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HIGH VOLATILITY: A CAUTIONARY TALE

By virtually any measure, stock price volatility has increased significantly this year, generating uncertainty and raising concerns about both higher risk of loss to individual investors and overall market stability. That, thus far, no major problems have occurred is a testament to the resiliency of financial markets, but not grounds for complacency or a reason to invite moral hazard. This report is an attempt to take a closer look at US stock market volatility, what it means and why it matters.

The Importance of Volatility

The issue of volatility, for many, ranks high in the "so what?" department. Indeed, volatility, within a certain range may actually attract investor interest and enhance equity values. However, high volatility beyond a certain threshold increases the risk of loss to individual investors and raises concerns about market stability. Volatility raises risk principally via two mechanisms: through its impact on the balance sheets of firms and through its impact on levered investors.

It is worth recalling that equities entail risk. Equities are claims on the expected earnings of a company, and residual claims at that in bankruptcy proceedings after virtually all other claims on firms' assets have been satisfied. Extreme volatility of an issuer's stock price is generally met by an increased risk premium attached to firms' capital raising efforts, either in the form of higher borrowing costs, lower prices on IPOs or follow-on issuances or, in the extreme, an inability to borrow or issue equity. This denigrates the balance sheet of a firm and increases its risk of failure. This is particularly important to keep in mind now: during a period of rapid technological innovation which is generally associated with high failure rates; when many new enterprises have yet to produce a sustained earnings stream or for that matter any earnings at all; when these same firms are exhausting their initial capitalization and confront more reduced access to capital markets; and, when interest rates are rising and demand is expected to slow.

High volatility also operates on the "balance sheets" of individual investors. This process can be seen clearly in the operation of margin accounts. Adding leverage magnifies the impact of price fluctuations on an investment account and increases the likelihood of a forced liquidation of stock holdings if a margin call cannot be met. This likelihood increases further when, as now, securities firms respond to increased levels of margin and higher volatility by raising collateral requirements and shortening the time investors have to meet margin calls. Failing to meet the call forces realization of the loss, eliminating any possibility of recouping "paper" losses should that stock's price rebound, reducing assets and creditworthiness of the investors.

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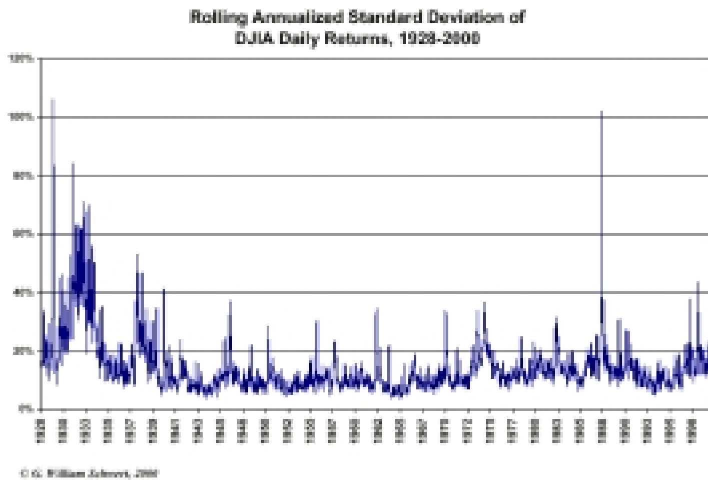
Meeting the call puts a higher share of investors' funds at risk to market fluctuations. Investors receiving the call can liquidate financial holdings elsewhere to provide cash to their margin accounts. More frequently now these liquidations tend to be other equities given the increased proportion of individual assets now in the stock market and the high levels of personal debt as we enter a period of monetary tightening which is likely to limit their access to additional credit to meet these margin calls. This in turn increases the self-perpetuating nature of volatility and attendant potential loss.

Observing Volatility

The inter-day volatility of all major US stock market indexes, which was relatively low by historical standards in the early 1990's, rose significantly in the latter half of the past decade. This rise in volatility picked up late last year, accelerated further as 2000 opened, and since mid-March has approached levels last seen on most indexes during market turmoil in August-September 1998 (see Charts 1-3).

Chart 1



Note: For further information, see Professor G. William Schwert, William E. Simon Graduate School of Business Administration, University of Rochester, http://schwert.ssb.rochester.edu/volatility2k.htm

Chart 2

Rolling Annualized Standard Deviation of
S&P Daily Returns, 1928-2000

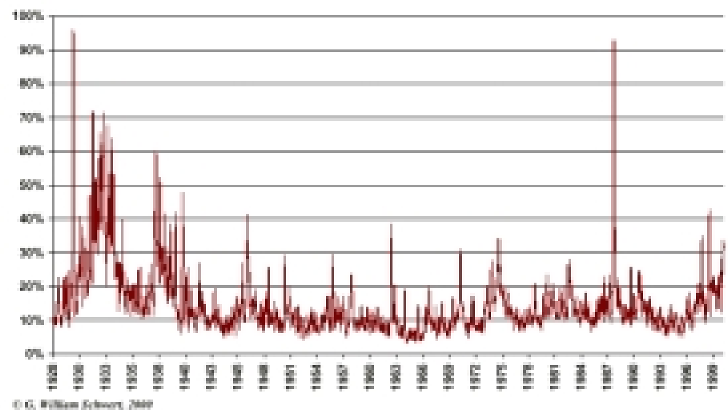


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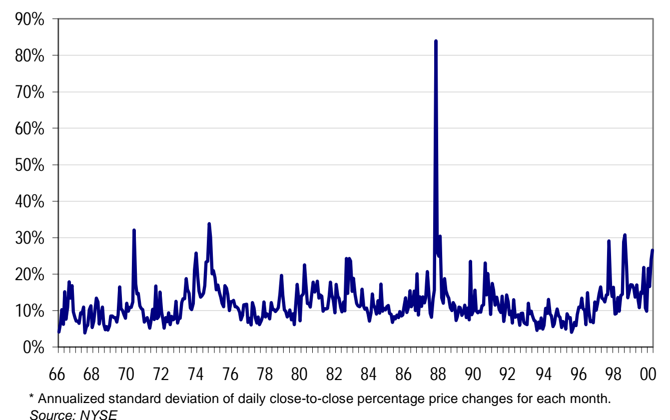
Chart 3

Volatility* of NYSE Composite Index



* Annualized standard deviation of daily close-to-close percentage price changes for each month.
Source: NYSE

The most volatile of the major market indexes is the Nasdaq Composite Index, where recently volatility has far surpassed these recent "spikes" (see Chart 4). It is of some comfort that volatility, thus far, by all measures remains below historical peaks recorded in 1929 and 1987. However, there are signs that this shift in volatility will persist, if not intensify.

Chart 4

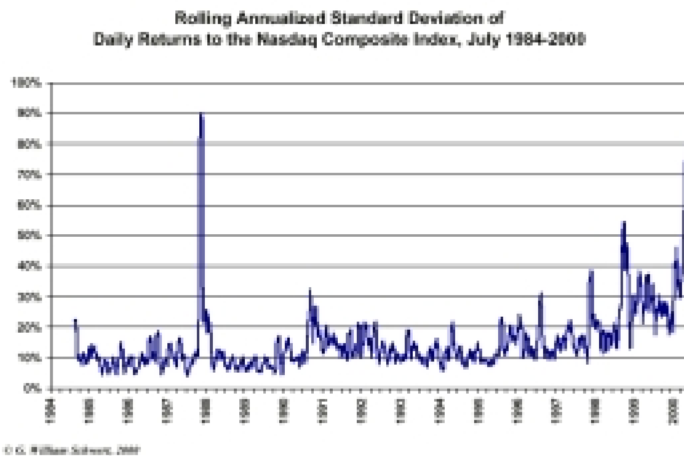


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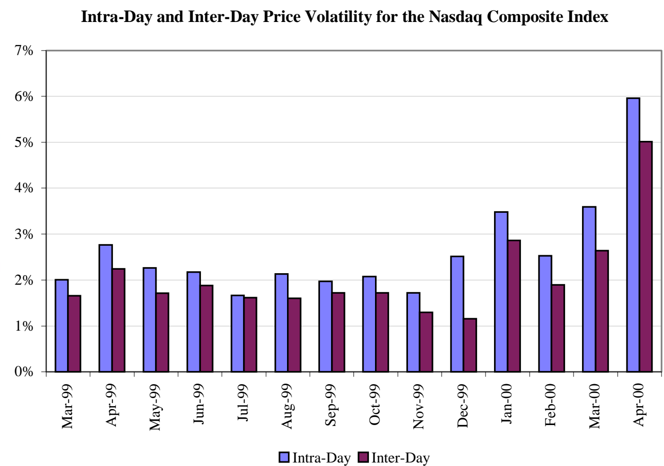
Chart 5



This pattern of observed market volatility does not fully reflect still higher and more rapidly rising levels of volatility in the stocks that compose these indexes. Index volatility would have been higher still in recent months had it not been for a declining degree of correlation exhibited by the price movements of individual stocks contained in their respective indexes. Throughout the second half of 1999, stock price correlations declined for all major market indexes. Correlations began increasing on the Nasdaq Index in 4Q 1999 and on "old economy" measures such as the S&P 500 Index, the DJIA and the NYSE Index in early 2000. As individual price correlations rose, so did index volatility.

In addition, while the inter-day volatility of both individual stocks and market indexes is high and rising, it is surpassed by intra-day volatility (see Chart 5). Again an unsurprising observation for any market participant who has seen prices plunge or soar in morning trading, only to see these moves reversed in the afternoon. However, it is worth noting since the increased ***amplitude and frequency*** of price oscillations, beyond a certain point, increases the probability of loss.

Also worth noting is that in late 1999 volatility became more highly concentrated, before displaying much broader ***dispersion*** this year. Until recently, market volatility has been concentrated in a relatively narrow, but highly visible, segment of the market: recent initial public offerings (IPOs) and highly valued technology stocks. These stocks were last year's market leaders in terms of price appreciation and trading volume in cash markets and in terms of open interest on individual equity option contracts. These stocks were "hot" not just because of surging investor demand, but with regard to some, also due to restrained supply.

Many of the most volatile issues also tended to have a smaller "float" than the average listed stock. The ***float*** refers to the percentage of the total stock issued by a company that trades in the market. Smaller floats in recent years are explained by a number of factors, including: the increase in stock buy-backs by issuers, particularly by more established large-cap firms and often financed by new indebtedness; the increased use of stock or stock options for employee compensation in general; and, the significantly higher share of the total capitalization of recent issues that was reserved for insiders (principals, employees, venture capital firms and underwriters). This explains, in part the jump in the average of first day price moves or "pop" of IPOs, which historically were

confined to a range of 5% to 10%. Between 1994 and 1998, the pop averaged 12.7% and rose sharply during the end of that period. During 1999 this "pop" topped 40% and by late last year and into 1Q 2000, by some measures, exceeded 100%. Virtually all of the most rapidly appreciating new issues last year put forward IPOs that represented 20% or less of their total capitalization. However, these "hot" issues cooled as 2Q 2000 opened, IPO activity slowed dramatically, market leaders gave back a significant portion of earlier gains, and thereafter market volatility increased, driven by a higher volatility affecting a widening base of individual stocks. Recently, just the threat that the "lock-up" periods on insider holdings of these new issues were coming to an end, possibly releasing a flood of new supply, increasing this float, was enough to send stock prices reeling and raise volatility still further.

Sources of Volatility

While there is general consensus on what constitutes volatility and how to measure it, there is significantly less agreement on the causes of the current bout of high stock market volatility. Some see the causes of volatility in the arrival of new, unanticipated information that alters expected returns on a stock. Others claim volatility is caused by changes in trading volume, practices or patterns, which in turn are driven by a number of factors including, but hardly limited to, changes in market structure, changes in macroeconomic policy, and changes in investors' tolerances of risk and increased uncertainty.

Market Psychology

In the last few years there has been a fundamental shift in investor behavior and in the prevailing "wisdom" which guides market psychology which has significantly contributed to volatility. For most of the last half century, conventional market "wisdom" relied on fundamental analysis and a belief in the efficient market hypothesis. Fundamental analysis values shares on the state of the economy or industry in question and the potential performance of a company. In essence, current market prices should not predict futures prices, but instead fully capture uncertainties about the future and all available information. The interaction of "rational agents" in the marketplace will ensure that fundamental prices prevail. Indeed, market efficiency assumes that prices fully reflect all publicly available information including information about investor and consumer confidence and likely future events, such as changes in government policy. Changes in prices will be completely random (a "random walk") unless new information unexpectedly arrives.

However, over the last twenty years the efficient market hypothesis has been increasingly supplanted by "behavioral finance" which draws on behavioral traits that run counter to the idea that investors are largely driven by "rational expectations". Support for this behavioral school was given a major boost in 1987 when the market "crashed" without the arrival of any significant new information and in defiance of general "rational" expectations. More significant support arrived in the 1990s when prices moved to levels not justified by fundamental factors. Prices seemingly were supported by "self-fulfilling prophesies", moving higher simply because investors believed they would be higher tomorrow. The revolution in information technology and major market structure changes supported the view that a "new paradigm" or "new age" had arrived, allowing investors to more easily discard conventional wisdom and valuation models of the past. This, in turn, left investors prone to "cognitive dissonance", which put simply is holding a belief that is plainly at odds with the evidence largely because this belief is widely held. As the efficient market hypothesis failed to explain the sustained deviation of prices from "fundamental" values it fell increasingly from favor, with "momentum" investors clearly and consistently outperforming "value" investors as the decade came to a close. This enhanced the respectability of the behavioral view and generated a self-reinforcing cycle of the very behaviors that the school described.

Behaviorists point out that investors, besieged by the ubiquity of information flows have increasingly resorted to "mental shortcuts" which tend to accentuate over-reaction and under-reaction to recent price moves and new information. To cope with "information-overload" investors increasingly respond more to how information is presented or "framed" that to the content of the information. Closely related to "framing", is "anchoring", which says that in the absence of better information (or in the face of too much conflicting information),

investors assume current prices are correct. Each new high in the extended bull market was "anchored" by its proximity to the last record and more distant "history" became irrelevant. Increasing and disproportionate weight is given to recent moves and extrapolating of recent trends becomes the dominant insight.

Other key ideas of behavioral finance are also relevant to volatility. For example, prospect theory observes that people are generally loss averse, but when faced with sure loss, they become risk-takers, while the endowment effect notes that investors set a higher value on shares they own than they would be willing to pay to acquire it. Regret theory is about the emotional reaction to errors in judgment. Regret over failing to buy stocks that subsequently went up, may go far in explaining the behavior of the latest wave of new entrants in the market. The applications of behavior finance are not restricted to individual investors, but have extended to analysts and institutional investors as well.

The recently published and much touted book by Robert Shiller, Irrational Exuberance, states that stock prices are too high to be explained by fundamentals and that the market is susceptible to heightened volatility when it is severely overextended as he believes it now is. Shiller examines no less than a dozen "less rational factors" that have contributed to what is a self-fulfilling psychology that is inflating the "bubble". These factors are: the growth of the Internet; US triumphalism and the decline of foreign economic rivals; cultural changes favoring business success; a Republican congress and capital gains tax cuts; the impact of the Baby Boomers on the market; the expansion of media reporting of business news; analysts' increasingly optimistic forecasts; the expansion of defined contribution plans; the growth of mutual funds; the decline of inflation and the effects of money illusion; the expansion of trading volume and increased frequency of trading; and, the rise of gambling opportunities. While an "important" book, termed by some "a must read", one reviewer pointed out that its principal value is reminding the recent wave of inexperienced entrants to the market that price movements are not unidirectional and investing in stocks entails significant risks.

Market Structure Changes

As mentioned earlier, volatility began to rise from historically low levels in the mid-1990s. Several developments in securities markets, which occurred simultaneously, may have substantially contributed to this secular swing. The "drivers" of these major structural shifts, and hence of volatility, arose from several sources, including: the revolution in information technology; a sweeping overhaul of the supervisory and regulatory environment in financial markets; the forces of globalization; and, shifts in the demographic profile of the investor base. The interaction of these "drivers" is remaking the structure of the marketplace. Market structure changes generate both improved resiliency and increased instability, as is often the case in systems in transition.

For example, the authorities announced new regulations (in particular limit order protection rules in May 1995 and order handling rules in September 1996) that had a significant impact on trading practices. This coincided with the securities industry's early and widespread adoption of the applications of the revolution in information technology. These developments reduced barriers to entry in the securities industry, heightening competition and accelerating a sharp reduction in the costs of trading. This, in turn, helped make investing in securities both more attractive and more accessible to a broadening base of individual investors, who came armed with PCs, Internet connections, rising disposable incomes, and increased access to credit. As a result, participation by individual investors in US equity markets is now at levels not seen since the late-1960's and they have displaced institutional investors as the dominant force in the marketplace. Individual investors now account for the majority of equity trades. Equities, which represented only about a quarter of individual investors holdings of liquid financial assets in 1990, now account for one-half, with equity mutual funds representing another 10%. One result of these shifts which has contributed to volatility is much higher turnover rates, as the average holding period of stocks has been cut in half in the past five years.

"New Wave" Investors

The most recent jump in market volatility, which occurred in the six months period from mid-October 1999 to mid-April 2000, coincided with a surge in

new account openings reported by securities firms. It is estimated that the total number of equity trading accounts grew 15% during this period. While admittedly imprecise, informal surveys of SIA member firms reveal several aspects of this wave of first time entrants that both distinguish them from the then existing investor base and are also relevant to volatility issues. These newcomers disproportionately opened on-line trading accounts (on-line trading now accounts for an estimated 16% of all equity trades); opened margin accounts and made use of those accounts (outstanding margin debt soared during this period to levels in real terms exceeded only in 1929). They also traded more frequently and held stocks for shorter periods of time than more experienced investors. They focused their trades on a relatively narrow group of highly valued, highly volatile "technology" stocks listed on the Nasdaq market site. The shattering of records on virtually every indicator of securities markets and securities industry performance during this period, in particular levels of Nasdaq trading volume and the skyrocketing Nasdaq Composite Index, owe much to these late arrivals to the longest bull market in US history.

Money Matters (And Perhaps Now Matters More)

Coincident with the arrival of these "new wave" investors, stock market volatility was also being spurred by a major "external" shock: the initiation of a long-delayed tightening of Fed policy. It has long been understood that monetary policy has a profound impact on equity prices and recent studies have reconfirmed this link, or more correctly, links. Monetary policy can either dampen or stimulate volatility through a number of channels, including: the impact of interest rate changes; the growth of monetary aggregates, indebtedness and liquidity; and, through the impact of the Fed's words and deeds on market psychology and investor behavior. What is less widely appreciated is that these relationships are neither static nor linear.

It appears likely that the Fed was poised to tighten monetary policy during 1997, after first noting "irrational exuberance" in December 1996. However, it first postponed this action and then was forced to lower interest rates in the fall 1998 in response to the worst "global financial crisis in the last 50 years" that began in East Asia in 1997 and reached a climax with the collapse of Russia and LTCM in the summer of 1998. Easier monetary policy can be seen in the growth of monetary aggregates, which exceeded "target ranges" set by the Fed in 1997, 1998 and 1999. The excess liquidity generated during this period may well have helped inflate stock prices and been a source of volatility. The process of withdrawing liquidity, now underway, is inducing still greater volatility. Increased transparency and painstaking gradualism in the conduct of the current round of monetary tightening is, in part, a reflection of legitimate concerns about how these policy changes might transmit volatility to securities markets at this particular time. It is a testament to the resiliency of financial markets (and financial market psychology) in the face of heightened volatility that the Fed felt comfortable recently making a bolder move. Indeed Mr. Greenspan made reference to this resiliency just prior to its recent ½ percentage point increase in interest rates.

The Dynamic Nature of Risk

However, the process by which monetary policy transmits volatility may be changing, generating uncertainty and hence additional volatility. Although subject to charges of "data mining," there is some evidence that this "transmission mechanism" may have become amplified and accelerated. Many factors are cited for this view, including: the improved speed and efficiency with which financial transactions are carried out; the increased interdependence and interconnectivity of markets; greater homogeneity of investor behavior; and, record levels of leverage in financial markets and of real private indebtedness in the economy as a whole. Recognition that volatility could arrive unexpectedly and with unanticipated force has prompted regulators to seek and obtain increased disclosure of how credit risk, market risk, and liquidity risk are measured and managed by financial firms. The integration of the management of these once more easily separable types of risk and more rigorous stress testing and back testing are a part of financial firms' response to the dynamic nature of risk. The response is appropriate given terms such as "spillover" or "cascade" effects and "contagion" have taken on new meaning in the financial lexicon.

In Conclusion

It would appear that high levels of volatility have become a feature of US equity markets, at least for the near term. If this is true, then greater investor awareness is merited of the nature of volatility and its impact on portfolio holdings. Increased risk of loss should prompt investors to consider actions to mitigate this vulnerability, including reducing leverage, exploring hedging strategies and in general, developing a more fundamental view towards stock investing and a lengthening view of the investment horizon.

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Measuring Volatility

Volatility is used to describe the size and frequency of fluctuations of a particular indicator, in this case, the price of a particular stock or stock index and it is the most basic of risk measures. While volatility may be expressed in many ways, the standard deviation is the most commonly used measure. The ***standard deviation*** measures the degree to which individual values in a probability distribution tend to vary from the mean of that distribution. If the observations are clustered close to the mean then volatility is low. If the observations are more broadly dispersed, volatility is higher and presumably so is the risk. The two general methods of estimating volatility are (1) historical volatility estimates, based on ***observed*** market fluctuations, and (2) implied volatility estimates, which are derived or ***implied*** from options prices. For our purposes here we are concerned with observed or historical volatility in equity markets.

Calculating the volatility of a stock price or a stock index requires measuring changes in stock prices at fixed intervals of time. Here again there are two common measures: (1) ***inter-day*** volatility, which measures changes in price from market close to market close on the following trading day, and; (2) ***intra-day*** volatility, which measures price changes at fixed intervals during the trading day. Other measures look at the volatility of the prices of individual stocks or “sectors” of stocks that compose the broad market indexes.

Sometimes differences are marked between the volatility of prices of individual stocks and the volatility of the market index as a whole. How marked largely depends on the ***correlation*** exhibited by the price movements of individual stocks and the weight given to each stock in the index. For our purposes, correlation is a measure of the degree to which prices of individual stocks tend to move together.

BIBLIOGRAPHY

Barberis, Nicholas; Huang, Ming; and Santos, Tano, "Prospect Theory and Asset Prices," National Bureau of Economic Research Working Paper No. 7220*, July 1999.*

Bekaert, Geert, and Wu, Guojun, "Asymmetric Volatility and Risk in Equity Markets," National Bureau of Economic Research Working Paper No. W6022*, April 1997.*

Bernanke, Ben, and Gertler, Mark, "Monetary Policy and Asset Price Volatility," National Bureau of Economic Research Working Paper No. W7559*, February 2000.*

Brodie, Niamh, "Speculative Bubbles, Irrationality & Chaos," *The efficient Market Hypothesis, Rational Expectations, and Speculative Bubbles*, http://www.economics.tcd.ie/ser/1996/nbrodie.htm.

Campbell, John Y.; Lettau, Martin; Malkiel, Burton G.; and Xu, Yexiao, "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk," *National Bureau of Economic Research Working Paper No. W7590*, March 2000.

Cecchetti, Stephen G.; Genberg, Hans; Lipsky, John; and Wadhwani, Sushil, "Asset Prices and Central Bank Policy," *The Geneva Report on the World Economy No. 2* (to be published by ICMB and CEPR) May 2000.

Cutler, David M.; Poterba, James M.; and Summers, Lawrence H., "What Moves Stock Prices?" *Journal of Portfolio Management*, Spring 1989.

Miller, Eric T., "The Originator of 'Irrational Exuberance,'" *Portfolio Manager's Weekly*, Donaldson, Lufkin & Jenrette, May 17, 2000.

Nelken, Israel, ed., V*olatility in the Capital Markets: State-of-the-Art Techniques for Modeling, Managing and Trading Volatility*. Chicago: Glenlake Publishing Company, Ltd., 1997.

Peltz, Michael, "Winner's Curse," *Worth Magazine*, http://www.worth.com/articles/Z9902F02.html.

Pettis, Michael, *The Volatility Machine: Sovereign Financial Crises and the Collapse of Credibility*. Oxford University Press (forthcoming).

Schwert, William G., "Stock Market Volatility," *Financial Analysts Journal*, May-June 1990.

Schwert, William G., "Stock Market Volatility: Ten Years After the Crash," *National Bureau of Economic Research Working Paper 6381*, January 1998.

Schwert, William G., "Wake-up Call," *The Economist*, http://schwert.ssb.rochester.edu/economist_fn5348.htm, 2000.

Shiller, Robert J., "Human Behavior and the Efficiency of the Financial System," *National Bureau of Economic Research Working Paper No. W6375*, January 1998.

Shiller, Robert J., "Investor Behavior in the October 1987 Stock Market Crash: Survey Evidence," *Cowles Foundation Discussion Paper No. 853*, November 1987.

Shiller, Robert J., *Irrational Exuberance*. Princeton: Princeton University Press, 2000.

Shiller, Robert J., *Market Volatility*. MIT Press, 1991.

Shiller, Robert J., "Measuring Bubble Expectations and Investor Confidence," *National Bureau of Economic Research Working Paper No. W7008*, March 1999.

Shiller, Robert J., "Theories of Aggregate Stock Price Movements," Journal of Portfolio Management*, Winter 1984.*

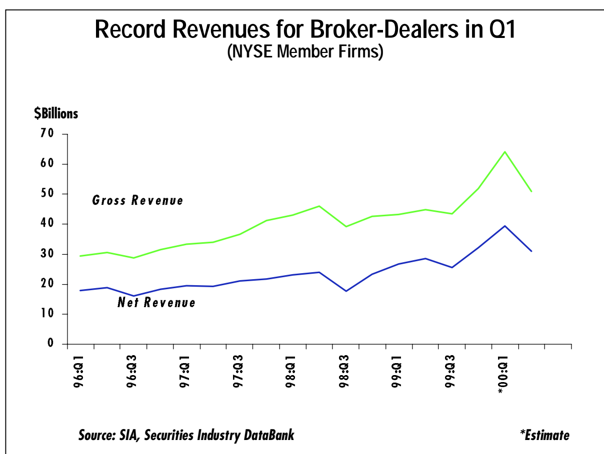
"Volatility" index, *MarketScience*, www.marketscience.com/volatility.htm.

"World Economic Outlook 2000," Chapter III: Asset Prices and the Business Cycle, pp. 101-149. A survey by the staff of the *International Monetary Fund*, www.imf.org/external/pubs/ft/weo/2000/01/index.htm.

SECURITIES INDUSTRY'S RECORD 1ST QUARTER CONFIRMED; 2ND QUARTER TO TUMBLE

Hitting on All Cylinders

The U.S. securities industry's engine of growth enjoyed another record quarter in 1Q00 thanks again to high octane optimism from investors. Priming the pump were: America's longest post-war economic expansion, renewed global growth, a pinnacle of participation by investors helped in no small part by a surge of new account openings since last October, the euphoria over dot.com success stories, to name but a few drivers.



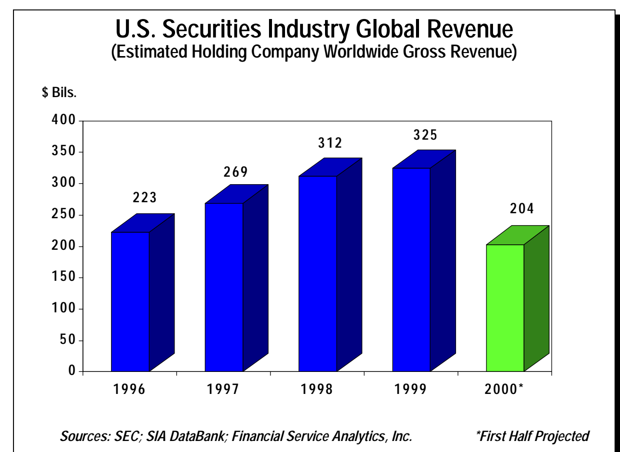
During this latest lap, the securities industry, as well as the markets themselves, were hitting on all cylinders, cranking out records in every lane -- revenue, profit, trading volume, commissions, stock prices, investment banking, margin interest, asset management, you name it.

The quarter was truly exceptional. Most publicly held brokerages announced the best ever quarter in the history of their firms. Even the optimistic projections of industry-wide revenue and profit increases of 10% to 15% fell short of the 20% to 25% actual increases in first quarter profit and revenue (among other records) just released today. All industry financial measures clocked record time across the first quarter's finish line; to post but a few:

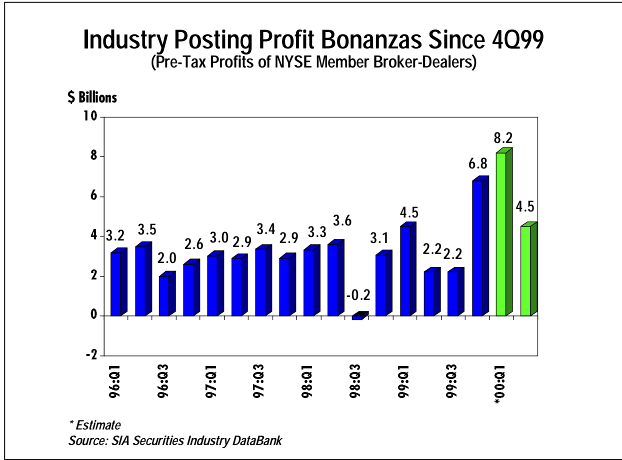
- A global holding company profit pinnacle of $21 billion, pre-tax, $8.2 billion of which was earned domestically by NYSE-member broker-dealers;
- Record revenue for global holding companies of $113 billion; $64 billion by NYSE-member broker-dealers domestically;
- An apex in assets under management, under supervision and in fees therefrom;
- A commission crest from surging volume, stock prices, new accounts and record inflows;
- Profit margins and ROEs unseen in nearly two decades;
- Across the board historic highs in nearly all financial parameters for all firm categories – full line, investment bank, discounter, regional, clearing, etc.

Broker-Dealer and Global Holding Co. Records

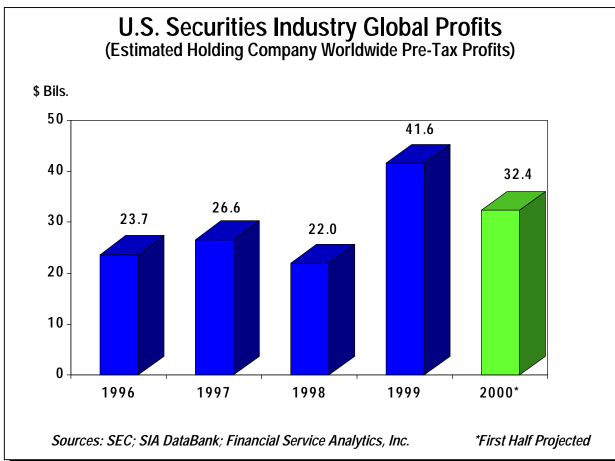
Gross revenue of NYSE member firm broker-dealers skyrocketed to a record $64 billion for the quarter ended March 31, a 24% rise over the previous quarter's record and about double the level of just three years earlier . Net revenue also rose 23% to a record $40 billion. Both, however, are expected to drop off dramatically in the current quarter to about $51 billion and $31 billion, respectively. Nevertheless, the first half total is still about two-thirds of last year's full-year record gross and net revenue.



While there are no official aggregates for the global holding company financial operations[1] of all 7,400 U.S. securities firms, we estimate that the first quarter, as well as the first half, will show records for both global gross revenue and pre-tax profits.

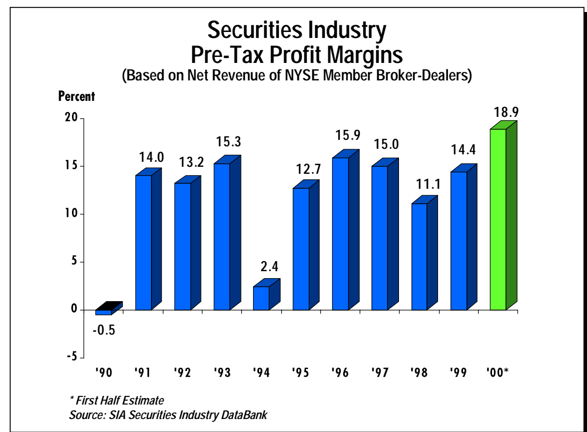


The U.S. securities industry should show a record of $113 billion in global gross revenue for the quarter ended March 31. While second quarter totals will be much lower, around $90 billion, the industry will still post a record $204 billion in revenue for this year's first half.



Although expenses, particularly compensation and interest as well as clearing costs, grew along with the heady volumes, they did so at the same pace as revenue which resulted in yet another quarterly gain in profitability and profit margins domestically for broker-dealers as well as globally for all U.S. securities firms.

Pre-tax profits of NYSE member broker-dealers in the first quarter reached a new record $8.2 billion, a 20% increase over last quarter's then-record $6.8 billion profit (which itself was 50% higher than any previous profit) and an 82% increase from year-earlier levels. At the holding company global level, the figure is estimated at $21 billion for the quarter and $32 billion for the first half.



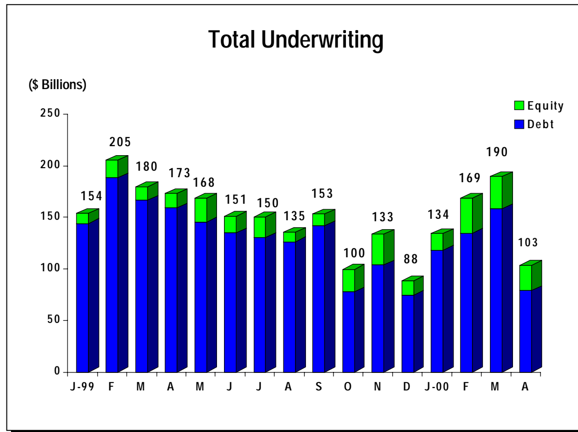
The profit explosion since last fall drove profit margins on net revenue for broker-dealers to 21% for the fourth and first quarters , the highest showing in 17 years, since 2Q83's 22%. This year, we expect the bar to be reset much higher, preclusive of any prolonged market downturn. Estimates of $12.5 billion in pre-tax profits for this year's first half on projected net revenue of $66 billion projects an 18.9% profit margin for broker-dealers, higher than any annual showing since records began in the late 1970s (1980's pre-tax margin on net revenue of 18.0% still stands as the record to date).

Corporate Underwriting Results

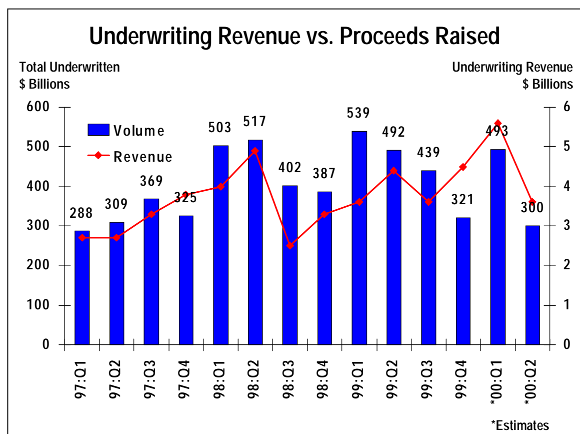
Monthly underwriting volume steadily increased in the first quarter from December 1999's low of $88 billion. After increasing 52% in January to $134 billion, volume escalated further reaching $190 billion in proceeds underwritten by March, more than double December's showing. Continuing to make inroads in this arena are the European-based banks and their U.S. subsidiaries climbing up the rankings in the league tables.

[1] Encompasses the worldwide operational results of all U.S. securities firms (for U.S. broker-dealer subsidiaries of foreign firms, it includes just their U.S. domestic operations, not the parent's).

Despite the month-over-month increases, first quarter volume of $493 billion fell 9% shy of the record $539 billion of volume underwritten in 1Q99.



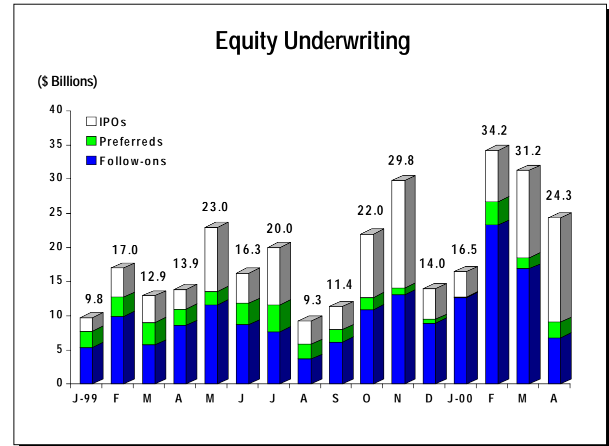
Nevertheless, underwriting fees were a record this past quarter due to much higher volume of equities, both IPOs and follow-ons. May's anemic offerings (except for a couple of mega deals), combined with a slowdown in the forward calendar, interest rate hikes and other factors, signals significant drop-offs in underwriting revenue for the second quarter.



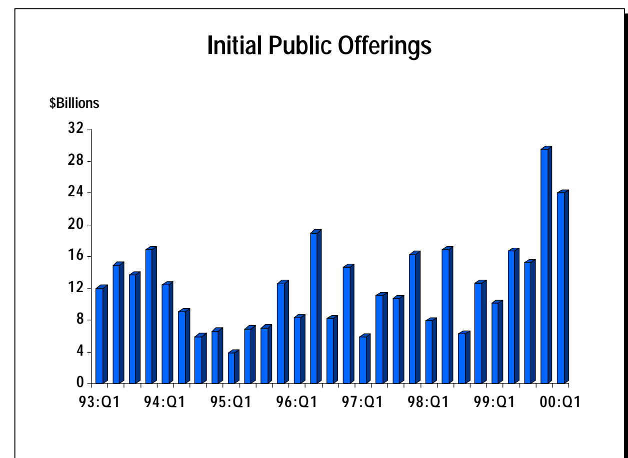
Equity underwriting totaled a record $82 billion in the first quarter, a 25% increase over 4Q99, and IPOs totaled $24 billion, the third highest quarterly total ever behind only last year's third and fourth quarter totals.

According to Thomson Financial Securities Data, internet-related deals, particularly IPOs, played a major part in the record underwriting revenue posted in 1Q00 since they accounted for more than 30% of the quarter's total.

In fact, three deals alone brought in $65 to $75 million each in fees: Network Solutions' $1.9 billion secondary offering and two IPOs -- Infineon Technologies AG's $2.7 billion deal and John Hancock Financial Services' $1.47 billion IPO.



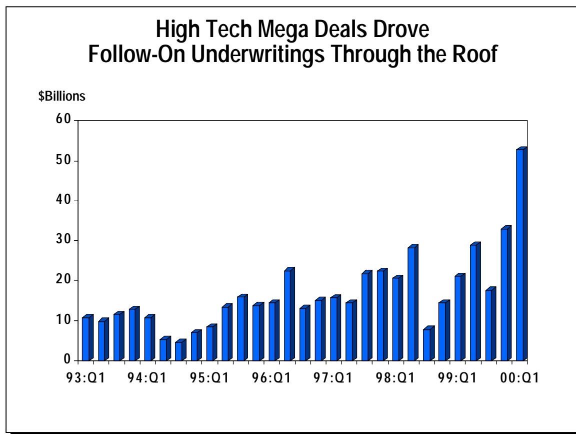
This drove the quarter's total underwriting revenue to a record $5.6 billion, a 24% increase from 4Q99's $4.5 billion and 14% over the previous record of $4.9 billion achieved in 1998's second quarter.



Follow-on deal volume was a quarterly record of over $50 billion which was nearly double the next largest quarter and certainly more than double the quarterly average for follow-ons. Driving this total were six mega-deals, mostly high-tech issuers, for over $1 billion each: nearly $3 billion for Genentech, about $2 billion each for Corning and Network Solutions, $1.5 billion each for Cisco Systems and Sycamore Networks and just over $1 billion for EDS.

Second Quarter Calendar Thins

Despite a strong deal pipeline as April began, the market's volatility and severe downdraft caused a horde of deals to be postponed or outright canceled the second quarter. With current market conditions and the reduced deal volume in April, we project sizable reductions in both underwriting volume and revenue for the second quarter. April's offerings were anemic, despite a couple of mega-IPOs, and both the number of new filings and the forward supply of new issues are well off their highs set back in March, up to 50% lower.

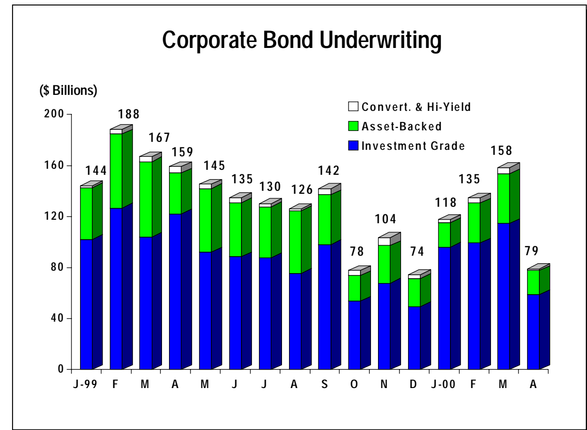


However, one jumbo IPO kept the volume totals misleadingly high for both IPOs and all equity last month. During April's final week, AT&T put on the auction block $10.62 billion of AT&T Wireless tracking stock, $9 billion of which was sold in the U.S. as the largest IPO ever, double the previous record set by UPS last November. Also, Met Life's $2.5 billion IPO, the eighth largest ever, was also brought to market in April. Together, these two deals alone accounted for more than three-quarters of April's $15.2 billion in IPO volume, which nearly tied last November's monthly IPO volume record of $15.7 billion. Despite a $468 million follow-on for Dynegy Inc. in late April, the month's total follow-on volume was a mere $6.8 billion, the lowest monthly total since last August. Although the pipeline is still strong, few deals are going through but the window is still open for foreign issuers and large deals.

Corporate Bond Underwriting

As always, the much larger bond market drives the overall underwriting totals. After slowly declining each month last year, new issuance of corporate bonds totally tanked in the fourth quarter. Monthly volume averaged well under $100 billion as higher, and soon to be even higher, interest rates weighed on issuers and investors, as did Y2K worries (albeit, with 20/20 hindsight, unjustified).

Despite the continued preemptive strikes by the Fed to combat the threat of inflation, bond issuance showed some renewed interest in the first quarter of 2000 with incrementally higher issuance each month through March.



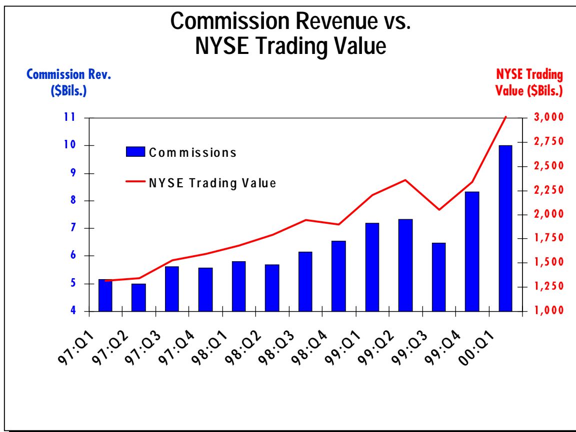
April, however, saw all of this reversed with investment grade, high-yields, converts and asset backed bonds all way down from their prior month and year-ago levels and are expected to remain sluggish well into the second half.

Record Volume = Record Commissions Once Again

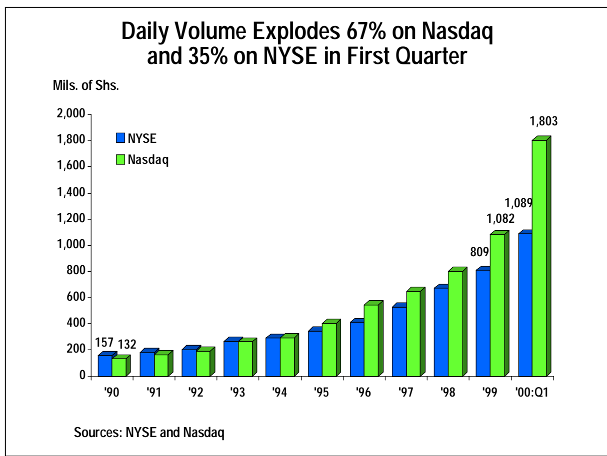
Retail firms fared especially well from the increased first quarter activity in equities with record commissions from agency exchange business, record equity trading gains from Nasdaq and off-exchange principal transactions. The bulk of commission revenue comes from the value of agency equity trading. As measured by Big Board activity and prices, the value of agency transactions mushroomed 29% in the first quarter to a record $3.0 trillion from the previous quarter's then-record $2.3 trillion. This led to record commissions in the first quarter of $10 billion, up 20% from the previous quarter's then-record $8.3 billion and up 40% over the same quarter a year ago.

And if business was booming on the exchanges, Nasdaq was exploding. Average daily volume for the

first quarter of 2000 was two-thirds ahead of Nasdaq average daily volume for last year.



This also led to record equity principal transaction gains in the first quarter. Fixed income principal transactions were also strong on both a domestic and global basis.

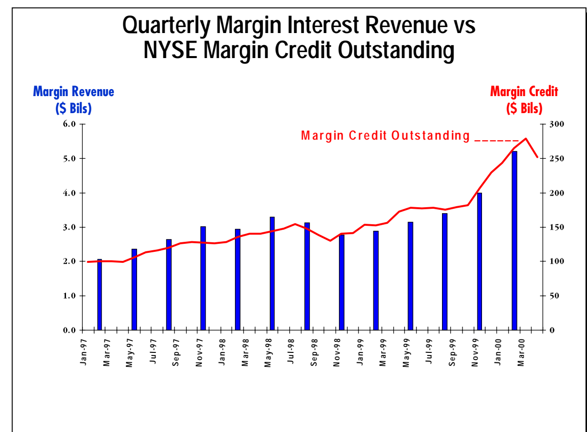


Record Margin Interest Revenue

Part of the explosion in trading has come from the increased use of borrowed funds to leverage the amount of positions taken. Margin borrowing grew 56% over the past two quarters and has tripled in just over three years. As a result, margin interest revenue has grown rapidly for the industry and exponentially for some firms, particularly online-only e-trading firms.

It took nearly five years for quarterly margin interest revenue to double from $1 billion (4Q92) to $2 billion (1Q97). In less than three years (1Q97 to 4Q99) this doubled again to $4 billion. Margin credit balances grew slightly more rapidly during the same period, climbing from $100 billion to $229 billion.

In the first quarter of this year, margin credit expanded another 22% to $279 billion, while revenue from this lending increased 30% to a record $5.2 billion. Though month-end margin credit figures were a record for March it was down from its mid-month peak and de-leveraging has been ongoing since then. Recognizing the increased leverage, some firms in the industry began raising maintenance margin levels on certain volatile stocks.

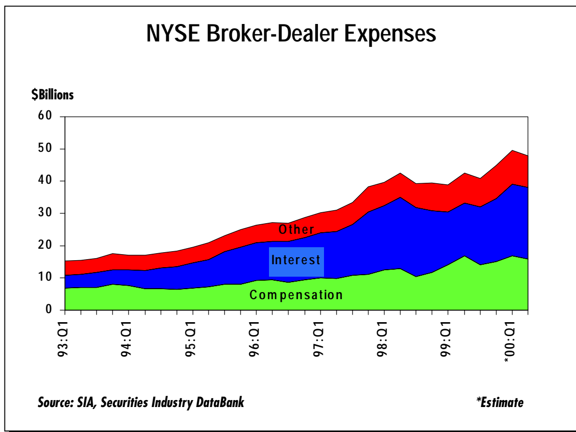


In addition, the market downturn and near record volatility caused customers to reduce their holdings and margin levels, either voluntarily or by forced margin calls. April's margin debt fell 10% to $252 billion and is expected to be even lower in May and June. Second quarter margin interest will therefore be down significantly from first quarter highs.

Interest Expense

The interest expense to total revenue ratio climbed as the easy money – borrow short and invest long – began to evaporate. The interest rate curve widened and contracted and then widened and contracted again. The long-to-short spread climbed in the early 1990s to over a 400 basis point spread between T-Bills and long-term Treasuries (and more for corporates) which gradually corrected to under 100 basis points throughout 1998 and briefly below 60 basis points in September 1998 during the liquidity crises of the Asian contagion, the Russian debt crises, LTCM's rescue and the resultant mass exodus to the haven of the shortest, safest and most liquid T-Bills. Last spring and summer the spread gradually climbed back up to just under 150 bp's but then declined,

plummeting to 68 bp's in February and to a razor thin 36 basis points by the end of this year's first quarter.



Interest expense climbed from one-quarter of total expenses back in 1993 to over one-half of all expenses for the securities industry in 1998. This was due to the expanded balance sheet – borrowings – of the industry, particularly with the expansion of banks into the securities business. Securities firms, particularly non-bank large investment banks, cut back on their exposure in 1999 and this level fell in both aggregate and relative terms – interest expense made up just 42% of total expenses last year. With spreads tight, this has climbed back to nearly 50% this year.

Compensation & Technology

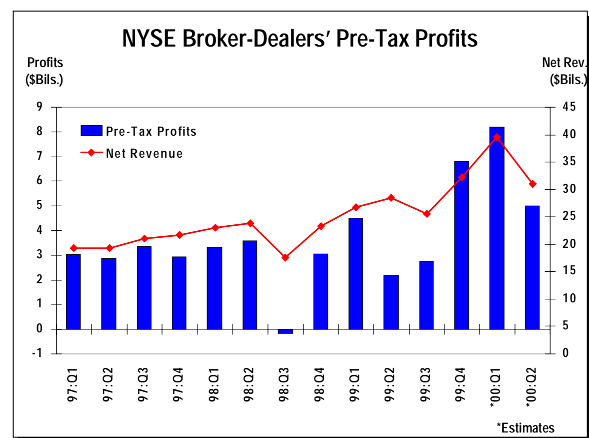
Compensation costs continue to climb in aggregate year-to-year, quarter-to-quarter. However, as a percent of total expense, this line item had fallen from 45% of total costs to a recent nadir of 29% in 1998. It climbed back up to 36% last year and held steady around there so far this year.

Nevertheless, compensation continues to grow and expectations are for the non-producer portion of compensation, typically 55% to 60% of total compensation, to outpace the overall growth into the future. This is due to the movement to direct trading by individuals on the internet and the heavy clerical compensation hits being experienced from Information Technology (IT) Departments' budgets.

Internet, Intranet, PC Upgrades, Networks, Y2K, T+3, T+1, etc., all drove up the IT budgets of Wall Street nearly exponentially the past few years. Internet-related spending alone is projected to account for 37% of IT budgets by the year 2002.

Conclusion

The securities industry's engine of growth continued to hit on all cylinders in the first quarter, cranking out new records on virtually every indicator: revenues, profits, trading volume, commissions, investment banking fees, asset management, margin interest, etc. Pre-tax profits of NYSE member broker-dealers in the first quarter reached a new record $8.2 billion, a 20% increase over last quarter's then-record $6.8 billion profit (which itself was 50% higher than any previous profit) and an 82% increase from year earlier levels. At the holding company, global level, the figure is estimated at $21 billion. Both pre-tax profit figures are projected to decline to $4.5 billion and $11.5 billion, respectively, for the second quarter following the market's volatile and southward direction.



Nevertheless, the first half of 2000 will be a new six-month record for industry profitability and the industry has already booked 78% of last year's full-year record profits and two-thirds of its record revenue.

George R. Monahan
Vice President and Director, Industry Studies

MONTHLY STATISTICAL REVIEW

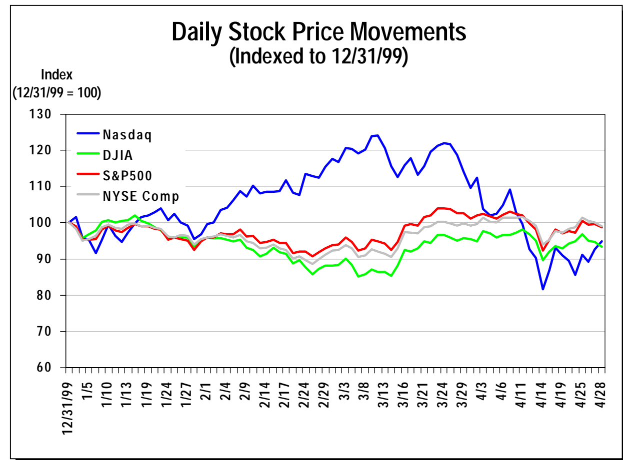
US Equity Market Activity

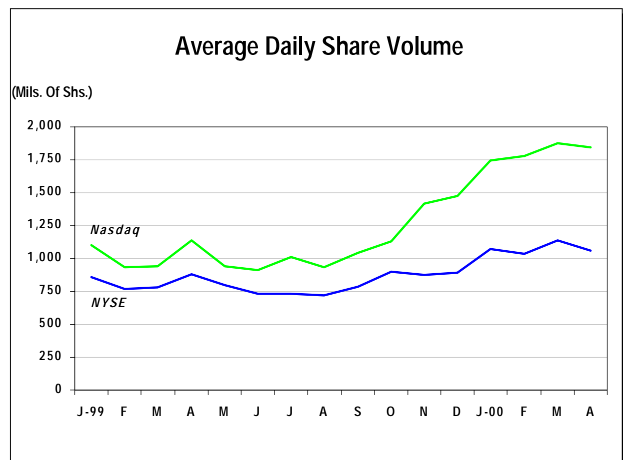
Investors weathered severe market turbulence in April. A sharp sell-off in technology stocks during the first half of April, exacerbated by margin calls, drove the Nasdaq Composite Index down 34% from its March 10 record high of 5048.62 to a year-2000 low of 3321.17 on April 14. That day alone, the Nasdaq Composite dropped 9.67%, its 2nd largest daily percentage decrease ever. Momentum turned quickly and on April 18 (just two trading days later), the index jumped 7.19%, its 2nd *largest* daily percentage gain ever. A two-week market rally ensued which helped Nasdaq stocks regain some of the ground it lost earlier and by end-April the Nasdaq index closed at 3860.66, or down 15.6% for the month. DJIA stock prices also seesawed wildly during the course of the month closing 1.7% below its March-end level.

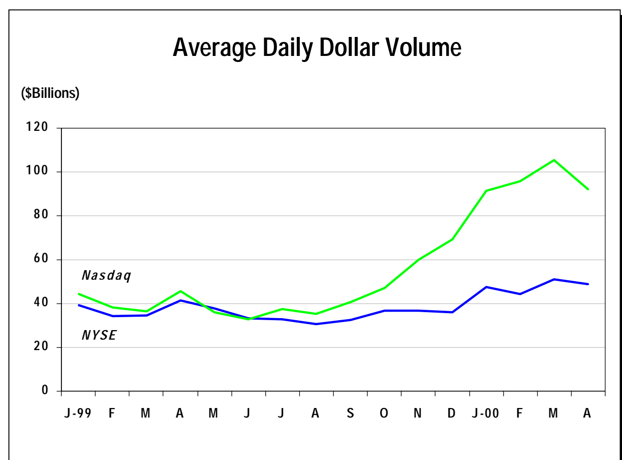
For the year through April, all major stock market indices are below their year-end 1999 levels. The Nasdaq Composite is down 5.1%, and the DJIA is off 6.6%. But broader-based measures of large cap stocks have fared better, as the S&P 500 and NYSE Composite indices are down a lesser 1.1% and 0.9%, respectively.

The choppy market sent trading activity through the roof early in April, with record daily trading of 2.8 billion shares on Nasdaq and 1.5 billion shares traded on the NYSE on April 4. As the market settled, however, volume on both markets eased in the final week of April to their slowest pace of the year. For the month overall, Nasdaq volume averaged 1.85 billion shares daily, just shy of March's record 1.87 billion shares per day, while daily trading on the NYSE averaged 1.06 billion shares, 7% below March's record 1.14 billion shares daily. Nevertheless, year-to-date through April, average daily share volume on Nasdaq is two-thirds above last year's level, while NYSE volume is one-third higher than last year's average.

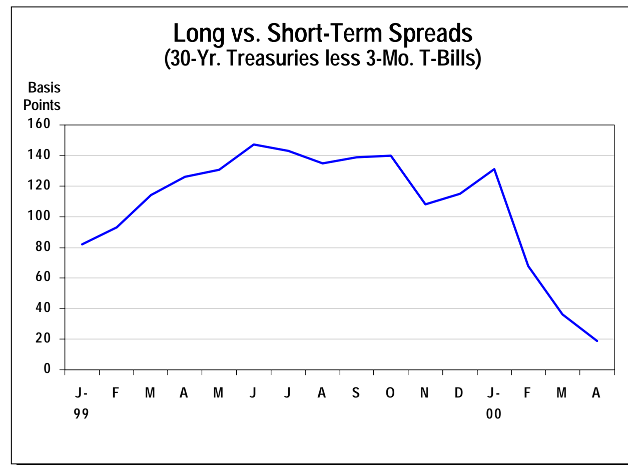
Reduced trading activity in April, combined with a decrease in the average price of shares traded, resulted in a 13% drop in Nasdaq's average daily dollar volume, from a record



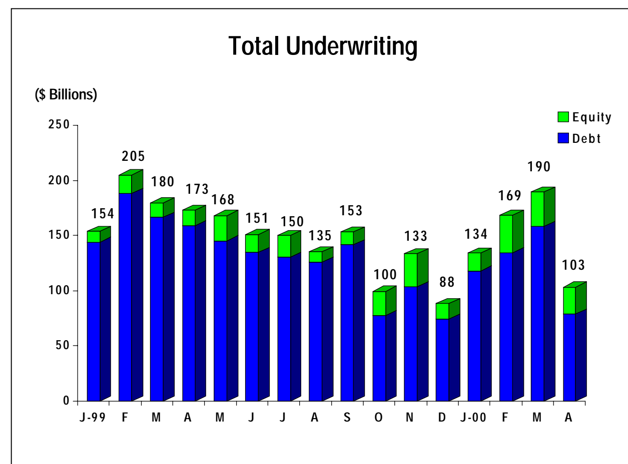




$105.5 billion in March to $92.0 billion in April. Average daily dollar volume in NYSE stocks fell off 4% from March's level to $48.8 billion daily. Nonetheless, the year-to-date value of trading on Nasdaq averaged $96.6 billion daily, a 2.2-fold increase over 1999's $43.7 billion average. On the NYSE, the value of trading averaged $48.0 billion daily, a 35% increase over 1999's $35.5 billion daily average.

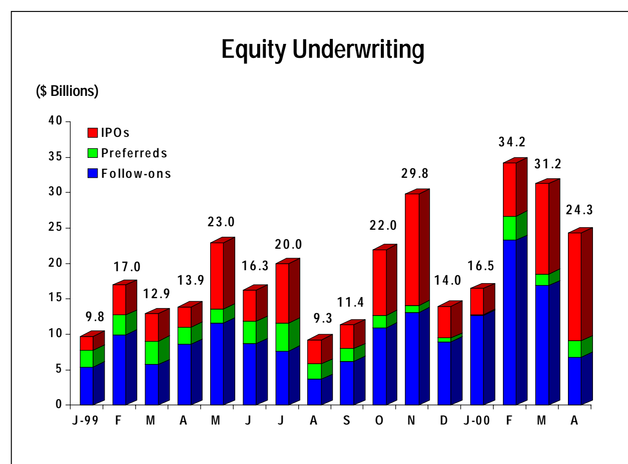


Some investors turned to fixed-income instruments amid the sharp price fluctuations in the stock market, driving yields on both short- and long-term securities below March's average. Three-month T-bills slipped 3 basis points to yield 5.66% on average in April, while the yield on 30-year Treasuries fell 20 basis points to 5.85%, its lowest level in 11 months. Thus, the spread between the 3-month and the 30-year Treasury narrowed to 19 basis points, compared with 36 basis points one month earlier and an average 123 basis points during all of 1999.



US Capital Markets: Equity Underwriting

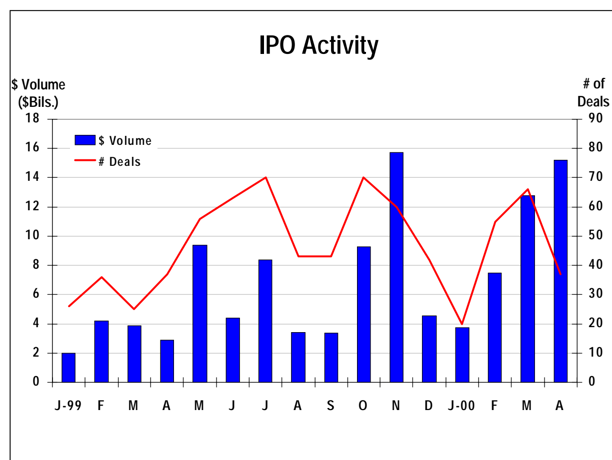
New issuance of all types of corporate securities fell sharply in April. Equity issuance slumped as several deals were postponed or withdrawn due to the extremely volatile stock market environment. Growing signs of inflationary pressures and fears of a larger than anticipated one-half percentage point interest rate hike by the Fed in May drove down issuance of debt securities to their lowest levels of the year. Overall, underwriting activity of both stocks and bonds in the US market slumped to $103.3 billion in April, a 46% decline from a hefty $189.6 billion a month earlier. That brought the year-to-date total to $596.1 billion, down 16% from the same year-ago period.



Follow-on common stock deals slid to its lowest level in eight months. At $6.8 billion, April's total was 60% below the $16.9 billion raised in March. Still, with record issuance in the first quarter, the year-to-date total of $59.6 billion is double the amount raised during last year's comparable period.

IPO deal volume tailed off in April to it's slowest pace since the start of the year. But thanks to two mega-deals, IPO dollar volume *jumped* 19% over March's level to $15.2 billion.

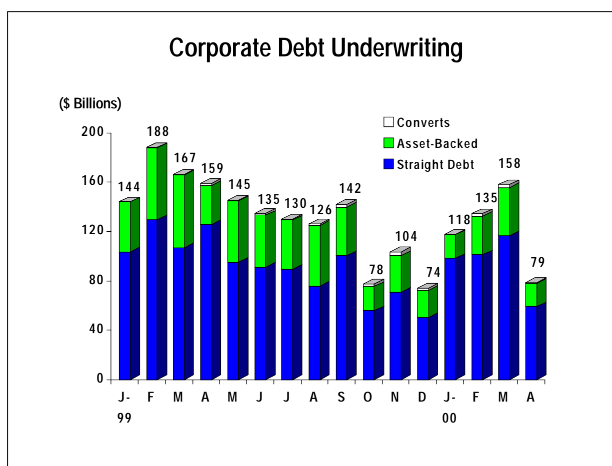
AT&T Wireless Group's $9.0 billion deal on 4/6 was the largest IPO by far (more than twice the size of the previous record IPO), and Met Life's $2.5 billion deal on 4/4 ranks as the eighth largest IPO ever. Together, these two offerings accounted for more than 75% of April's *total* IPO proceeds. Through this year's first four months, $39.2 billion was raised via IPOs, more than triple the $13.0 billion raised in the same period a year ago.



US Capital Markets – Debt Underwriting

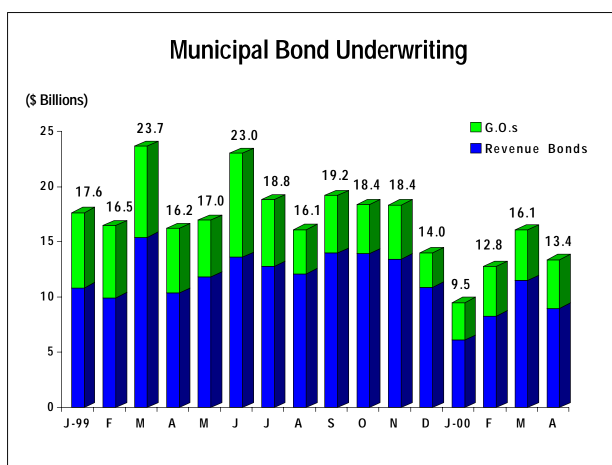
Domestic underwriting of corporate debt securities tumbled to their lowest levels of the year, plunging 50% to $79.0 billion in April from March's robust $158.4 billion. That brought the year-to-date total to $490 billion, a 26% decline from the $658 billion raised in the comparable year-ago period.

New issuance of straight corporate debt plummeted 49% to $59.3 billion in April compared with $116.8 billion in March. The year-to-date total of $375.5 billion is 19.5% below the $466.2 billion raised in the same year-ago period.



New issuance of asset-backed securities skidded 51% from $38.8 billion in March to $19.0 billion in April. Year-to-date, the amount raised via asset-backed securities, at $108.5 billion, is 43% below the $189.5 billion total raised in last year's comparable period.

Municipal bond underwriting dropped 17% in April to $13.4 billion from March's $16.1 billion. Through the first four months of this year, municipal bond offerings totaled $51.7 billion, 30% short of the $74.0 billion total raised in last year's similar period.



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