thirty years, yet the practice continues. One industry expert has suggested that so long as order flow has value, brokers will find some way to offer compensation in order to attract it. Fewer ethical problems may occur if the use of soft commissions is accepted and controlled than if this method of payment is banned and occurs *sub rosa*.

Reduced reliance on soft commissions, or a ban is also likely to have implications on some of the newer forms of market data. Instant messaging within closed vendor environments has created an important new "community" where trading ideas and breaking news can be discussed in real time. If these environments must be paid for in hard payments, then the lowest-price medium will be selected. Lower-priced services may sacrifice or skimp on important compliance safeguards such as archiving messages.

Moreover, we have noted that broker/dealers have become more specialized in the last several years. Some broker/dealers now focus on research and allow other firms to focus on execution. The end of soft commissions will limit the ability of firms to specialize if all firms are forced to participate in executions to be compensated for the research and other services they provide.

Finally, changes in the styles of trading and new products such as single-stock futures are creating a much richer set of elements in the market data palette with which to create a useful picture of the markets. As a result of growing information diversity the very nature of market data is changing. Once market data was considered to be only last sale prices, quotes and news information on markets. Now essential information on the markets also includes historical information, video, reference data and analytics used in the trading process. This ensures that in sum, the market data needs of users will grow and become more central to their business.

With growth in diversity and importance, however, comes a concomitant growth in the technical and administrative burden of controlling the acquisition, management and distribution of information within the organization. Thus it is likely that a major push by users on both vendors and content providers must be to streamline market data management. A patchwork of antiquated rules designed for different economic and market conditions remain in place out of fear (by vendors and exchanges) that change might have some unforeseen negative impact on revenues.

Users may increasingly be expected to "vote with their feet" abandoning those markets and vendors that are unwilling or unable to adapt to changing user needs. In fact, more user change would probably have occurred already if "alternative opacity" (i.e., the lack of clarity about what alternatives are available for users) was not protecting many weaker vendors and markets.

BUSINESS MODELS FOR THE FUTURE: THROUGH A GLASS DARKLY

Several observations can be made about the business models that are likely to evolve in the future. We expect that no single business model will dominate, Here are some that seem likely to be important.

DOMINANCE OF CRITICAL COMPONENTS

Power in the market data industry of the future will come from owning critical components, not from offering an integrated service. The important components will be those that are most difficult to replicate. This could include elements of content and distribution. In addition, critical interfaces — standards — are also likely to be defensible areas of strength. This parallels the computer industry where specific elements (operating systems, databases, routers and computer chips) rather than integrated services dominate. What is challenging is divining what will be "critical" in twenty years. It is unlikely that anyone in 1980 could have looked at a Radio Shack TRS 80 Model 100 and foreseen the trivialization of the IBM mainframe.

For components to make sense for market data many more standards are necessary than currently exist. In the computer industry a combination of standards evolved explicitly (as in the case of the standards supported by the standards maintained by the IEEE), as de facto standards (as in the case of Microsoft and Intel), and by user groundswell as with open source operating systems and TCP/IP.

In market data a number of direct or incidental standards are evolving such as MDDL and FIX, but more are required. Standard asset definitions, more efficient identification standards and a multitude of inter-system interface standards will be required.

FOR LARGE FIRMS, *A LA CARTE* SERVICES

As the integrated market data industry devolves into a series of interdependent components, the largest firms will assemble information services by purchasing the components from many vendors that will be plugged together. Content, hardware, networks and supporting services will come from many sources.

The missing element is a means to handle the maintenance headaches that come with managing a market data service. In the middle 1980s, FD Consulting offered "ticker plants" for sale, but the offering failed when firms came to realize the problems involved in managing the ticker plant once installed. A possible solution to this problem may be offered by services such as the HyperFeed Smart Ticker. This offering bundles a ticker-plant sale with an ongoing service that makes maintenance updates remotely from HyperFeed's own ticker plant. We expect other services that are not currently offered will become important in an increasingly fragmented environment.

Interestingly, size for a broker/dealer or investing institution, which is has been necessary to provide the muscle and leverage to negotiate with an integrated vendor such as Bloomberg. Thompson ILX or Reuters, may not be an advantage in a world where vendors provide components rather than integrated services. Smaller, more specialized users may have an easier time assembling solutions that meet their needs. Some large firms may choose to service individual areas within the firm with separate solutions. This suggests that a base level infrastructure onto which can be plugged unique user solutions will become critical. Crafting such an infrastructure creates both technical and organizational issues for larger user firms.

INTEGRATION AS A BUSINESS MODEL

As we have said, it will be difficult to be an integrated full-line vendor. Nevertheless, some firms, particularly the smaller ones, will need or want assistance in putting together the systems they need.

To provide assistance to firms that do not want to be in the "market data business," no matter how easy, integrators will provide the function of assembly and customization. Importantly, the integrators may be paid as consultants (that is by the hour) rather than as a product producer (i.e., by product licenses.) This means that there may be no significant means for these firms to achieve scale economies. Under this scenario, each installation would be unique and most of the "commonality" between users would come from product components that could be purchased "off the shelf."

CONSORTIA AND UTILITIES

Some of the services that are required for market data may make more sense operated as a consortium or as a utility. There are functions that are likely to be natural monopolies. These functions, while offering some scale economies, are not highly valued by end users. When a service is expensive to offer but is not

valued, it offers no competitive advantage to the producer and the user is indifferent to the source. A natural metaphor is plumbing that is only noticed when if fails to operate as expected. A function with these characteristics is a candidate for operation as a mutualized monopoly.

PRICING ALTERNATIVES

We have noted that integrated product pricing for market data is unlikely to be an option in the future. Large users will pay for each of the necessary components individually. Those firms needing assistance will pay integrators to assemble information that meet the firm's needs. Financing services (some from vendors) will allow the user to choose the format of the payments for the services they use.

Broker/dealers will increasingly offer market data as part of integrated services to their customers. The payment for the data will be part of the total-service fees, primarily as commissions. By contrast, vendors will have a hard time charging for their services on a commission basis. Commission-based products and services represent a threat to broker/dealers that oppose any service that "take commissions out of their pockets." Institutions generally need to focus their commissions and increasingly need to be able to justify purchases with commissions.

The end of the "dot com" bubble has put advertising as payment mechanism into disrepute, but it is working at the fringes of market data business. In a more robust market, advertising, particularly for retail-oriented services is likely to grow in importance. It is also possible to conceive institutional services provided by broker/dealers as a kind of advertisement. We remember that indications of interest (IOIs) are a kind of advertising.

We fully expect that many new payment structures may evolve that permit sub-contractors and specialty firms to be rewarded. Payments similar to "give-ups" among broker/dealers in trades would permit momentary or one-time payments to occur without contractual arrangements between the user and the payee.

STRATEGIC QUESTIONS FOR THE INDUSTRY

Our assessment creates more questions than answers, although it highlights the critical need to seek the answers. Those who do not seek answers, or answer incorrectly will cease to be or will be trivialized as bit players in the industry.

For vendors the questions are:

- Do we believe the market has changed in a fundamental way and if so how?
- If, as we have suggested, the value of being a fully-integrated, closed provider has changed from a strength to a liability, then several sub questions arise:
  - How quickly do we open our service?
  - What are the strategic passes and high ground that we now possess and how we fortify them against attack?
  - What are the areas where we are not now strong that we believe will be important and that we can reasonably hope to seize either from existing competitors or before competitors can become entrenched?
- If we are wrong, how do we hedge our decisions so that we can recover and prosper in the environment that actually evolves?

We believe that exchanges must come to understand that the world is changing in important ways that has an impact on how they manage their market data business, what services they offer, and how they set their fees. If this is true the questions before exchanges are:

- What concessions can (must) we make to address legitimate administrative concerns and how do we provide flexibility without endangering our intellectual property rights?

- What new services must we offer to satisfy customers or to increase revenues and how do we do so without endangering our relationship with traditional distributors of our data?

- How do we assess the potential for competition to impact our ability sustain our revenue streams? Important derivative questions include:

    - How do we set prices so that we can keep revenues as high as possible, but low enough to dissuade competition from competing markets and/or reporting services.
    - Are there alternative pricing structures methods (different units of count or volume breaks; e.g., enterprise pricing) that we can adopt that will maintain overall revenues with less negative impact on our user base?
    - If we must alter prices in ways that have negative short-run implications on revenues, how can we get management/members/owners to see the importance and support the changes before competitors erode our position?

- How do we strike the balance among seizing new product opportunities; providing good customer service in the face of vendor apathy to our information; and maintaining decent relations with vendors that are essential distribution channels?

- How do we increase the strategic understanding and emphasis of senior management and owner/members on market data?

- How do we differentiate legitimate customer complaints and concerns from noise?

Market data users must address market data in its most complete form and not focus purely on narrow historical definitions. We believe that users are generally aware of this and have actively moved to pursue services they need but are frustrated by the failure of vendors, and to some extent exchanges, to provide these services. For users, therefore, the questions are:

- Where can we find the information products meet the need our unique needs?

- Which vendors will provide their information and services *a la carte* basis so that we can assemble the information we need such that each component will be “best of breed” with respect to our needs?

- Who will supply the standards and interfaces that we require to assemble disparate information and services into a seamless offering?

- What payment mechanisms can we count on to permit us to buy the services we need and/or that will allow us to provide our customers with their needs in such a manner that we can bind the customers to us?

- How do we identify the information and services we need with the assurance that they are as functional as they are purported to be and that the vendors will service them to our satisfaction?

# # #

R. T. WILLIAMS, JR.

PRINCIPAL

Mr. Williams is an expert in market data, the mechanics of marketplaces, trading techniques, and the related information systems required to support markets; financial and information strategy; national market policy; exchange and dealer trading mechanics, clearance and settlement; information industry operations and economics. Related to this work, he creates graphical descriptions of the mechanics of marketplaces and trading techniques to help in the understanding of complex issues

Mr. Williams regularly teaches TMART classes on market data and OMTEX classes on automated trading and trade order management that are sponsored by the Clearnet subsidiary of the Morris group. These classes are presented to the public and to selected individual corporate sponsors. This whitepaper was created as a result research done for TMART class.

Representative Projects:

- Assisted the Securities Industry Association to assess the impact of decimal trading in the US and worked with the SIA, the options exchanges and the SEC to develop a methodology to mitigate quote volumes that are likely to explode as a result of decimalization
- Helped a vendor of network and processing infrastructure products develop a new product strategy to service the securities industry
- Created a capacity planning methodology for the Composite Tape Association (all U.S. listed securities) and the Options Price Reporting Authority (All U.S. options) under mandate from the SEC
- Helped a major market data vendor develop a strategy for offering portfolio management services
- Worked with a number of international exchanges to develop marketing and pricing strategies for market data
- Reviewed market data contracts for a Latin American exchange to make certain all important business issues had been covered
- Developed a market data strategy for the Polish Securities markets under contract to the U. S. Agency for International development
- Consulted for nearly every major market data vendor on issues such as product design, market potential and strategic direction
- Evaluated the US Governments market, and helped in the creation of a new, mutually owned inter-dealer broker for the primary dealers and information services concept for Governments market data
- Analyzed the U.S. market for securities information services for a Japanese bank and securities firm who jointly developed a quote system for their customers
- Developed a market information plan for the Office of the Secretary of the Treasury
- Presented evaluations of the use of very-advanced technology for trading at two major exchanges and a major international bank
- Developed the strategy of a major quotation vendor interested in developing foreign exchange netting and market information system
- Conducted a study for the US Department of the Treasury on the implications of foreign portfolio investment on the US economy
- Chairman of the Information Industry Association's sub-committee on Exchange and Regulatory Policy, and principal editor of a report on market data information operations and regulation

- Developing a set of videos for publication to explain the mechanics of the North American securities markets as part of a training series
- Worked to develop strategic alternatives for a major equities exchange
- Developed the for delivery provisions for a new type of financial option for a major options exchange
- Managed a project to identify the best form for a national system of clearance and settlement for the SEC (NSCC)

B.S., Commerce (with Distinction), M.B.A., University of Virginia; taught a class in investments as an adjunct professor; Contributed to and principal editor of the IIA committee report: *The Creation and Distribution of Securities-Related Information in North America*; Co-author with Peake and Mendelson, *The National Book System* (1976), that is considered the first definitive description of an electronic order book system