Heard on the Street

Analyst Discovers the Order
In Internet Stocks Valuations

By GREG IP
Staff Reporter of THE WALL STREET JOURNAL

Internet stocks, the conventional wisdom goes, are a chaotic mishmash defying any rules of valuation.

But one unconventional analyst thinks he has found proof of precisely the opposite: that Internet stocks adhere to a mathematical valuation system so rigid, it resembles patterns found in nature. That pattern suggests there may be fewer ultimate winners in the Internet arena than some investors expect.

The analyst, Michael Mauboussin, the chief investment strategist at Credit Suisse First Boston, found this pattern, not by comparing Internet stocks to more ordinary benchmarks such as earnings, but by looking at the valuation of Internet stocks relative to one another. Among Internet stocks, he says, "there is literally a mathematical relationship between the ranking of the stock and its capitalization."

Most conventional analysis finds the sector's enormous valuation irrational. Mr. Mauboussin doesn't try to justify the high prices investors are willing to pay for Internet stocks as a group. Instead, he is intrigued by how so much of the stock-market value of Internet concerns is clustered into just a handful of companies. Indeed, just 1% of 400 companies in the sector account for 40% of its $900 billion value in the stock market.

Mr. Mauboussin uses some mathematical wizardry to find the pattern. Simply scattering the companies' value and ranking (relative to one another) on an ordinary chart results in a hockey-stick-like pattern: a couple of companies in the multiple billions of dollars, and everything else clustered close to zero.
Using some slightly different but relatively simple math, he found that each company's value bears a predictable relationship to the others'. He couldn't find a pattern like this in any other sector.

"I don't know why it works for this sector, but it suggests a couple of things," Mr. Mauboussin says. "One, there is a little method to the madness of how the market values these things. More important, these are winner-take-all or winner-take-most markets."

The pattern emerges when the companies' values are plotted along with their market-capitalization rank on a logarithmic chart. On such a chart, each inch equals a similar percentage change. For example, the distance between 100 and 1,000 is the same as that between 1,000 to 10,000, because both moves represent a 900% increase. Mr. Mauboussin says this is characteristic of a "power law," normally found only in measuring natural or social phenomena, such as the frequency of earthquakes of a certain size and the number of cities of a certain population.

("Power" comes from the mathematical term for a number rising exponentially; 10 to the power of two is 100, to the power of three is 1,000, etc.)

Once you know the ranking of the Internet stocks, the analysis does a pretty good job of predicting their market capitalizations. The market cap of first-ranked America Online was 92% of what the CSFB predicted when the analysis was done; second-ranked Yahoo's was 91%, fourth-ranked Amazon.com's was 64%, ninth ranked Excite At Home was 83%, 18th-ranked Priceline.com's was 101%, and 141st-ranked iVillage's was 77%.

Mr. Mauboussin and colleagues Alexander Schay and Stephen Kawaja looked for something similar in eight other sectors, including financial companies and utilities. They found the pattern in spots but nowhere as consistently as with Internet stocks.

The implication, they argue, is that Internet companies have unique economics. Consumers who are overwhelmed with choice gravitate to a few well-known sites. As some sites get bigger, they attract more users, and the more users they attract, the richer and more useful they become, attracting more users. This produces a "winner-take-all" outcome: a handful of Web sites with almost all the business, and the rest with next to nothing.

Indeed, CSFB's research was spurred in part by work at the Xerox Palo Alto Research Center that found a "power law" relationship between Web-site usage and ranking. It found the top 0.1% of sites got 32% of usage, the top 1% got 56%, the top 10% got 82%. The value of the companies themselves follows the same pattern.

"The value of network grows exponentially as users join," Mr. Mauboussin says. "A handful of sites get most of the traffic and thus a chance to monetize the traffic in a way others can't. Yahoo!, Lycos, GO.com ... have the exact same capabilities but radically different market caps. The market seems to be valuing this network effect."

Not everyone is convinced that the pattern is significant.

"You have to ask if this could just be coincidence, because people have looked at these things hundreds of ways and once in a while, you'll hit on something," says Andrew Sterge, a mathematician and chief executive of BNP/Cooper Neff Group in King of Prussia, Pa. BNP/Cooper Neff, a unit of France's Banque Nationale de Paris, specializes in derivative securities and quantitative-style hedge funds.

Mr. Sterge notes, for example, that the value of CSFB's third-ranked stock, Charles Schwab (which some might dispute is an Internet stock), is far less than its analysis predicts.
But he adds it makes sense that the stocks of Internet companies, few of which make money, adhere to a more mathematical valuation pattern than traditional stocks.

"These companies are not weighed down by the rules of thumb that are used in valuing companies that make earnings, are part of industries and have histories. They're out there floating in the purest form of capitalism. People compare finance to physics a lot, and this is the best universe in which to do that, where none of the conventional financial analysts' wisdom has any relevance. Chaos theory and fractals would be very appropriate in valuing Internet stocks because they're priced on psychology and the feedback information you get from other people trading them."

Indeed, Mr. Sterge thinks Internet stocks are less like common stocks than stock options. An option gives you the right to buy an underlying stock at a later date at a fixed "strike" price. The option is worthless if, at its expiration, the stock is below the strike price. But the option's value rises faster and faster as the underlying stock tops the strike price.

Likewise, an Internet company will "expire" worthless if lenders and investors tire of financing its losses. But if it starts to make money, its value could rise rapidly as network effects take hold.

Other investors are intrigued but still unconvinced.

"This would be some of the first real quantitative evidence of a rational relative pricing scheme" among Internet stocks, says Ted Aronson, head of Aronson Partners, a Philadelphia quantitative-fund manager. But "I'm so prejudiced against [Internet stocks] ... it's hard to imagine the vast crowd pricing these will be any smarter than in any other sectors."

Indeed, Mr. Mauboussin readily acknowledges his analysis only finds Internet stocks are correctly valued relative to each other, not that the overall sector is appropriately valued. But it does suggest that it isn't as overvalued as most analysts think, he says. For example, while the average value of a company with "dot-com" in its name is about $500 million, that is distorted by the enormous values of a handful. The median value -- half the companies are above the median, half below -- is just $53 million, proving the market thinks the vast majority of Internet companies are worth little.

Whether Internet stock investors are ignorant or farsighted, the market seems to be valuing them correctly, he says. "Power laws are not managed by anybody. It's just a mathematical relationship that happens to be ubiquitous in nature."

Write to Greg Ip at gregory.ip@wsj.com

URL for this Article:
http://interactive.wsj.com/archive/retrieve.cgi?id=SB946246776318315015.djm

Hyperlinks in this Article:
(1) mailto:gregory.ip@wsj.com

Copyright © 2000 Dow Jones & Company, Inc. All Rights Reserved.

Printing, distribution, and use of this material is governed by your Subscription Agreement and copyright laws.