

VALUATION OF IMPROPERLY PRICED SECURITIES AND SHAREHOLDER DAMAGES

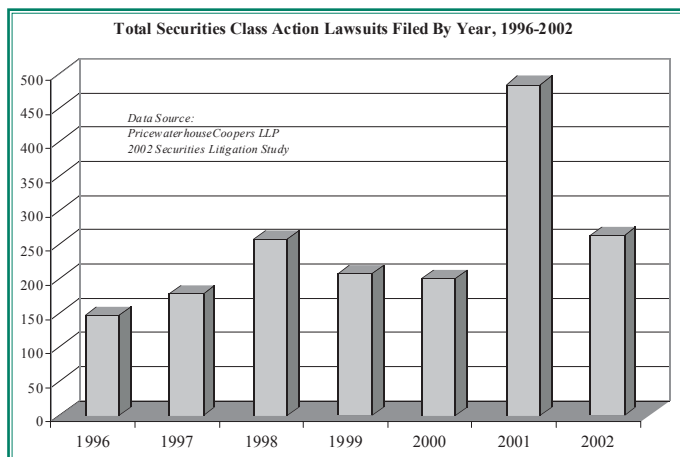
Craig A. Jacobson

INTRODUCTION

In any size securities transaction, from the purchase of a small number of shares on the open market to the sale of an entire company, the ability to properly value the transaction is predicated upon the availability of complete, accurate, and relevant information. Many class action lawsuits are filed against companies and/or their advisors by shareholders who believe that the company has not provided complete, accurate, and relevant disclosure.

As Table 1 below indicates, a significant number of securities class action lawsuits are filed each year.

Table 1



It is important for investors, managers, and professional advisors to be familiar with the complexities of valuing stock and estimating damages to shareholders in such cases. Generally accepted valuation/damages methods are complex. And, the application of valuation/damages methods requires a good deal of professional judgment. A thorough understanding of the factors influencing these methods is important to any professional who will either explain or negotiate these transaction valuation issues.

This article will present an overview of the methods used to estimate the value of stock absent any incomplete or inaccurate disclosures by management (commonly referred to as "omissions and misrepresentations"). In addition, this article will discuss the models used to estimate the aggregate damages suffered by the shareholders of a company as a result of management omissions and misrepresentations.

EFFICIENT MARKET THEORY

According to the "efficient market theory," the price at which common stock and other securities trade in public markets reflects all of the information that is "in the market"—that is, all information concerning the value of the subject company that has been disseminated to the public.

Eugene F. Fama described the concept of efficient market theory as follows:

An "efficient" market is defined as a market where there are large numbers of rational profit-maximizers actively competing, with each trying to predict future market values of individual securities, and *where important current information is almost freely available to all participants.* [emphasis added]¹

When news is released that indicates that a company's operations and earnings prospects are either better or worse than the market previously anticipated, the company's common stock price will change to reflect the economic impact of this news.

The failure of a company to accurately disclose all relevant information will invariably lead to a distortion in the market price of the company's securities. If the economic impact of the undisclosed information causes the company's stock price to decrease, then an investor purchasing the subject stock has overpaid.

Whether a security is improperly priced due to omissions and misrepresentations is important to investors. The investor who buys stock that is overpriced due to omissions and misrepresentations may suffer significant economic damages. This is true if the investor holds the stock until after the correct information has been revealed (known as a "corrective disclosure").

In addition, omissions and misrepresentations may result in mergers and acquisitions that are consummated at inaccurate prices and/or share exchange ratios.

In many cases, it is obvious that a company's stock traded at an incorrect price due to omissions and misrepresentations. In most cases, however, it is difficult to make this determination. For example, a publicly traded company will often have a number of pieces of information entering the market almost simultaneously, making it difficult to distinguish the economic effects of individual information items. In many cases, both

positive and negative news items enter the market simultaneously, further complicating the process of isolating the economic effects of a corrective disclosure. In many cases, a corrective disclosure isn't made until the securities have lost most or all of their value.

As noted above, it is important to both shareholders and management to understand the theories and methods used to determine whether securities are (or were) trading at improper prices. This article will identify methods commonly used to:

1. identify information that has not been properly disseminated to investors,
2. determine whether this information was material to investors,
3. estimate the "stock price inflation" in a company's stock price due to this incorrect information, and
4. estimate aggregate damages to investors.

SECURITIES REGULATIONS

The regulations that govern stock markets in the United States today were largely set out in two Securities and Exchange Commission acts adopted in the wake of the great depression, namely, (1) the Securities Act of 1933 (the "1933 Act") and (2) the Securities Exchange Act of 1934 (the "1934 Act").

Section 11 of the 1933 Act is particularly relevant to this discussion. Section 11 addresses civil liabilities due to a false registration statement. Section 11 governs any securities purchased pursuant to a registration statement, which typically accompanies initial public offerings, secondary offerings, and acquisitions of or by public companies.

Section 11(a) reads in pertinent part:

In case any part of the registration statement, when such part became effective, contained an untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary to make the statements therein not misleading, any person acquiring such security (unless it is proved at the time of such acquisition he knew of such untruth or omission) may, either at law or in equity, in any court of competent jurisdiction, sue. . . .

Section 11(a) then provides a comprehensive list of prospective lawsuit targets, including: every person who signed the registration statement, every director or partner of the issuer, every person named with their consent in the registration statement as being or about to become a director, every accountant, engineer, or appraiser whose profession gives authority to a statement made by him or her, and every underwriter with respect to such security.

The 1934 Act mandates that publicly traded companies disseminate to investors all relevant information that may affect the price of a security. In particular, Rule 10b-5, promulgated under the 1934 Act, reads:

It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange,

- a. To employ any device, scheme, or artifice to defraud,
- b. To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or
- c. To engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person,

in connection with the purchase or sale of any security."

Rule 10b-5 unambiguously states (1) that the management of a publicly held company has the express duty to disseminate all relevant information to investors and (2) that omission of such information is as important to a finding of a violation as providing incorrect information.

MATERIALITY AND THE IMPACT OF OMISSIONS AND MISREPRESENTATIONS

The first procedures in determining whether shareholders of a company have been damaged are (1) the identification of the omitted or incorrect information and (2) the determination as to whether that information would have been relevant to investors.

In some cases, the omitted or incorrect information is belatedly released to the market as a corrective disclosure. In other cases, this information is never made public. And, this information is only brought to light through discovery in the litigation process.

Stock prices may also react to rumors, which may or may not contain relevant information. While this determination may appear to be simple, there are a number of considerations that often complicate the process.

First, the analyst should determine whether the economic impact of the information is significant enough to measurably affect the stock price. Methods such as the "event analysis" discussed below are often used to aid in this determination. As the name suggests, economic models such as those used in the event analysis: (1) look at whether the stock price reacted to

new information entering the market and then (2) determine whether the stock price movement was significant enough to indicate that investors reacted to the information.

The next procedure in the analysis is to separate corrective disclosures of information that should have previously been made from regular information entering the market.

The difficulty of identifying omissions and misrepresentations is complicated by the fact that there is often a constant stream of information entering the market for a typical public company. If a number of pieces of information that affect a company's security price enter the market at approximately the same time, it may be difficult to separate out the effects of different disclosures.

The analysis may be further complicated by the fact that the stock price may not fully assimilate the information immediately. In fact, it may take a number of trading days to fully reflect the pricing impact of the information disclosure. While this fact appears to contradict the efficient market theory, in reality, the market's perception of the impact of new information can change over time.

In performing this analysis, the analyst should also consider the fact that news often "leaks" into the market prior to the earliest "official" announcement or news item. This scenario occurs with increasing frequency as the number of potential news sources created by new technology (such as the Internet), have proliferated.

Information is often exchanged on Internet "bulletin boards" and "chat rooms," where investors trade rumors that may or may not have a basis in reality. These rumors can measurably affect stock prices.

In summary, it is up to the analyst to:

1. determine which pieces of information entering the market have measurably affected the company's stock price,
2. determine which pieces of information entering the market reflect corrective disclosures of information that had previously been omitted or incorrect, and
3. determine the appropriate measure of the stock price's reaction to this information.

QUANTIFYING THE IMPACT OF OMISSIONS AND MISREPRESENTATIONS—THE "EVENT ANALYSIS"

An event analysis quantifies the impact of new information entering the market on the company stock price. That new information may affect the economy at large, the stock markets in general, companies in a particular industry, or just a single company.

The first procedure of an event analysis is the preparation of a model that (1) determines which changes in a company's

stock price are statistically significant and (2) compares these price changes with new information entering the market.

A statistically significant price change suggests (1) that the change in stock price is probably not explained by normal market activity and (2) that it is highly probable that the price change was caused by an external factor, such as new information entering the market.

Next, the daily change in a company's stock price is compared with the daily change in a benchmark index. The benchmark index is often an index that covers the same industry as the subject company. Alternatively, a custom index can be constructed using stock prices of a number of publicly traded companies that the analyst considers to be sufficiently comparative to the subject company. In the absence of a relevant ready-made or custom index, a broad market index can be used, such as (1) the Nasdaq index for a high technology company or (2) the S&P 500 index for a large industrial company.

In the constructed model, the changes in the subject company's stock price are the dependent variable, and the changes in the benchmark index are the independent variable. Changes in the dependent variable are assumed to be largely determined by changes in the independent variable.

The next procedure in the event analysis is to determine the mathematical relationship between changes in the stock price and changes in the benchmark index. Typically, a simple regression model is used to calculate this relationship. The regression analysis should be performed over a time period prior to any allegations of distortions in the company's stock price. This period is referred to as the "estimate period."

Ideally, pricing data from one full calendar year are used. However, in practice, this is often not possible. In many cases, there may not be a full year of available pricing data due to a significant change in the company's operations, or as a result of the fact that the company may have only recently gone public.

In conducting this analysis, the analyst should exclude periods that contain unusual or extraordinary movements in the price of the company or the index. For example, a model that included the latter part of 2001 would be more suspect due to the overall volatility of securities markets during that period.

The completed regression analysis will indicate a mathematical relationship between (1) the daily changes in the stock price and (2) daily changes in the benchmark index. The regression analysis can then be used to predict changes in the company's stock each day during the "damages period"—or the period during which it is alleged that the company's stock price was distorted.

The actual change in stock price is then compared to the predicted change in stock price. For days on which the actual change is statistically different than the predicted change, that day's price change is considered to be extraordinary. This determination is generally made at a significance level of 90 percent to 95 percent, indicating that the new information

entering the market has a 90 percent to 95 percent chance of having caused that day's movement in the stock price. This is equivalent to the price movement having a five percent to ten percent probability of having taken place only by chance.

The analyst then determines which extraordinary price changes were caused by corrective disclosures of information that had previously been omitted or incorrect. If a corrective disclosure can be determined to have caused an extraordinary change in stock price, this indicates that some level of distortion in stock price has been corrected.

The change in the stock price due to a corrective disclosure indicates the level of stock price inflation prior to the corrective disclosure. In some cases, the change in price over a number of days, rather than a single day, can be used to determine the impact of new information entering the market. In cases where there appears to have been some "leakage" of information prior to the "official" disclosure, the analyst can include part of the change in price prior to the corrective disclosure in the measure of stock price inflation.

In other cases, the stock price may have "bounced back" after the market's initial reaction to new information. For example, if a company's stock price decreases by \$5.00 in response to a negative news item, but then increases \$2.00 the following day, without any new information having entered the market, it is possible that the appropriate measure of the company's change in stock price is actually \$3.00.

The process of determining the appropriate measure of stock price inflation is somewhat subjective. The analyst should be careful to determine that there are no other general economic or company-specific factors that cause the price movements. The entire mix of information and market forces that may have affected the stock price should be examined. In addition, the changes in the stock price in the days and weeks following the new information should be examined.

DETERMINATION OF "TRUE VALUE"

The event analysis described above will quantify the impact of information entering the market. This information can then be used to estimate the "true value" of the stock during the damages period. The "true value" is the price at which the stock would have traded absent any omissions or misrepresentations.

The "true value" of a company's stock price may be defined as the price at which the stock would have traded if all relevant information had been properly disclosed. The difference between actual price and true value is the "stock price inflation." The stock price inflation for each day is the amount by which purchasers of the stock that day overpaid.

In determining true value, the starting point is often the price of the company stock after all relevant information has

entered the market. This price is useful as a starting point because it is based on the first perception of the market of the value of the stock without any distortion. In some cases, there is only a single corrective disclosure, following which the company's stock price is assumed to again equal its true value. In other cases, there are two or more disclosures, each of which is referred to as a "partial disclosure." At the time of each partial disclosure, the level of stock price inflation will change.

Three basic methods may be used to estimate the true value of the stock absent any distortions. Models have been developed using more complex methods than those described here. However, these three methods are typically adequate. In the case of two or more partial disclosures, it is possible to use a combination of these methods. The determination of which methods to use in each situation is based on the facts and circumstances of the particular case.

The constant dollar method assumes that the dollar change in the stock price due to a corrective disclosure indicates the dollar amount of stock price inflation each day prior to the corrective disclosure.

The constant percentage method assumes that the percentage change in the company's stock price due to a corrective disclosure is an appropriate measure of the percentage amount of stock price inflation each day before the corrective disclosure.

The constant value method assumes that the price of the company's stock following a corrective disclosure is representative of the value of that stock throughout the entire damages period.

The determination of the appropriate methods should be based on the specific facts and circumstances of each situation. The constant dollar method is often appropriate over a short damages period, where the overall level of securities prices is not expected to change significantly.

The use of the constant dollar method over a long time period, when accompanied by an increase in market prices in general and the price of the subject company in particular, may overstate stock price inflation and damages. This is because the amount of stock price inflation early in the damages period may be less than later in the period. Therefore, the constant percentage method may be more appropriate over long damages periods in order to better capture the changes in securities prices over time.

The constant value method is typically used when the whole "story" concerning a company's operations and earnings is alleged to contain a significant component of fraud. An example of this is when Enron Corporation stock gradually lost most of its value as the market learned the extent of its earnings problems. The value of the stock after all corrective disclosures had been made would be an appropriate measure of the true value of that company throughout the entire damages period.

ALTERNATIVE VALUATION METHODS

In some cases, it is possible to determine the value of an omission or misrepresentation using traditional valuation and/or investment banking methods.

One example of this approach involves a company that is acquired through an exchange of shares. If the company had not disclosed to the market in a timely manner (prior to the merger) that it had secured a new business opportunity, the market may have placed a higher value on the company, resulting in a different merger pricing ratio.

In this case, discovery can bring to light internal documents regarding this undisclosed business opportunity. If the company had prepared projections of revenues and profits expected from this business opportunity, a discounted cash flow analysis could be used to estimate the value of this business opportunity. This value could then be added to the market value of the company. This sum would result in an estimate of the value of the company (1) had it disclosed all relevant information and (2) had a more appropriate merger pricing ratio been used for the transaction.

ESTIMATION OF DAMAGES TO SHAREHOLDERS

The estimate of shareholder damages can be calculated using the "proportional trading model" (PTM). The PTM uses readily available data on (1) shares outstanding and (2) trading volume to estimate the number and price of shares purchased and sold during the damages period. The estimate of the stock's true value and inflation discussed above is then incorporated in order to estimate the aggregate damages to the shareholders.

The starting point for a PTM is the "float," or the number of shares available to trade during the damages period. The float calculation (1) takes the number of shares outstanding and (2) subtracts shares known to not have traded during the damages period, including: (a) shares held by officers and directors and (b) shares held by institutional investors throughout the damages period.

The next procedure in a PTM involves adjusting each day's reported trading volume to account for estimated "specialist volume," or trades by market makers. Many analysts assume that for stocks that trade on the New York Stock Exchange, ten percent of each day's volume represents trades by that exchange's "specialists," or market makers. In the case of stocks that trade on the Nasdaq, analysts have typically adjusted for the fact that Nasdaq is a dealer market. In a dealer market, each trade was "double counted," or recorded as both a purchase and a sale by the dealer.

An example of this is when Investor A sells 100 shares to Investor B, the purchase of shares by the dealer or market maker from Investor A is recorded as volume of 100 shares, and the sale of shares by the dealer or market maker to

Investor B is also recorded as volume as 100 shares. This one transaction results in reported volume of 200 shares. In 1997, the Securities and Exchange Commission mandated a number of changes in the way Nasdaq dealers handle orders. These changes have made Nasdaq reported volume more comparable to that of the New York Stock Exchange. Many analysts now simply reduce Nasdaq reported volume by 20 percent.

In its most basic form, the PTM assumes that on any day, every share has an equal chance of trading. The PTM calculates (1) how many shares purchased each day during the damages period were sold later in the damages period and (2) how many shares were still held at the end of the damages period, following the corrective disclosure.

Numerous modifications to the basic PTM have been developed. The model commonly used today is the "two-trader" PTM. The two-trader model assumes that there are two types of investors: (1) "slow traders," who typically buy and hold stocks, and (2) "fast traders," who move in out of stocks with greater frequency than slow traders. A typical application of the two-trader model assumes (1) that 20 percent of investors (or 20 percent of float) account for 80 percent of trading volume and (2) that 80 percent of investors (or 80 percent of float) account for 20 percent of trading volume. The two-trader model involves (1) running two separate PTM calculations, one for "slow traders" and one for "fast traders," and then (2) adding the results of these components to indicate total damages.

The stock price inflation on each day of the damages period is then used to estimate damages for shares purchased each day. Two components of damages are typically calculated: (1) damages to shareholders who purchased and sold shares during the damages period ("shares sold damages"), and (2) damages to shareholders who purchased shares during the class period and held them until the end of the period ("shares retained damages").

The loss to shareholders who bought shares during the damages period is calculated as (1) the stock price inflation at the time of purchase less (2) the stock price inflation at the time of sale (for shares sold) or at the end of the damages period (for shares retained).² Any gains to shareholders who purchased and sold stock during the damages period are (1) typically zeroed out and (2) are not used to offset losses to other shareholders.

Variations of the basic PTM can be used to estimate damages in other situations. For example, consider the case of shareholders who receive stock in a company through a merger where the price of one or both companies is considered to have been distorted. Damages to these shareholders can be estimated using a variation of the PTM. In this case, the number of shares received in the merger is analogous to the trading volume for the first day of the damages period. And, damages are calculated only for shares received or purchased that day.

The PTM is, at best, a simulation of what actually occurs in the market. The actual trading information for each individual shareholder could theoretically be used to determine actual purchases and sales of the subject stock. In reality, this is generally not possible. And, the use of variations of the proportional trading model are frequently accepted as a reasonable basis for determining damages.

TRUE VALUE SAMPLE CALCULATIONS

For each method used to determine true value, a sample calculation is shown based on the following assumptions:

1. The company should have disclosed information relevant to the market on Day 1, but it did not do so until Day 10, when the price of the company's stock reacts to the news. The damages period is therefore Day 1 through Day 9.
2. The company has a float of 1,000,000 shares, reported daily trading volume of 50,000 shares, and trades on the Nasdaq.
3. Aggregate damages to shareholders are calculated using a proportional trading model and the methods described above.

See Exhibit 1 for an example of the constant dollar method. See Exhibit 2 for an example of the constant percentage method. See Exhibit 3 for an example of the constant value method.

SUMMARY AND CONCLUSION

The methods described above can be valuable to company managers and owners in any situation where there is the possibility that transactions have taken place or been proposed that may not accurately reflect all relevant information. The use of event analyses, proportional trading models, and rigorous valuation analyses can be important tools (1) in determining valuations and aggregate damages and (2) in negotiating prospective transactions. However, the subjectivity inherent in these methods makes it important for both the attorney and the analyst to understand each method's underlying assumptions.

Notes:

1. Eugene F. Fama, "Random Walks in Stock-Market Prices," Graduate School of Business, University of Chicago, Selected Papers No. 16.
2. The Private Securities Litigation Reform Act of 1995 limits recovery to the difference between the purchase or sale price paid or received, as appropriate, and the mean trading price of the security during the 90-day period beginning on the date on which the information correcting the misstatement or omission that is the basis for the litigation is disseminated to the market.

Craig Jacobson is a senior manager in our Westport, Connecticut, office. He can be reached at (203) 221-3412 or at cajacobson@willamette.com. www.willamette.com

Exhibit 1 XYZ Company Damages Analysis "True Value"—Constant Dollar Method

Float: 1,000,000 shares							
Day	XYZ Actual Share Price	XYZ Reported Share Volume	XYZ Share Volume Reduced 20%	True Value	Inflation Per Share	Number Shares Retained	Shares Retained Damages
1	\$59.50	50,000	40,000	\$55.25	\$4.25	27,701	\$117,731
2	59.75	50,000	40,000	55.50	4.25	28,856	122,636
3	60.25	50,000	40,000	56.00	4.25	30,058	127,746
4	59.25	50,000	40,000	55.00	4.25	31,310	133,069
5	59.50	50,000	40,000	55.25	4.25	32,615	138,613
6	55.25	50,000	40,000	51.00	4.25	33,974	144,389
7	55.00	50,000	40,000	50.75	4.25	35,389	150,405
8	55.00	50,000	40,000	50.75	4.25	36,864	156,672
9	54.25	50,000	40,000	50.00	4.25	38,400	163,200
10	50.00	50,000	40,000	50.00	0.00	40,000	0
Totals		500,000	400,000			335,167	\$1,254,461

Exhibit 2
XYZ Company
Damages Analysis
“True Value”—Constant Percentage Method

Float: 1,000,000 shares								
Day	XYZ Actual Share Price	XYZ Reported Share Volume	XYZ Share Volume Reduced 20%	True Value	True Value Divided by Actual Price	Inflation Per Share	Number Shares Retained	Shares Retained Damages
1	\$59.50	50,000	40,000	\$54.84	92.2%	\$4.66	27,701	\$129,124
2	59.75	50,000	40,000	55.07	92.2%	4.68	28,856	135,069
3	60.25	50,000	40,000	55.53	92.2%	4.72	30,058	141,875
4	59.25	50,000	40,000	54.61	92.2%	4.64	31,310	145,333
5	59.50	50,000	40,000	54.84	92.2%	4.66	32,615	152,028
6	55.25	50,000	40,000	50.92	92.2%	4.33	33,974	147,050
7	55.00	50,000	40,000	50.69	92.2%	4.31	35,389	152,484
8	55.00	50,000	40,000	50.69	92.2%	4.31	36,864	158,838
9	54.25	50,000	40,000	50.00	92.2%	4.25	38,400	163,200
10	50.00	50,000	40,000	50.00	100.0%	0.00	40,000	0
Totals		500,000	400,000				335,167	\$1,325,002

Exhibit 3
XYZ Company
Damages Analysis
“True Value”—Constant Value Method

Float: 1,000,000 shares							
Day	XYZ Actual Share Price	XYZ Reported Share Volume	XYZ Share Volume Reduced 20%	True Value	Inflation Per Share	Number Shares Retained	Shares Retained Damages
1	\$59.50	50,000	40,000	\$50.00	\$9.50	27,701	\$263,163
2	59.75	50,000	40,000	50.00	9.75	28,856	281,342
3	60.25	50,000	40,000	50.00	10.25	30,058	308,093
4	59.25	50,000	40,000	50.00	9.25	31,310	289,620
5	59.50	50,000	40,000	50.00	9.50	32,615	309,842
6	55.25	50,000	40,000	50.00	5.25	33,974	178,363
7	55.00	50,000	40,000	50.00	5.00	35,389	176,947
8	55.00	50,000	40,000	50.00	5.00	36,864	184,320
9	54.25	50,000	40,000	50.00	4.25	38,400	163,200
10	50.00	50,000	40,000	50.00	0.00	40,000	0
Totals		500,000	400,000			335,167	\$2,154,890