Can You Hear Me Now? Earnings Surprises and Investor Distraction in the Hospitality Industry

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Abstract
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Keywords
hospitality, stock prices, stock earnings, earnings announcements

Disciplines
Business | Hospitality Administration and Management

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by Pamela C. Moulton, Ph.D.
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One explanation for the phenomenon of stock price drift involves the limitations of investors’ attention span. This study finds that investors often under-react to earnings announcements when numerous firms release their results on the same day. Particularly in the case of earnings surprises, however, stock prices gradually move in the expected direction over time, even if the initial reaction is muted. This slow adjustment appears to reflect investors belatedly processing the announcement information and incorporating that into the stock prices. Thus, for hospitality stocks at least, market efficiency is delayed due to humans’ slow response to a heavy information load. This under-reaction has the longer-term effect that stocks whose earnings are announced on days with the highest information load also experience greater post-earnings-announcement drift, as their prices make up for the initial under-reaction by moving towards fair value over the subsequent month. One implication is that hospitality investors who are “late to the party” by not making a move on the earnings announcement day can still anticipate further price changes as the stock price moves to its fair value.
One of the most enduring stock valuation puzzles occurs in connection with quarterly earnings announcements. The question is why stock prices tend to drift gradually higher after a positive earnings surprise (and lower after a negative earnings surprise), rather than immediately adjusting to fully reflect the new information in a firm’s earnings announcement. This rapid adjustment should happen in an efficient market, especially since quarterly earnings announcements are among the events most closely watched by investors and analysts. Typically the chief financial officer or other senior executive announces the firm’s quarterly results on a conference call, presenting the accounting results such as earnings per share and also providing some qualitative sense of the firm’s prospects. With so much attention paid to a firm’s quarterly announcement, let’s examine why stock prices do not fully reflect the news conveyed in that announcement.
This study tests an important possible explanation for this apparent inefficiency: investor distraction. With thousands of publicly traded firms and only 60 or so trading days in each quarter, there are often hundreds of firms announcing their earnings on the same day during “earnings season.” Given the limits of the human attention span, this may simply constitute too much information. In this study I demonstrate how the initial price under-reactions and subsequent post-earnings-announcement drift of hospitality stocks are related to the information load facing investors on the day a hospitality firm announces its earnings.

**Theoretical Background**

Post-earnings announcement drift contradicts the “efficient market hypothesis,” a fundamental principle of modern finance which asserts that stock prices reflect all publicly available information and that prices instantly change to fully reflect new public information. Although markets may generally be efficient, numerous studies have documented that a firm’s stock price typically continues to move in the same direction as on the announcement day for several weeks after the quarterly earnings announcement. This drift essentially makes up for the price movement that did not occur on the announcement day. For example, if a firm announces unexpectedly high earnings, its stock price not only rises on the day of the announcement (as the efficient market hypothesis predicts), but its price also continues to rise in the following weeks. This scenario describes the behavior of hospitality stocks, particularly in the first month after their earnings announcements.

The psychologically based explanation for post-earnings-announcement drift starts with investor under-reaction to the news contained in earnings announcements simply because they have too much information to process at once. Over time, as investors catch up from their initial underreaction to the earnings news, stock prices gradually respond to investors’ actions, and thus we notice post-earnings-announcement drift. In this study, I test this idea that human attention or cognitive constraints are driving this phenomenon for hospitality stocks. Despite people’s belief in multi-tasking, the truth is that humans find it hard to perform multiple tasks or process multiple pieces of information at the same time. Likewise, in financial markets, theoretical models predict that a heavier information load (such as may arise from multiple firms announcing earnings on the same day) leads investors to under-react to salient news.

This study tests the scenarios above in two ways. First, to assess whether investors in hospitality stocks under-react to earnings news when they face a heavier information load, I use the number of earnings announcements made by other firms on the same day to measure the information load facing investors. By inference, this should demonstrate whether attention limitations during numerous earnings announcements affect hospitality stock valuations on earnings announcement days. Second, I test whether stocks that are subject to the greatest investor distraction on their announcement dates also exhibit the highest post-earnings-announcement drift over the subsequent month. Based on human psychology and market efficiency concepts, my hypotheses are, first, greater investor distraction leads to more severe under-reaction to a hospitality firm’s earnings news and, second, this weaker immediate reaction is followed by a stronger post-earnings-announcement drift.

**Sample and Methodology**

I analyzed the stock price behavior of 165 hospitality firms whose stock was publicly traded in the United States from the fourth quarter of 1999 through the first quarter of 2010, a total of 38 quarters. I included a wide swath of hospitality industry stocks, including 90 restaurants companies, 39 hotel firms, 22 airlines, and 14 amusement parks and recreation operators (see Exhibit 1).

There’s a great potential for our hospitality companies’ earnings announcements to be buried in the crush of other firms’ announcements, as shown in Exhibit 2. On the day

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1 This is the semi-strong version of the efficient market hypothesis. The weak form states only that prices fully reflect all past publicly available information, while the strong form of the hypothesis states that prices reflect all private as well as public information.


5 My sample is restricted to firms for which the required data are available from the main data sources, including Compustat for earnings release dates and reported values, CRSP for daily stock returns, and either IBES or Bloomberg for analysts’ forecasts.
of hospitality earnings announcements a mean of 186.4 other earnings announcements are issued, suggesting a heavy information load for investors to digest. The median is even higher, at 234, as earnings announcements tend to cluster. The hospitality firms in our sample are covered by a mean of 6.4 analysts, and the median firm is covered by four analysts. As noted in Exhibit 2, actual earnings are frequently a "surprise" to these analysts, opening the door to earnings drift.

To reinforce the point about the crush of earnings announcements, Exhibit 3 shows the way quarterly earnings announcements tend to cluster, using the fourth quarter of 2009 as an example. Other quarters yield similar profiles. Each bar represents the number of firms announcing earnings on that day. The peak period for earnings announcements tends to occur between four and six weeks from the

### Exhibit 2

**Cross-sectional stock characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price ($)</td>
<td>$19.41</td>
<td>$14.94</td>
<td>$18.54</td>
</tr>
<tr>
<td>Volume ($000)</td>
<td>$1,100</td>
<td>$170</td>
<td>$3,400</td>
</tr>
<tr>
<td>Number of analysts</td>
<td>6.4</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Analyst earnings forecast ($/share)</td>
<td>$0.71</td>
<td>$0.38</td>
<td>$1.89</td>
</tr>
<tr>
<td>Actual earnings ($/share)</td>
<td>$0.16</td>
<td>$0.18</td>
<td>$0.87</td>
</tr>
<tr>
<td>Number of other announcements on same day</td>
<td>186.4</td>
<td>234</td>
<td>118.1</td>
</tr>
</tbody>
</table>

### Exhibit 3

**Number of earnings announcements per day (fourth quarter of 2009)**
returns are determined by summing abnormal returns over 20 trading days.\textsuperscript{8}

**Findings**

To examine the effect of investor distraction on price reactions to earnings surprises, I analyze the pattern of abnormal returns across five different levels of earnings surprise and across five different levels of distraction, measured by the number of other earnings announcements on the same day.\textsuperscript{9} For each calendar year, I perform a two-way independent sort of quarterly hospitality earnings announcement observations in that year into 5 x 5 = 25 groups based on (1) the number of other earnings announcements on the same day (distraction) and (2) the earnings surprise, as defined above. For each distraction quintile, I calculate the average announcement-day and 20-day cumulative abnormal return (CAR) for the most negative earnings surprise quintile (earnings surprise quintile 1) and for the most positive earnings surprise quintile (earnings surprise quintile 5). I also calculate the differences in returns between the two extreme earnings surprise quintiles for each distraction quintile, and between returns for the highest and lowest distraction quintiles.

As shown in Exhibit 4, the data provide strong evidence of investor distraction. The difference between the announcement-day cumulative abnormal returns in the highest quintiles compared to the lowest earnings surprise quintiles, in column (3), reflects how responsive investors are to the

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline
\textbf{Distraction} & \textbf{Quintiles} & \textbf{Earnings Surprise Quintiles} & \textbf{Average Announcement-day Cumulative Abnormal Returns} & \textbf{Average Subsequent 20-day Cumulative Abnormal Returns} & \textbf{Quintile 5-1} \\
\hline
\textbf{Quintile 1 (lowest)} & (1) & (2) & (3) & (4) & (5) & (6) \\
\hline
1 (lowest) & -2.89% & 4.11% & 7.00%*** & 0.18% & 1.94% & 1.76%* \\
2 & -2.30% & 3.20% & 5.23%*** & -0.60% & 1.33% & 1.93%** \\
3 & -2.55% & 4.44% & 6.99%*** & -1.08% & 1.97% & 3.05%*** \\
4 & -1.88% & 2.94% & 4.81%*** & -2.35% & 2.34% & 4.69%*** \\
5 (highest) & -2.91% & 2.23% & 5.14% & -2.64% & 5.58% & 8.22%*** \\
\hline
Quintile 5-1 & -0.02% & -1.88%** & -1.86%** & -2.82%** & 3.64%** & 6.46%*** \\
\hline
\end{tabular}

\textit{Note: Significance of differences: ***} p < .01; ** p < .05; * p < .10.

\textsuperscript{6} I use the single most timely analyst forecast rather than the consensus forecast as the estimate of expected earnings because research has established that it is relatively more accurate than the consensus, that earnings surprises based on this measure (rather than the consensus) are more highly associated with stock price changes, and that it better represents the definition of an earnings surprise, as traders are likely to update their expectations to reflect the most recent analyst forecast.

\textsuperscript{7} Previous work has shown that post-earnings-announcement drift for hospitality firms tends to peak around 20 days. See: Moulton and Wu, op. cit.


\textsuperscript{9} In unreported tests, I find no difference in the average number of analysts following stocks across the different distraction quintiles.
news contained in earnings reports. A larger spread indicates that investors respond more strongly to earnings news on the announcement date, but the spreads are not as large as one might expect. This comparison of the responsiveness across different distraction quintiles in column (3) is the indication of investor distraction. The difference between cumulative abnormal returns for announcements with high earnings surprises versus low earnings surprises is 7.00 percent when there are few other announcements (distraction quintile 1), but shrinks to 5.14 percent when there are many other announcements on the same day (distraction quintile 5). The last row of column (3) shows that the difference of -1.86 percent between distraction quintiles 5 and 1 is statistically significant at the 5% level.

The effects of post-earnings announcement drift appear in the spread in the subsequent 20-day cumulative abnormal returns between the highest and the lowest earnings-surprise quintiles, in column (6). If stock prices were perfectly efficient, there would be no spread between the 20-day CARs in columns (4) and (5). Instead the positive spreads in column (6) indicate that the stocks with the highest earnings surprises have higher abnormal returns in the subsequent month, while those with the smallest earnings surprises have lower abnormal returns. Furthermore, the pattern of differences in column (6) shows that the stocks whose announcements were accompanied by the heaviest information load (distraction quintile 5) have the largest post-earnings announcement drift, while stocks in the lowest distraction quintile exhibit the smallest difference between high and low earnings surprise quintile returns. The last row of column (6) shows that the difference of 6.46 percent between distraction quintiles 5 and 1 is statistically significant at the 1% level.10

Taken together, the results for announcement-day and post-announcement returns paint a picture of investors under-reacting to salient news about stocks when there is a heavy information load, a situation that in turn leads to higher post-earnings-announcement drift. Exhibits 5 and 6 illustrate the announcement-day under-reaction and

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10 The effect is driven by the two extreme quintiles, as is often the case with market anomalies. I follow the univariate methodology of D. Hirshleifer, S.S. Lim, and S.H. Teoh, “Driven to Distraction: Extraneous Events and Underreaction to Earnings News,” Journal of Finance, Vol. 64 (2009), pp. 2289–2325. My results are also robust to a multivariate regression specification controlling for stock characteristics including size, book-to-market, institutional ownership, earnings volatility, and share turnover.
post-earnings-announcement drift. The graph in Exhibit 5 compares the cumulative abnormal returns across earnings quintiles for stocks with the highest information load (solid line, distraction quintile 5) to the stocks with the lowest information load (dotted line, distraction quintile 1). This graph depicts the relatively muted reaction to earnings surprises on announcement days with the heaviest information load. By comparison, investor reaction is much more noticeable for stocks with earnings surprises that are announced on days with lighter information loads. Eventually, however, the requisite information is incorporated in the stock prices. Exhibit 6 shows that over the next 20 days this under-reaction is corrected, as the stocks with the heaviest information load on their announcement dates (solid line) experience greater post-earnings-announcement drift, evidenced by the steeper line.

Implications for Executives and Investors
This study has several practical implications for investors in hospitality stocks, particularly when a firm announces an earnings surprise. The results of surprises can be dramatic. For example, when Wyndham Worldwide reported first-quarter 2009 earnings above expectations, its stock price rose more than 30 percent on the day. One week later, Stein Noah Restaurant Group’s report of lower than expected earnings was accompanied by a one-day price drop of 14 percent. This study suggests that in addition to analyzing the earnings news about a particular hospitality firm, investors should also be aware of how many other firms are announcing earnings on the same day. On days with a heavy information load stock prices are likely to under-react, leaving opportunities for investors to profit from the earnings surprises as prices drift over a longer period. In contrast, hospitality stock prices are likely to incorporate new information more efficiently when there are fewer other announcements to distract investors. Earnings announcement calendars, which are readily available on public websites as well as in the financial press, will help with this determination. For example, see: biz.yahoo.com/research/earncal/today.html.
they will likely benefit from announcing their earnings on days when there is a lighter information load from competing earnings announcements. On the other hand, one could imagine that at some times executives would prefer that investors pay somewhat less attention to the firm’s announcement (such as when the firm announces surprisingly low earnings). In that case executives may prefer to announce on a day with many other announcements to distract investors. The search for a less or more crowded date could be complicated if executives from many firms are pursuing a similar goal. Moreover, any changes must be handled delicately. Typically, a firm’s delaying its earnings announcement to much later in the quarter (not merely by a few days) is taken as a sign of bad news.  

As with all historical studies, these findings are subject to the limitation that the future may not replicate the past. It is possible that as investors become aware of the effects of distraction on stock prices, they will find ways to overcome it. For example, the increased use of technology in trading may reduce the effects of investor distraction on stock prices if investors can find ways to use computers to gather and process multiple earnings announcements in a way that provides necessary information. So far that goal is elusive. Despite the development of textual analysis programs allowing computers to “interpret” news announcements in recent years, post-earnings-announcement drift has endured as one of the most persistent exceptions to market efficiency for over four decades.

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