

# A PENNY FOR YOUR THOUGHTS: SIZING UP MANIPULATIVE EPS ROUNDING

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**F**or as long as public companies have been required to report earnings per share (EPS), there probably have been misguided managers who try to nudge it higher.

We've written this article to unveil a method of manipulating EPS that, near as we can tell, hasn't yet been described in print. Because any attempt to manipulate EPS creates uncertainty and uncomfortable risk for investors—which, in turn, could create capital market inefficiencies and produce discounted stock prices—we want to expose this inappropriate and unproductive gamesmanship and then help eliminate it.

Our specific concern is that a troubling number of managers, and perhaps their auditors, have grown comfortable with manipulating EPS despite the questionable ethics of this practice. The most obvious method massages reported net income, the *numerator* of EPS. More

subtle, but equally objectionable, is buying back stock to decrease the *denominator*.

Our focus falls on the even more stealthy manipulation of the *quotient* through biased rounding of EPS to the higher penny. Even if it had been suspected, no one until now has assessed its prevalence and proposed policies to stop it.

In the coming pages, we prove that abusive rounding is indeed going on and show when it's most likely to happen. We then explain how anyone can determine whether a specific company's management has decided to commit it over and over again. We also show that management's choice of auditors makes these manipulations less (or more) likely. As a practical contribution, we recommend a very simple rule change that will totally eliminate the temptation to pick up a penny through rounding. We then tackle the much bigger issue of how to make income statements and EPS more useful.

## An Unknown Problem?

Who will benefit from reading this article? First, financial statement users will see they may have been misled and will learn how to keep it from happening again. Managers who manipulate EPS through misrounding will find their scheme is no longer secret because users can detect who they are. Auditors who have been deceived by their clients will have a new analytical tool for assessing their risk, while those who have abetted their clients' deception will learn that their duplicity is out in the open. Finally, regulators will be able to stop this abuse in its tracks. Ultimately, we hope everyone will realize that the current approach of reporting net income and EPS limits their usefulness.

## It didn't take rocket science for us to figure out that managers are more likely to manipulate through rounding when the absolute amount of EPS is small.

To get a handle on the problem, we decided to recompute EPS to the third decimal place to uncover how many managers rounded up (because the third digit ranged from 5 to 9) and how many did not (because the third digit ranged from 0 to 4). Our initial step was to compile Compustat data for about 8,200 public companies from nearly 330,000 quarterly income statements that reported non-negative EPS during the years 1995 through 2009.

On our first pass, we found that 53% of reported EPS numbers were rounded up instead of the 50% that would be expected. (The likelihood this outcome could occur by chance is one out of 10 raised to the 261st power, which might as well be zero.) This finding indicates three out of 50 managers (6%) who shouldn't have rounded up found a way to manipulate the quotient to get the third digit to 5 or higher. In other words, one out of 16 in this half of the population was willing to bend the results to get another penny of EPS.

We knew, however, that the whole population consisted of many different situations that would impact management's inclination to fudge the quotient. It didn't take rocket science for us to figure out that managers are more likely to manipulate through rounding when the absolute amount of EPS is small. For example, they surely feel a greater incentive to raise \$0.10 per share to \$0.11 than to raise \$1.10 per share to \$1.11.

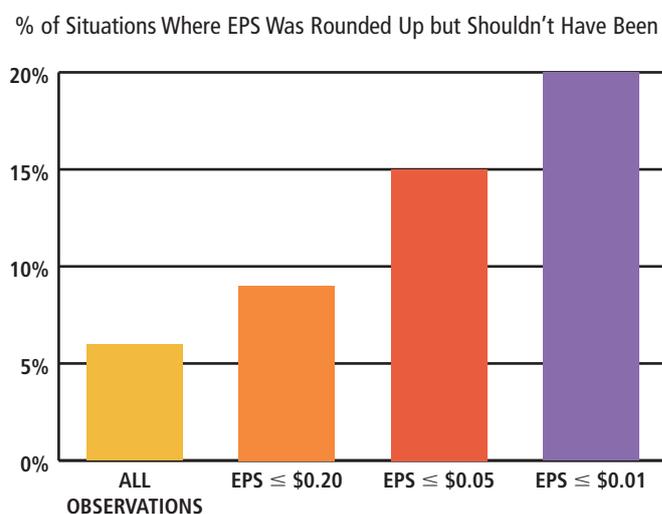
To help confirm this notion, we thinned the 330,000 reports down to those with relatively small EPS. The results were astonishing (see Figure 1): When reported EPS was \$0.20 or less, 9% of managers who shouldn't have rounded up chose instead to nudge their numbers higher. When it was \$0.05 or less, 15% rounded up when they shouldn't have. Finally, when it was either \$0.01 or \$0.00, 20% of managers inappropriately rounded up. (Again, there's zero statistical probability these outcomes could have happened by chance.) This discovered prevalence of misrounded EPS suggests the reporting system could be tainted, thus causing users to mistrust all financial statements.

## Who's Doing It?

After finding this evidence, we wanted to identify which companies (and managers) were misbehaving. Of course, there's no way to look at individual income statements to learn whether misrounding occurred. For example, if preliminary EPS were to be \$0.01499 for a company with 100 million outstanding shares, it would be ridiculously easy to cut an estimated expense enough to move EPS to \$0.015, which would then round to \$0.02 instead of only \$0.01. In this case, a \$1,000 numerator change would double the reported EPS but be virtually undetectable, even to auditors with access to the company's records. This roadblock didn't slow us down because we invented a technique that reveals whether managers habitually indulge in misrounding.

Our concept is both simple and powerful. Specifically, we looked at each company's series of quarterly reports from 1995 through 2009 to see how often its EPS was rounded up. For example, if we had EPS from 32 quar-

**Figure 1: Stretching a Penny**



ters for a particular company, we would expect 16 to be rounded up, on average. If the company's experience shows more than 16, we can apply statistics to determine the probability that outcome could have occurred by chance. For this example, there is only a 13% chance that EPS for 17 quarters would be rounded up. The probability of 20 times is 5%, and the chance of 25 times is 0.08%, which is less than one in a thousand. (Most of you who remember your statistics classes will recall experimenting with the *binomial distribution* by flipping a coin to see how many heads and tails occur and then looking up the probability of their results. That's exactly what we did.)

This mathematical microscope allowed us to detect managers who were likely to have habitually rounded up when they shouldn't have. It also gives financial statement users a way to assess management's trustworthiness and gives auditors a practical analytical tool for judging whether a client's results are reasonable. Of course, it could also deter managers who have relied on rounding up to help cover earnings shortfalls.

### Digging Deeper

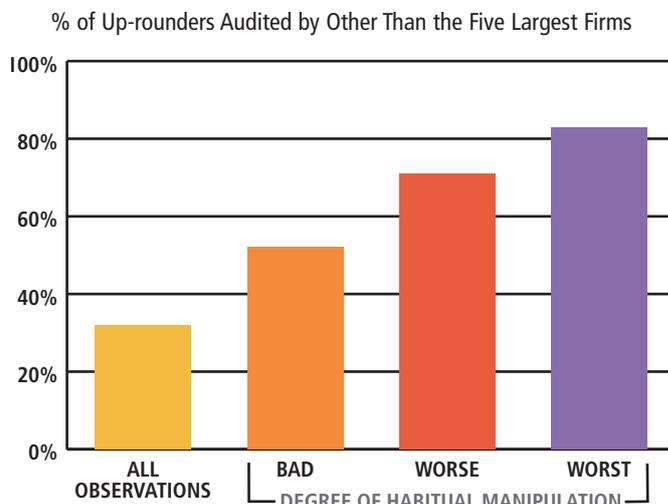
We looked at the series of reported EPS for each of the approximately 8,200 companies in our data. We initially narrowed the field to those with a frequency of up-rounding that would be expected to occur only once in a thousand times, which means we anticipated finding only eight cases out of the 8,200 companies. Instead, we actually found an astonishing 320. Clearly, something fishy had been going on.

We then moved out on the probability scale to see how ugly it would get. We lowered the probability threshold to anticipating only one out of 10,000 occurrences, such that we would expect to see only one case of disproportionate up-rounding; instead, we found an incredibly high 218. We then ratcheted the threshold down to one in a trillion, expecting to find no cases at all; in fact, 42 companies beat these long odds, including one that rounded up every opportunity it got: 42 out of 42 quarters! The probability of that outcome occurring by chance is about one in *10 quadrillion*.

### Where Are the Auditors?

Given these totally improbable abusive rounding patterns, we wondered how they could have slipped past the auditors. To gain insight, we asked whether certain categories of audit firms were less (or more) likely to be involved in these cases where we observed habitual

Figure 2: Repeat Offenders



abusive rounding. The results (see Figure 2) are revealing but discomfiting.

To simplify the analysis (and maintain some anonymity for the auditors), we put the audit firms into two categories: the five largest (including the now-defunct Andersen) and all others. For our group of about 8,200 companies, 68% were audited or reviewed by the top five and 32% by others.

We initially identified a set of habitual abusive up-rounders consisting of companies that deviated from the average proportion that would be expected less than one in a hundred times. We found that the proportion of these "bad" cases of habitual manipulation associated with smaller audit firms was 52%. When we looked at what we considered to be "worse" cases (with a probability of less than one in 10,000), the percentage reviewed by smaller firms reached 71%. The tale for the "worst" cases (with a probability of less than one in a trillion) is consistent, but dismaying, because the proportion associated with these smaller audit firms was a highly disproportionate 83%.

### What These Facts Imply

Our most significant observation is that many managers have stepped out onto the slippery slope of manipulating EPS through rounding. Once they cheat to pick up a penny, what will keep them from finding other illegitimate ways to pick up a nickel or a dime? In a sense, our evidence sends the capital markets a warning signal like a gasping canary in an ethics coal mine.

Perhaps some managers are able to hide their tricks from their auditors. If so, the latter were innocently duped, but can anyone think very highly of their dili-

gence? More pessimistically, it seems certain that some auditors aid and abet their clients. If so, the ethical problem is more substantive because collusion is involved. In any case, the evidence shows that smaller firms as a group aren't as good at curtailing this particular misbehavior, but larger firms are unable (or unwilling) to prevent even the worst cases.

We're especially gratified that other financial professionals can apply our detection model to uncover this manipulation by simply analyzing multiple years of data for a target company to see how frequently EPS was rounded up. Those auditors who haven't engaged in collusion can use our analysis to find out if their clients have kept their misbehavior below the radar. Finally, regulators can use it to see whether specific managers have a habit of up-rounding, then go on to investigate whether the auditors were misled by, or colluded with, their clients. Clearly, our model is a useful tool for a lot of different kits.

## A Simple but Effective Fix

Our research gave us a new but now obvious idea on how to take away the temptation and otherwise stop material EPS misrounding. Furthermore, it would be difficult for anyone to credibly oppose its implementation because it's costless.

Specifically, we recommend that the Securities & Exchange Commission (SEC) and the Financial Accounting Standards Board (FASB) act promptly to require managers to report small EPS (say, less than \$1) with *three* decimal places instead of only two. For example, having to round a preliminary EPS result of \$0.01499 to \$0.015 instead of \$0.02 would take away the temptation to shave a little bit off an expense to avoid reporting EPS of only \$0.01.

## A More Complex Solution

Because this simple fix only bandages a symptom of a more serious problem, we would also like to see a major effort by all involved with financial reporting to identify and overcome the forces that have caused this particular dysfunctional and pointless behavior that wastes so much time and effort.

In our view, many, if not most, who participate in or observe the capital markets tend to attribute excessive importance and precision to reported net income and EPS. These numbers actually lack both precision and usefulness because Generally Accepted Accounting Principles (GAAP) allow managers extensive discretion in making predictions and assumptions about such items as cost of

goods sold, depreciation, amortization, deferred taxes, and pension costs, among others. In addition, entrenched conservatism leads to incomplete descriptions of income. Of particular note is the widespread willingness to recognize asset value impairments while refusing to recognize value increments. Moreover, unrealized value changes for investments are stored in equity until they're realized and then reported as gains and losses in years in which they didn't occur. Other shortfalls exist as well.

We aren't so much in the ivory tower that we believe major reform can occur without resistance, but we're convinced it needs to start sooner rather than later. If we had our druthers, we'd like it to take place in the context of a more substantive reform movement that would lead managers and auditors to understand that they may experience lower capital costs and higher stock prices if they reduce statement users' uncertainty and risk by providing them with useful information that's trustworthy and complete.

But will change really happen? Yes, if leaders and the rank-and-file of all sectors of the accounting profession understand the advantages of providing (and using) cleaner and far more complete information and then go on to persuade regulatory bodies to step out and start fixing the problems. One way to get started would be to mobilize IMA® members to take a close look at their practices to see whether they measure up to the standard of being truthful and trustworthy.

When you've finished reading this article, offer your most-trusted colleagues a penny for their thoughts on this subject. It might turn out to be worth quite a bit more—in terms of more ethical accounting as well as stock markets that are both fairer and more efficient—as the future unfolds. **SF**

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