

## MARKET DATA: THE STATE OF THE INDUSTRY

### I. Demand for Market Data

#### A. Types of Market Data

The market data industry represents a complex and interwoven network of different players, different interests, money, technology, and services. This is why it is worth taking a minute to remember that the term “market data” can mean any one of three things. It can be referred to real-time data, historical data, or value-added or “interpretive” data, meaning data that has been analyzed already to some extent.<sup>1</sup> **Real-time** data is the backbone of the securities industry and the National Market System, in the sense that it allows price discovery to occur. Real-time data includes breaking news and the release of economic data indicators, but the two key components that drive transactions are last sale reports and quotes. The SEC mandated that this information must be “consolidated,” or found in one place, in order for investors to be able to make informed investing decisions. **Historical** data is the accumulation of real-time and other data, and is crucial for identifying patterns in investor and stock behavior, and how these vary depending on different external circumstances. **Value-added** data is comprised of the research that comes out of analyzing the previous two types of data, and estimating future performance based on the trends that are discovered.

#### B. Growth of Market Data Demand (and Supply)

The wave of new investors in the United States over the past several years means that there must be increased non-professional demand for all types of market data.<sup>2</sup> According to the New York Stock Exchange (NYSE), more than 100 million individual investors worldwide now have access to free real-time data through public web sites, another 70 million have access to free real-time market data through television, and 12 million have access to cheap real-time data through

### Inside RESEARCH REPORTS

<b>Market Data: State of the Industry</b> .....	<b>1</b>
<b>Observations on Savings Incentives and Savings Behavior</b> .....	<b>6</b>
<b>Monthly Statistical Review</b> .....	<b>13</b>
<b>SEC Releases Report on Execution Quality</b> .....	<b>16</b>



SECURITIES INDUSTRY ASSOCIATION • info@sia.com, <http://www.sia.com>  
120 Broadway, 35th Floor, New York, NY 10271-0080 • 212-608-1500, fax 212-608-1604  
1401 Eye Street, NW, Washington, DC 20005-2225 • 202-296-9410, fax 202-296-9775

Prepared by SIA Research Department

Copyright ©2001 Securities Industry Association ISSN 1532-6667

their brokers and other financial intermediaries.<sup>3</sup> They also report that there were only 40,000 market data display units in 1975, but there are now 500,000 professional display units around the world. The official data processor for some U.S. market data Plans, meanwhile, report a 160% increase in transaction reports processed, and a 268% increase in quotes processed between 1994 and 1998.<sup>4</sup>

Moreover, full-service brokers who are competing with discount online brokers are finding that one way to distinguish themselves is to become the most-important source of value-added data for their investors, in the sense of providing high net worth, or private client services, to a broader range of their customers. In addition, this increased demand in terms of revenue for market data providers is supplemented by the fact that real-time market data is now cheaper and easier to disseminate.

## **II. The State of the Industry**

### **A. The Players**

The major players in the U.S. market data business include the exchanges and self-regulatory organizations (SROs), which make up the market data Plans, the market data vendors, the broker/dealers, and the Securities and Exchange Commission (SEC). The exchanges and SROs help to generate market data in the sense that they are “the point of sale,” the transactions themselves often being facilitated by specialists or market makers. There are currently several market data Plans in which the exchanges and SROs participate.

The first market data Plan is the Consolidated Tape Association (CTA), which oversees the distribution of market data. Included in the governing body is a representative from the American (AMEX), Boston (BSE), Chicago (CHX), Cincinnati (CSE), NYSE, Pacific (PSE), and Philadelphia Stock Exchanges (PHLX), the Chicago Board of Options Exchange (CBOE) and the National Association of Securities Dealers (NASD). The CTA Plan became effective in May of 1974. The Consolidated Quotation Plan (CQ)

was set up in July of 1978 to distribute quotation information with the same participants.

The CT and the CQ Plans govern two networks. Network A is associated with consolidated trading in NYSE-listed securities, and the NYSE is the administrator. Those securities are also traded on all of the other exchanges, with the exception of the AMEX. Network B is associated with AMEX-traded securities, and the AMEX is the administrator. Those securities are also traded on all of the other exchanges, with the exception of the NYSE. CTA Plan amendments require unanimous approval, with other action often requiring just a majority vote. The Securities Industry Automation Corporation (SIAC) processes the market data for these organizations.

The second major market data Plan is the Nasdaq/Unlisted Trading Privileges (UTP) Plan, which is responsible for market data from the Nasdaq National Market (NNM), the SmallCap Market (SCM), and over-the-counter (OTC) securities. The original participants in that Plan were first the NASD and CHX, then the AMEX, PHLX, and BSE. The AMEX dropped out of the Plan soon after, and PHLX and BSE operated only on a limited participant basis. Recently, more active participants have been added, including the CSE in December 1999, and the PSE in August 2000.<sup>5</sup> These recent developments have caused a reevaluation of Plan characteristics that were originally agreed upon by the NASD and the CHX. The voting system in the Plan resembles that of CTA/CQ, and Nasdaq itself is the Plan’s data processor.

The Options Price Reporting Authority (OPRA), is governed by the “Plan for Reporting of Consolidated Options Last Sale Reports and Quotation Information.” This Plan was created to distribute options-related market data, such as last sale data and quotes for index, equity, and foreign currency options, as well as the number of contracts and other information. There are five active participants in this Plan, who are the AMEX, CBOE, NYSE, PSE, and PHLX. SIAC is the data processor. According to Edward Joyce, the President and CEO of the CBOE, in 1998 OPRA’s output was 300 messages per second.

They are now disseminating 4,000 messages per second with the capacity for 8,000. Over the next 18 months, they plan to go from 12,000, to 24,000, and finally to 38,000 messages per second.<sup>6</sup>

The market data vendors are another set of major players in the supply side market data business. Vendors distribute the market data, based on a contract with the Plans, to “professional” and “non-professional” subscribers. Most often, these vendors compete with each other on the basis of the way in which they repackage the data and add value to it in various ways. Broker/dealers both help to create the data by facilitating or participating in trades, and use the market data themselves or disseminate it to their customers. When they disseminate the data, they themselves are considered vendors and therefore contract with the Plans.

The SEC, meanwhile, as the regulator, is charged with assuring that exclusive processors of market data provide data to the securities information processors (SIPs) on terms that are “fair and reasonable.” The SEC also has the authority to ensure that “all persons may obtain market information on terms that are ‘not unreasonably discriminatory.’”<sup>7</sup> Exchanges are to provide the “equitable allocation of reasonable dues, fees, and other charges among its member and issuers and other persons.” The SEC, then, is really the rate regulator. It to some extent regulates the fee relationship between the exchanges and vendors, and between vendors and customers. The SEC reports that, since 1975, their approach has been to rely “to a great extent on the ability of the SROs and Plans to negotiate fees that are acceptable to SRO members, information vendors, investors, and other interested parties.”<sup>8</sup>

## **B. The Process**

How does market data actually get disseminated? In the case of Network A and B in CTA/CQ and OPRA, Plan participants immediately report market information to the processor SIAC. Data in the Nasdaq/UTP Plan is handled by the Nasdaq Trade Dissemination Service (NTDS) and by the Nasdaq Quotation Dissemination Service (NQDS) for market maker and ECN quotes. The CQ and Nasdaq/UTP, as

opposed to OPRA, report a best bid and offer (BBO) as well as the market center that published it.<sup>9</sup>

The SIAC or the Nasdaq facility then validates the trades and quotes that they receive and stores them in a database. At that point the systems consolidate the data into two separate streams, one for trade reports and one for quotes, ready to be sent to vendors.<sup>10</sup> Vendors ensure the accuracy of price data, for example, by “scrubbing” it. The first step of the scrubbing process is monitoring the incoming data stream to make sure that it is a continuous stream. The prices then pass through “software filters that flag prices that deviate beyond a certain range,” which are checked, and there is an end-of-the-day check for missing data.<sup>11</sup>

These vendors then disseminate the data in different ways to customers and broker/dealers. Sometimes customers choose to receive the data in stand-alone terminals, which is a closed network. Sometimes customers will use their own applications to display the data that they receive from the vendor. The Internet is another venue for market data, as are hand-held devices. There are contracts with the customer in which the customer must explain to the exchanges how the data will be displayed and used. There are different contracts for internal and external users, just as there is a distinction between the display of real-time data and delayed data.<sup>12</sup> (A “delay” for NYSE-listed securities has been set at twenty minutes, whereas a delay for Nasdaq data has been set at fifteen.)

## **C. The Fees and Revenues**

How is the data paid for? Market data fees are paid by vendors and by customers, called “subscribers.” Subscribers either contract with the exchange through the vendor to receive market data, or contract directly with the exchange. There are monthly data fees, and per-query fees for subscribers. For those paying monthly fees for unlimited real-time data, there are professional fees and non-professional fees, who use market data for personal, not business, reasons. The NYSE reports that the non-professional Network A user fee is only \$1 today,

down from \$13.50 in 1984, when that type of fee was created.<sup>13</sup>

The NYSE also reports that the unit cost of market data is down to 23 cents, from \$1 per trade and per quotation in 1985.<sup>14</sup> The non-professional fees for Nasdaq/UTP are down from \$4 to \$1.<sup>15</sup> CTA/CQ and have billed directly for the data, whereas Nasdaq shifted the administrative burden of tracking data use to the vendors. These administrative costs relating to the contracts, to billing, and to tracking data use are not inconsequential. This burden is exacerbated by the fact that companies who receive data feeds from the various market Plans maintain separate contracts and billing systems with each Plan.

Market data revenues, meanwhile, make up anywhere between 15% and 39% of primary exchange total revenues. The NYSE estimates that market data revenues vary between 14.5 and 17% of total NYSE revenues.<sup>16</sup> In 1998, market data revenues were 15.3% of NYSE revenues for the year, or \$111.5 million. In 1999, market data revenues were \$125.4 million, or 17.5% of total revenues. Nasdaq market data revenues, meanwhile, accounted for 22.4% of total revenue in 1998, or \$166 million.<sup>17</sup> In 1999, Nasdaq market data revenues were \$276.5 million, or 23.5% of total revenues. These revenues have provided SROs with an important source of funding. The SEC reports that in 1998, \$410.6 million, or 21% of SRO total revenues came from market data, and that that percentage has been steady over the past several years.<sup>18</sup> The NYSE reports that a full 85% of CT/CQ revenues are taken from professional display units, calculated as part of the market share of trades, as opposed to share volume.<sup>19</sup>

### **III. Current Developments**

The structure of the market data industry that is described above, combined with recent market structure changes, has created complaints coming from various different players in the market data business. Some, for example, would like there to be a clear measure of how much it costs the exchanges and SROs to produce market

data, so that market data fees that are charged are clearly justified. There are complaints about the governance of the market data Plans. Some think that investors, broker/dealers, and alternative market centers should be represented on the governing committee. To explore some of these issues, in the summer of 2000 the SEC announced the establishment a federal advisory committee, chaired by Joel Seligman, the Dean of the Washington University School of Law in St. Louis. The Advisory Committee on Market Information has participants that represent every different constituency in the market data business. Their mandate is to explore fundamental matters, such as the benefits of price transparency and consolidated market information, and practical issues such as the most effective methods of consolidating market data.

There have been two meetings thus far. At the first meeting, it appeared that everyone agreed on the theoretical value of transparency to the markets. As for consolidation, there was disagreement about whether any information consolidation should be mandated, whether participants should instead compete on that basis, or some combination of the two. There was also disagreement about whether the position of consolidator should be a for-profit or non-profit utility. Many agreed about the necessity of at least displaying last sale information and NBBO. The central question posed for the second meeting on December 14, 2000 at the SEC was, "Should the Committee proceed to attempt to develop an alternative model for disseminating market information, in addition to exploring ways to improve the existing model? Or should we focus solely on improving the existing model?" The decision was made to explore alternative plans as well as fixing the current system. There were presentations of alternative models, and the core idea in many of them was the idea of having competing consolidators. However, many participants disagreed with this idea.

In a recent speech, Chairman of the SEC Arthur Levitt identified the key problem facing those who want to "solve" the market data problem.

He said, "There is no avoiding a fundamental dilemma: allowing unfettered market forces to dictate the cost of pricing data is in direct tension with the mandate for market transparency."<sup>20</sup> The SIA advocates developing criteria to evaluate exchange fee proposals. We believe that it is time for a broadened governance structure for the Plans. The SIA also advocates standardization of procedures across Plans and exchanges to ease the administrative burden on everyone. Finally, we advocate a comprehensive database that would clearly communicate those procedures to all users of market data.

**Judith L. Chase**

*Vice President and Director, Securities Research*

## FOOTNOTES

<sup>1</sup> The Tower Group, "Market Data in Transition: Global Market Data Spending Estimates," *Tower Group Research Note*, January 1999. Also see the SIA/Arthur Andersen White Paper on Market Data Pricing, June 1999, at [www.sia.com](http://www.sia.com).

<sup>2</sup> See the SIA/Yankelovich Investor Survey.

<sup>3</sup> Robert Britz, "The Minutes of the Advisory Committee on Market Information," October 10, 2000 at [www.sec.gov/offices/market/marketinfo.htm](http://www.sec.gov/offices/market/marketinfo.htm).

<sup>4</sup> SEC Concept Release, "Regulation of Market Information Fees and Revenues," at [www.sec.gov/rules/concept/34-42208.htm](http://www.sec.gov/rules/concept/34-42208.htm), p. 8.

<sup>5</sup> Richard Ketchum, "The Minutes."

<sup>6</sup> Edward Joyce, "The Minutes."

<sup>7</sup> SEC Concept Release, p.11.

<sup>8</sup> SEC Release, p.16.

<sup>9</sup> *Ibid.*, p.8.

<sup>10</sup> Robert Britz, "Competing Consolidators' Model," NYSE submission to the Federal Advisory Committee on Market Information, December 1, 2000.

<sup>11</sup> The Tower Group, "A Framework for Market Data and Analytics," *Tower Group Research Note*, November 1997.

<sup>12</sup> SIA/Arthur Andersen White Paper, p. 9.

<sup>13</sup> Robert Britz, "The Minutes."

<sup>14</sup> *Ibid.*

<sup>15</sup> Richard Ketchum, "The Minutes."

<sup>16</sup> Robert Britz, "The Minutes."

<sup>17</sup> SIA/Arthur Andersen White Paper, p. 4.

<sup>18</sup> SEC Concept Release, p. 5.

<sup>19</sup> Robert Britz, "The Minutes."

<sup>20</sup> Chairman Arthur Levitt, "The National Market System: A Vision that Endures," January 8, 2001, Stanford University.

## **OBSERVATIONS ON SAVINGS INCENTIVES AND SAVINGS BEHAVIOR**

### **The Persistence of Memory, The Memory of Persistence**

The unusual nature of the following report requires some explanation. It is presented in two parts. The first part is largely an economic argument in support of proposed comprehensive pension reform legislation. The second part examines some of the long-run cultural trends which may have contributed to declining savings rates and blunted the effectiveness of savings incentives. The report is drawn from a plenary presentation, "Cultural and Economic Trends That Will Shape Our Future," an address to The Rainbow/Push Coalition Wall Street Project 4<sup>th</sup> Annual Conference: Diversity in Corporate America: The Essential Best Practice, Thursday, January 25, 2001. Contributing to the eclectic nature of this report was the requirement that the presentation address both economic and cultural trends, and the diverse group attending the conference, which ranged from ministers to CEOs of major corporations. We hope it proves interesting to our readers.

### **SAVINGS INCENTIVES**

Forecasting over a 25 year horizon generally begins with laying down baseline projections using the most stable, predictable elements: the demographic patterns and their expected social and cultural implications. In this case, we can anticipate that America's population will continue to grow, rising from 273 million to 335 million, over the next 25 years. That alone will set us apart from most developed countries, where populations will be stable or declining. We are aging as a population. (The median age of our population rose some 12% in the past decade to a record of nearly 36 years. And it will rise at least that much again in the next 25 years.) We are living longer, although not necessarily working longer. Easily conceivable medical advances could extend average life spans into the centenary range, which is already the fastest growing, albeit still the smallest, decile or segment of our population. These projections generate well-known concerns over the

adequacy of retirement benefits (as the ratio of those in the workforce to those receiving benefits drops from about 3.9 to 1 today to 2.3 to 1 by 2025) and rising health care costs (driven by both the aging population and accelerating pace of scientific and technological advancements). Some obvious challenges lay ahead for policymakers. These long-term concerns are part of a larger debate that encompasses both cultural and economic issues of relevance to policymakers today.

In setting our national priorities for fiscal policy it is important to not just look forward, but to examine both the past and our current state. Among the principal priorities in this policy debate are issues concerning the education of our children and provision for our old age. In this regard we are unprepared for the future. Preparing for the future is not simply a matter of setting fiscal policy. We are in a period of profound, accelerating structural change. We are experiencing change that is at once evolutionary and revolutionary. In response, we as a people need to alter our economic and social behavior. If we fail to alter current trends, my generation, the Baby Boomers, will leave an unwanted legacy: children unprepared for the challenges they will face, and shouldering a crushing burden of our dependency.

The Bush Administration has indicated it will move quickly to enact its \$1.6 trillion tax cut proposal, despite public suggestions that a smaller cut is more realistic. It is also clear that several benefit-related issues will be high up on the legislative agenda, in particular, comprehensive pension reform and an expansion of IRA eligibility. SIA strongly supports these latter initiatives, in particular, H.R. 1102 — comprehensive pension reform legislation — which includes pension reforms, raising the contribution limits on IRAs, 401(k) plans and other retirement savings plans from \$2,000 to \$5,000 by 2003. This limit would rise thereafter with inflation. There is also a catch-up provision for IRA owners.

Although these are important steps, lawmakers need to do more than, not less than, is being suggested, to ensure that Americans will have

adequate resources in retirement and to stimulate savings in general. While reform of retirement savings incentives appears to enjoy broad bipartisan support, its passage is far from assured. Nor is the current proposed legislation sufficient to address this pressing issue. It is a good first step, but only a first step. Additional changes in public policy are needed along with changes in our personal behavior, in effect a seismic shift in our cultural values. First, let's address some of the principal concerns raised by lawmakers in the discussion over the Comprehensive Retirement Security and Pension Reform Act, before turning to the more complex, longer-term considerations that deserve attention.

First, there is a concern regarding the overall effectiveness of savings incentive plans, which include IRAs, 401(k) plans and Keogh plans. Many maintain that tax-based savings incentive plans have a strong effect on the allocation of savings and assets, but little or no effect on the overall level of savings or wealth accumulation. The argument runs that these plans reward savings that would have occurred in any event, as investors simply reallocate savings from taxable accounts or move other assets to savings incentive plans. Savings incentives do not raise private savings when households finance contributions with reductions in existing assets, with savings that would have been made even in the absence of incentives, or with increases in debt.

Examining past performance of savings incentive plans indicates that households that participate in, or are eligible for, them have systematically stronger tastes for savings than other households and are being spurred toward behavior that they might well have engaged in in any event. It would appear that those who make greater use of these programs are disproportionately higher income groups who often simply transfer assets from taxable instruments. Further, households with savings incentives have taken on more debt than other households. This along with poor analytical techniques applied in assessing these plans results in overstatement of their impact on savings.

In response to these concerns, drafters of the proposed legislation are considering adding income tax credits aimed at lower-income workers and their small business employers. Helping the latter group support the costs of starting retirement plans and making contributions for low-income workers could boost their disproportionately low participation in savings incentive plans. In addition, given the extraordinarily high levels of household indebtedness, we should be concerned with how savings incentive plans affect wealth (assets minus debt), not just assets, and surely not just financial assets.

Second, concern has recently been raised that any increase in savings incentive plans or for that matter savings overall would be "anti-stimulative." This concern appears to arise from both a misconception of the nature of consumption and investment spending and from the desire to provide immediate, massive fiscal stimulus to avoid a "hard-landing," that is to say, the onset of a recession. However, the concern is misplaced. It presumes, incorrectly, that any increase in disposable income as a result of tax cuts that does not find its way into consumption expenditures is somehow less productive or is removed from the economy altogether.

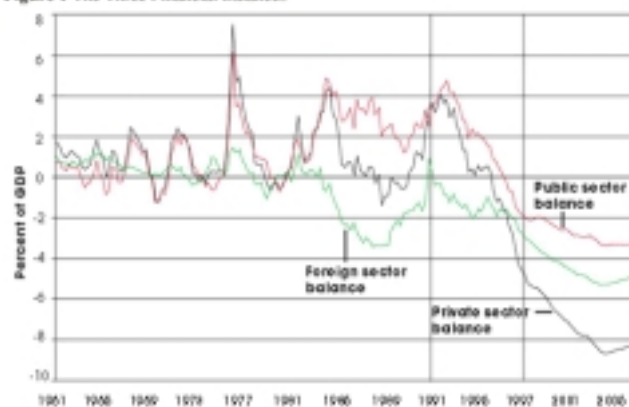
In fact, additional savings flow into a pool of capital available for investment purposes and lowers borrowing costs in the process. The investment spending that it facilitates may have a higher multiplier than consumer spending. Spurring consumption without a commensurate increasing in savings is akin to wanting growth without paying for it. Given our record low savings rates, what America requires for sustainable, balanced growth is more savings and less consumption. The challenge is to be able to both finance investment and sustain growth. Changes to existing savings incentive plans are a good start. Recognition of the need to provide incentives to stimulate savings can be seen in the overwhelming approval by the House last year of H.R.1102 and in recent comments by Rep. Dick Armey that the best, "pro-growth" tax-cut initiatives include proposals to expand 401(k) plans and IRAs.

It can be argued that adequate stimulus is already being, and likely will continue to be, provided, to offset what promises to be a short-lived slowdown in activity. The Federal Reserve has begun cutting interest rates, and this alone should be sufficient to allay fears of an extended downturn. Most economists would agree that monetary policy, not fiscal policy, should be the principal, if not sole, tool for warding off recessions. Nonetheless, the provision of significant fiscal stimulus appears to be a foregone conclusion. To provide broad-based tax cuts, which include savings incentives, would make the goal of ensuring sustainable economic growth easier to achieve and would address one of our most pressing national problems.

By nearly all measures Americans are clearly saving too little: too little to provide for investment needed to sustain the economic expansion and too little to meet future consumption needs or to adequately provide for their retirement. Some countered this argument by using broader measures of savings, which included unrealized capital gains and purchases of certain consumer durables. However, in the past year these measures have plunged, spreading concern to even this more sanguine group. A look at the nature of the current expansion and this savings gap might serve to focus the policy discussion.

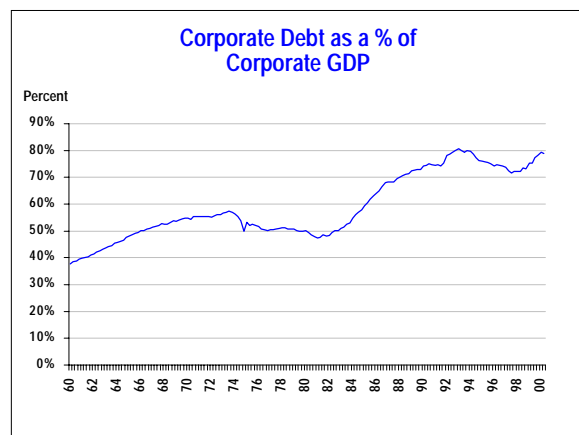
Although the current expansion is the longest on record, it has not been the strongest. Growth since 1991 has averaged 3.7% per annum, only 0.2% faster than the postwar average. What has been unusually high has been private expenditure, the growth of which has averaged 4.6% per annum, rising continuously relative to income during this period. As a result, net savings (the gap between disposable income and expenditure) has been in steady decline and, in the last two years, moving ever more deeply into negative territory, with the gap filled by rising borrowing. Mirroring this growing private sector deficit is a surging public sector surplus. Tax cut plans could help narrow both these imbalances, by encouraging taxpayers to direct a significant portion of these returned public savings into private savings accounts.

Figure 1 The Three Financial Balances

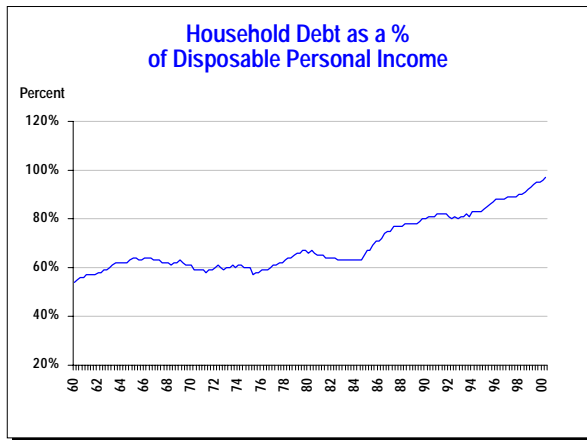


Note: Public Sector balance is inverted, e.g. minus indicates a surplus

While America's public sector has generated rising surpluses, the private sector, both households and corporations, has been consuming more than it produces and investing more than it saves. The inevitable outcome: private sector debt levels have reached all time highs, with household debt now equal to more than a year's worth of personal disposable income and corporate debt equal to over ¾ of corporate GDP.



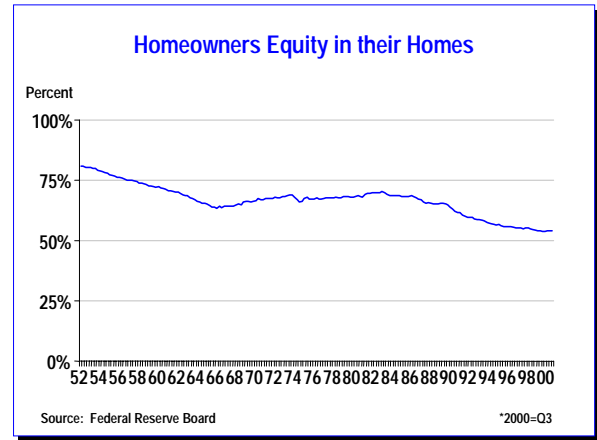




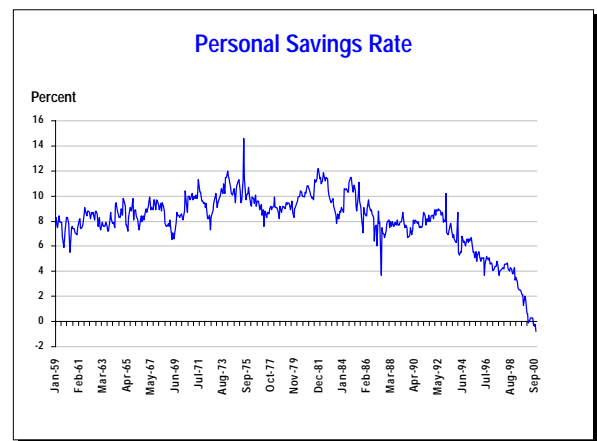
During the last several years, consumers were encouraged to continue borrowing to support spending (which was not supported by a commensurate rise in incomes) by a sharp rise in household net worth and easier, broader access to credit. Both of these incentives for further debt accumulation have faded in the past year. Like most unsustainable processes, this "borrowing binge" has not been sustained, and the "hangover" associated with all binges is now being felt in the "morning after." Americans are feeling significantly less wealthy now. Wealth (assets minus debt) has fallen sharply, curbing consumption in a dramatic fashion. Declines in the value of financial assets and, to a lesser extent, real assets have occurred while debt accumulation has continued.

One type of financial asset, equities, has drawn substantial attention as US equity market capitalization declined \$1.4 trillion dollars last year. In addition, wealth in real assets may also be declining as homeowners continued to withdraw equity from these still relatively illiquid assets and housing prices have stalled if not begun an outright decline. In addition, credit will now likely become scarcer as creditworthiness normally declines in a slowdown and lending standards become more conservative.

The savings rate is now at its lowest level since monthly records began in 1959 and the lowest level since the Great Depression. Low or negative savings rates, or dissaving, reduces the pool of investment capital available for businesses, the



pool that creates jobs and growth and raises borrowing costs. We, as Americans, have postponed our reckoning with this profligate behavior by supplementing our inadequate domestic savings with foreign savings. As a consequence, the US has gone from a net creditor to a net debtor internationally. The net stock of foreign claims on the US is now \$1.5 trillion, equal to approximately 20% of GDP. With our shortfall on the current account of the balance of payments expected to reach 4.5% of GDP in 2001 (and foreign inflows of a comparable amount), these net claims will continue to grow. This could constrain economic output and pose a threat to inflation and the stability of the dollar.



As noted above, Americans are growing older and living longer, but not necessarily working longer. The ratio of workers supporting our pay-as-you-go system relative to beneficiaries is declining. This unprecedented population aging seems certain to impose heavy dependency burdens on the social security program in the next half century. Americans will need to rely

more heavily on pensions and private savings when they retire. Compounding the problem is the fact that many, if not most, workers are not saving enough to ensure a secure retirement. Some basic facts can underscore this dilemma:

- Social security benefits provide the major source of income for 66% of beneficiaries and the only source of income for 18%. However, only 13% of the population expects social security to be the largest portion of their retirement income, and 21% don't expect anything at all from social security.
- Social security benefits today, on average, replace approximately 42% of preretirement income for beneficiaries, an amount less than the minimum wage. This percentage is likely to fall to 34% by 2030.
- Social security benefits were never intended to provide more than a "floor" or minimum support level for beneficiaries. Financial planners suggest that the average American will need between 60% and 80% of preretirement earnings to maintain the same standard of living. However, private pension plans provide only 30%. Although this coverage is up from 16% twenty years ago, it remains inadequate.
- Currently, families save only about a third of the amount needed to sustain their preretirement standard of living. Only about a quarter of all Americans are "very confident" that they will be able to provide for a comfortable environment. More than 10% of Americans are likely to retire into poverty.

Clearly more needs to be done. The bill (HR 1102) promoted by Rep. Rob Portman (R-Ohio) and Rep. Benjamin Cardin (D-Md.) is an important first step. It should be approved without delay, allowing attention to turn to additional improvements in savings incentive plans and fundamental reform of the social security system. We support efforts that: protect current beneficiaries; end uncertainties over the level of support and the eligibility standards of future beneficiaries, and; provide for greater individual choice, portability and flexibility in

individual retirement accounts without a commensurate increase in administrative costs.

Each of these goals can and should be achieved. Then we can shift our focus on still deeper reforms, such as that advocated most recently by Mr. Arney: "to end the double taxation of retirement savings by providing what amounts to an unlimited, universal Roth IRA." This proposal addresses a key weakness of savings incentive plans. Savings incentive accounts hold pre-tax balances, whereas conventional savings accounts represent post-tax balances. Plan contributions are tax-deductible but withdrawals, even at retirement, are taxed. Because the withdrawn amount at retirement is fully taxed, less is available (after tax) for future consumption than in conventional (taxable) accounts, making savings incentive plans a less desirable choice in the minds of most investors. Providing tax cuts, while enhancing and expanding savings incentives, will raise overall savings. Yet the impact will be muted given that the marginal propensity to save is now at record low levels. The larger challenge is to actually change our savings behavior, by addressing the cultural factors that shape it, in order to give these incentives a chance to work.

## **SAVINGS BEHAVIOR**

Retirement saving is painful. It requires a choice to reduce current consumption in order to obtain an increase in future living standards. In recent years, we as a culture, and Baby Boomers in particular, have not displayed the attributes that would support such a choice, such as future preference and self discipline. Boomers began saving for retirement rather late in life compared to other generations. Boomers directed a disproportionately smaller share of their total savings to "lifetime," longer-term savings objectives such as retirement and more to "target savings." Target savings are medium-term savings objectives such as the purchases of "big ticket" consumer durables (like cars), down payments for homes, vacations, or provision for college attendance.

The arrival of the information revolution and the profound structural changes in financial markets

in the late 1990s extended this process even further. The ubiquity of information, the dramatic acceleration of its transmission, and a broadening array of financial products and services delivered cheaper and faster fostered the rise of the self-directed individual investor. The cumulative effects of multitudes of new, mostly unsophisticated individual investors with direct access to the markets — in particular US equity markets — through the Internet contributed to herd behavior and the likelihood of a speculative bubble. Indeed it ensured that momentum investing became a self-fulfilling prophecy. Investors, besieged by information flows and lacking the intellectual training to process it, have increasingly resorted to “mental shortcuts,” which tend to accentuate over-reaction and under-reaction to recent price moves and the arrival of new information.

To cope with the information overload and with significantly less time than a professional money manager can devote to investing, individual investors increasingly responded more to how information is “framed” than to the content of that information. They also “anchored” their reference to the most proximate events, as more distant “history” became irrelevant. Investment horizons shortened by half and trading frequency doubled in the late 1990s. Disproportionate weight was given to the most recent moves and extrapolation of recent, transitory trends became the dominant insight.

It appeared that a new era had dawned. Savings, particularly in the form of ownership of rapidly appreciating equities, need no longer be painful. Savings could be accomplished along with increased consumption simply by recourse to greater indebtedness. This made perverse economic sense as long as investors held expectations of double-digit or even triple-digit stock market gains while only having to confront debt payments driven by single-digit interest rates. This wave of first-time, “uninformed investors,” which may have boosted the total number of customer accounts at securities firms by 15% in the six month period from 4Q 1999-1Q 2000, was representative of more gradual changes occurring in the previous five years. Compared to the existing investor base, these

new entrants disproportionately opened on-line trading accounts, made use of margin, traded a lot more frequently and invested in a relatively concentrated number of stocks. Record-shattering performances on virtually every measure of financial industry and market performance and sustained record levels of volatility followed and owed much to these late arrivals to the longest bull market in US history. But like any unsustainable process, it was not sustained.

In the wake of the market correction, we have seen the expected confirmation of the “uninformed trader migration hypothesis.” Confronted with the “tech wreck,” these neophytes migrated into other sectors and industries, producing the rolling, rotational bear market that prevailed through most of the last three quarters of 2000. When this strategy failed, the migration moved first to indexed products and later to mutual funds. As the market downturn became more generalized and pronounced, and investors were no longer playing with “house money” they became disillusioned with self-directed behavior. As personal stock picking fell into disfavor, on-line account growth became negative and these new entrants migrated again, this time to managed accounts and to financial advisors. This migration was mirrored in the changes in the amplitude and frequency of price oscillations in the market, which increased the probability of loss. Through late 1999 volatility became increasingly concentrated before displaying a broadening dispersion last year.

The continued homogeneity of behavior and broad acceptance of a “new paradigm” left investors prone to “cognitive dissonance,” which put simply is the holding of a belief that is plainly at odds with the evidence largely because this belief is widely held. Such beliefs are not easily discarded, particularly when there is not a self-soothing (pain-avoidance) behavior to replace them. Evidence of this can be seen in recent surveys of investors’ expectations of returns, which remain at levels several multiples of the single-digit gains that fundamental analysts suggest are likely in 2001. Indeed, if 4Q

2000 and 1Q 2001 are any indication, we are already in an “earnings recession.”

However, the memory of the “go-go” market of the late 1990s persists. The return of the “Goldilocks economy” is still anticipated. The desire for regression to a “safe place” and expectations of the short-lived nature of the current downturn (which is reinforced by the application of both monetary and fiscal stimulus to mitigate the impact of the much-needed correction) support this “persistence of memory.” While this memory persists, Americans are unlikely to let go of past, inappropriate behaviors and we are unlikely to see the reestablishment of the traditional values that would foster the increased savings effort which is so badly needed. If saving is painful, discarding behaviors that define your identity is traumatic.

How can we counter the persistence of these memories and reestablish the value of memories of persistence: future preference and self-discipline? It is now, standing before this roomful of ministers, that I fear I have overreached myself and may be “preaching to the choir.” But it is just such a group as this audience that can and should carry out this work. The answer is simple: we need to teach that the means is as important as the ends. We need to stress personal responsibility and a sense of time value if we are to ever willingly undergo the years of hard work and training needed to prosper in a rapidly changing, increasingly complex technological society.

However, this must be done without the kind of excess verbiage or unrealistic abstractions that I have engaged in today. It must be done by providing educational tools for economic empowerment that are accessible and understandable. These tools must be consistent with desires and experiences today. To find these tools we can draw from many sources including from recent research. One example is research into how memories are developed for storing information. A recent study suggests that “episodic” memories are essential in the development of expertise in any field. These are long-term working memories that can be recalled

easily into short-term memory to deal with problem solving. These episodic memories are just that, “episodes,” that provide easily remembered context and content. It may sound familiar to you as religious leaders. It is akin to one of the oldest forms of teaching: the use of parables or moral tales to convey a lesson. That we are rediscovering the value of parables in our modern age reinforces what we need to do. Take a long-range view of the past to rediscover our lost traditions. In this way we can understand the challenges and the needed courses of action for the future.

Some tools to teach this lesson can be drawn from psychotherapy. Churches and social groups can do more, acting as support groups to provide a sense of purpose, community and fellowship. They could provide a “12-step program” that pledges “I will stay solvent one day at a time.” Religious and social leaders could provide the connectivity, context and content needed to free us from a culture of debt.

These suggestions are only partial answers. I have no faith in final answers, because everything is imperfect and an unfinished work, but with the solid American traditions of a little good will, patience and experimentation I think we can move in the right direction. Thank you for the opportunity to speak to you today.

*Frank A. Fernandez*  
*Senior Vice President, Chief Economist, and Director,*  
*Research*

# MONTHLY STATISTICAL REVIEW

## U.S. Equity Market Activity

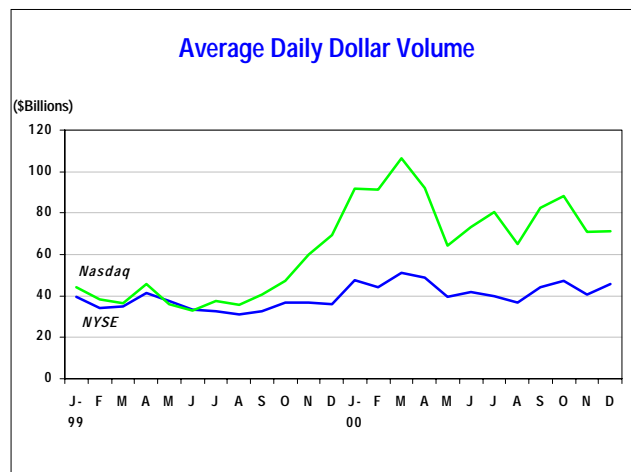
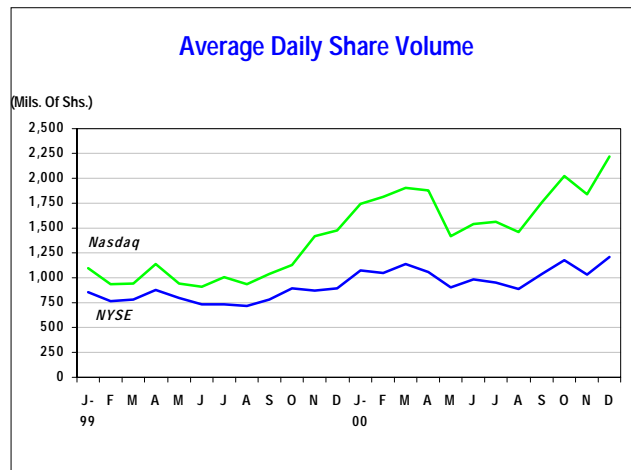
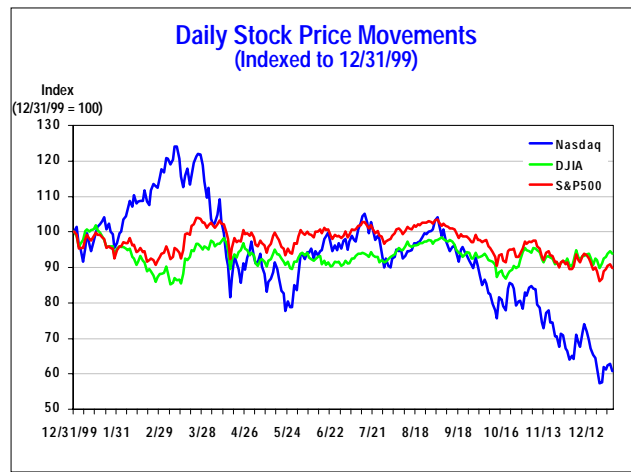
**Stock Prices** – The five-year string of double-digit gains in US stock prices ended in 2000. Imploding technology stocks, rising interest rates, slower economic growth and weaker corporate earnings all contributed to the market dive. Dot-com mania, which propelled the Nasdaq Composite Index up 80% in less than five months time to a record high of 5048.62 on March 10<sup>th</sup>, spiraled into a deep depression and drove the Nasdaq index down to 2470.52 by year’s end -- 51% below its peak and 39.3% lower than where it started the year. That was the Nasdaq composite’s poorest one-year performance since its inception in 1971, and its first annual loss since 1994.

Other major market gauges suffered as well, but to a lesser degree. The S&P 500 sank 10.1% for the year. It was the index’s first annual loss since 1994 and its worst showing since 1977, when it dropped 11.5%.

The Dow Jones Industrial Average ended 2000 at 10,786.85, losing 6.2% for the year and down 8% from its record high of 11,722.98 on Jan. 14. The blue chip indicator’s loss was its first since 1990, when it fell 4.3%, and its poorest performance since 1981, when it tumbled 9.2%.

**Share Volume** – Trading activity shot through the roof in December to monthly record levels on all markets. Nasdaq volume soared 20% in December to 2.2 billion shares per day as investors shed beleaguered tech shares for tax-selling purposes. NYSE volume surged 17% to 1.2 billion daily in December. These were all-time monthly records for average daily volume on both markets.

For the year overall, Nasdaq set a new annual zenith of nearly 1.8 billion shares changing hands per day, a heady 63% above 1999’s then-record 1.1 billion shares per day. NYSE average daily volume of 1.0 billion shares for the year 2000 represented a 29% increase over 1999’s record of 809 million per day.



**Dollar Volume** – The skyrocketing volume drove up dollar volumes on both the NYSE and Nasdaq. Average daily dollar volume on the Big Board in December rose 12% to \$45.5 billion from November’s daily average of \$40.8 billion. The value of trading in Nasdaq stocks improved minimally to \$71.1 billion daily from \$70.7 billion per day in November.

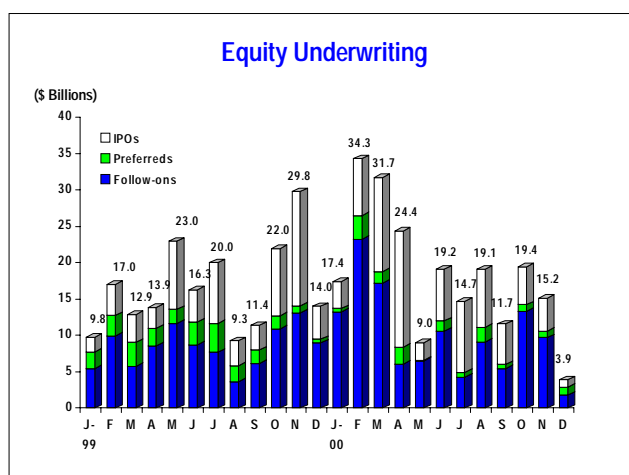
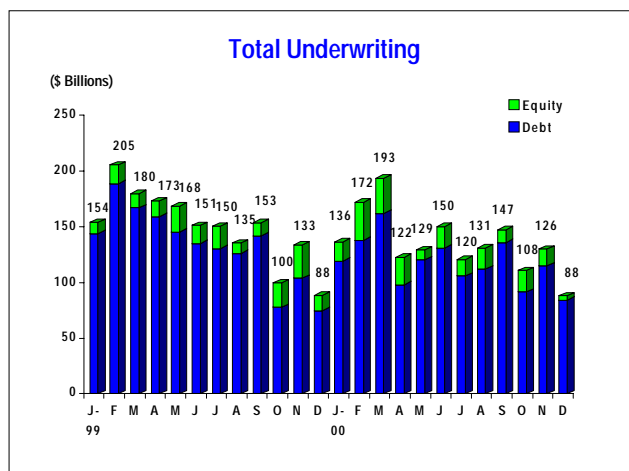
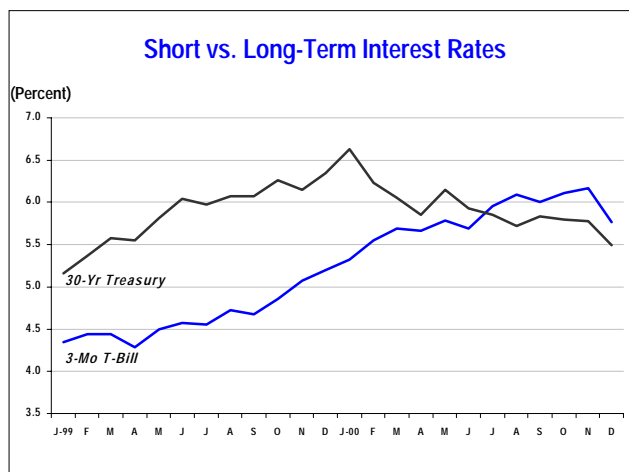
For the year 2000, the value of trading on the NYSE climbed to a record \$43.9 billion daily, up 24% from 1999’s \$35.5 billion daily average. On Nasdaq, the value of trading averaged \$81.3 billion daily, a whopping 86% increase over 1999’s \$43.7 billion daily average.

**Interest Rates** – Some investors turned to fixed-income instruments amid the rocky stock market conditions and economic uncertainty, driving down yields on both short- and long-term government securities. The yield on three-month T-bills averaged 4.77% in December, down 40 basis points from November’s near-10 year high of 6.17% but still 57 basis points above where it stood a year ago. Meanwhile, the 30-year Treasury’s yield fell 29 basis points to 5.49% in December, a 22-month low and 75 basis points below its year-earlier level.

## U.S. Underwriting Activity

New issuance of corporate stocks and bonds in the U.S. slumped in December to their lowest monthly levels of the year. Total underwriting activity tumbled 32% to \$87.9 billion in December from November’s \$129.8 billion. Sequential quarterly declines in both debt and equity offerings led to a 9% drop in annual underwriting activity -- \$1.6 trillion vs. \$1.8 trillion in 1999, and its slowest pace since 1997.

**Equity Underwriting** – Only a handful of issues came to market as the year 2000 wound down. Just \$1.0 billion was raised for new companies via IPOs in December, dragging the fourth quarter total down to \$10.8 billion, or less than half the levels seen in the three previous quarters. Still, due to a dot-com driven IPO record in Q1:00, IPO proceeds rose 18% over 1999’s tally and set a new annual record of \$84.2



billion in 2000. However, several multi-billion dollar offerings masked the slowdown in transactions, which, at 457 deals, was down 20% from 1999's 571 deals.

Reflecting the uncertainty in the stock markets, follow-on issuance also dived in December to its lowest monthly figure last year. Just \$1.8 billion of follow-on offerings came to market, way below July's \$4.3 billion, last year's second thin month. But because of the first quarter's phenomenal activity, the full-year 2000 total of \$120.4 billion shattered 1999's record \$100.6 billion by 20%.

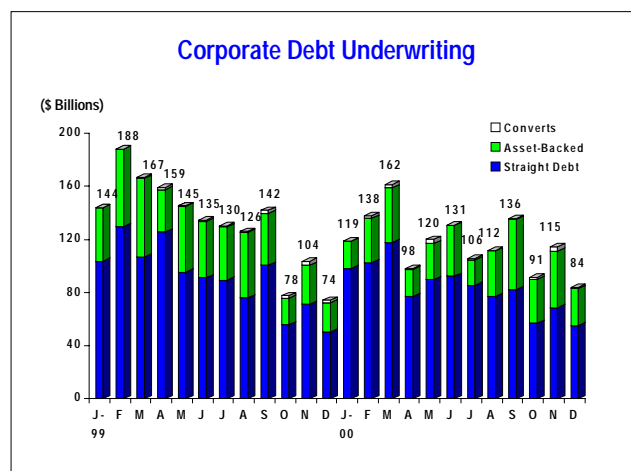
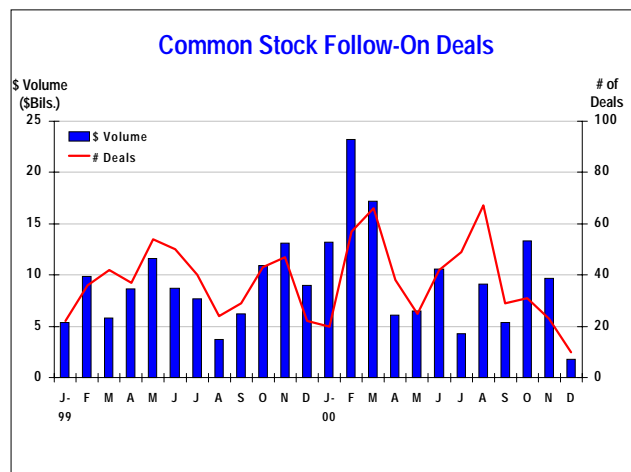
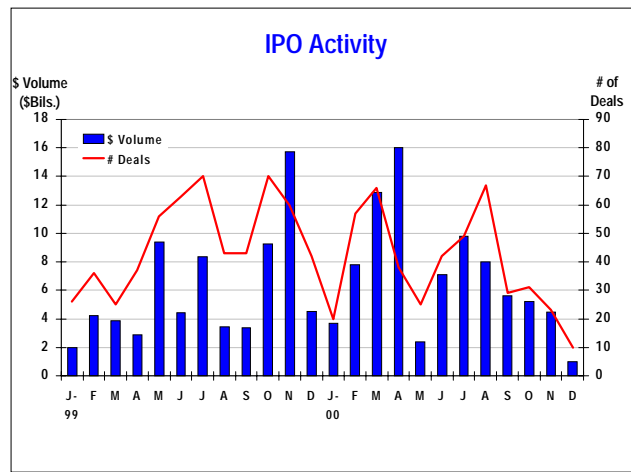
New issuance of preferred stock tumbled to \$15.3 billion in 2000, down 44% from 1999 and 59% below the record \$37.6 billion in 1998, as this sector continues to suffer the ill effects of accounting and tax law changes.

**Debt Underwriting** – Total debt underwriting in the U.S. sank 27% to \$84 billion in December, its lowest monthly level last year. That brought the full-year 2000 total down to \$1.4 trillion, 11% short of 1999's level and 15% below 1998's record \$1.7 trillion. Contributing to last year's slowdown were high interest rates and rising defaults. More recently, however, this market has shown renewed signs of life, as several corporate bond deals quickly came to market in January 2001 on the heels of an unexpected 0.50 percentage point cut in the target federal funds rate by the Fed on January 3rd.

Straight corporate debt issuance decreased 8.5% in 2000 to \$1.0 trillion from 1999's record \$1.1 trillion. New issuance of asset-backed securities dropped to \$391 billion, down 19% from 1999 and 30% below the record \$561 billion raised in 1998. U.S. convertibles posted a strong showing in 2000, increasing nearly 10% to a record \$16.9 billion from \$15.4 billion in 1999. It has been reported that companies have been increasingly using zero coupon convertible bonds for M&A purposes.

**Grace Toto**

*Assistant Vice President and Director, Statistics*



## SEC RELEASES REPORT ON EXECUTION QUALITY

### The Results

On January 8, 2001, the office of Economic Analysis at the Securities and Exchange Commission released its *Report on the Comparison of Order Executions Across Equity Market Structures*. The report finds that, for all but the largest stocks, for orders of 100 to 499 shares, the spread was between 5.7 to 11 cents wider for Nasdaq stocks than for NYSE stocks. For the largest stocks on the Nasdaq and NYSE, however, the average effective spreads were basically equal. (Effective spreads are defined as the execution cost paid by investors by comparing the execution price to the midpoint of the NBBO quoted spread at the time that the order arrived at the market center for execution.) The Report also examined quoted spreads. In large and small stock categories, quoted spreads on the NYSE and the Nasdaq are almost equal. The Nasdaq quoted spreads are close or equal to effective spreads. The effective spreads for small market orders sent to the NYSE, however, showed that there had been price improvement. With regard to execution time, the SEC found that market order executions for 100-499 share orders were faster on the Nasdaq, and that 2000-4999 share market orders were faster on the NYSE.

These results were reached by using a combination of regression analysis and matched pairs of NYSE and Nasdaq stocks that were comparable in terms of trading volume, market capitalization, share price, and return volatility. The Office of Economic Analysis at the SEC was careful to note the obvious limitations to the study. One of the limitations that they point out is that the size of the sample is only one "tranquil" week of executions during June of 2000. They also admit that differences between the stocks being compared can never be perfectly controlled for, despite the careful methodology. Finally, they say that "execution quality" is a term defined differently, depending on what the investor wants. Different investors have different preferences.

## NYSE and Nasdaq Reactions

The NYSE reaction to the study was, not surprisingly, unequivocally positive. In fact, they were particularly eager to draw attention to the fact that limit orders were, for the most part, executed more quickly on the NYSE. They used the SEC Report to claim that the agency-auction market is a better market structure than the dealer market, given efficient price discovery, lower execution costs and a higher degree of certainty of execution. The Nasdaq, on the other hand, highlighted the fact that market orders for 100-499 share orders were generally executed faster on the Nasdaq, and that retail investors often submit that size of order. They also made the point that more market makers compete for the largest stock orders, and that the Report shows that the more competition that exists for execution, the better off are investors. They also note that large NYSE orders were excluded from the study, and so the time that orders spend being handled upstairs was not included. Nasdaq also pointed to the Amivest Liquidity Ratio, which shows that the average liquidity for Nasdaq National Market common stocks is higher than the average liquidity of comparable size NYSE common stocks. It is clear, however, that the one thing that the Report shows definitively is what the SEC is interested in from a regulatory point of view: price discovery, execution costs, and order interaction.

**Judith L. Chase**

*Vice President and Director, Securities Research*











**Securities Industry Association**

---

120 Broadway, New York, NY 10271-0080

(212) 608-1500, Fax (212) 608-1604

info@sia.com, www.sia.com