

APPLE CASE STUDY

Written by
team at Act Analytics

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Building Negative Sentiment Due to Apple Antitrust Investigations Leads Share Price Decline

As we analyze large real time changes in Act Analytics' news-based ESG sentiment scores for stocks, we identify cases that merit exploration. While it is natural to assume that the market responds extremely fast to emerging news, we see cases—even with high-profile companies—in which the market appears to take significant periods of time to process the significance of events as the news unfolds. We examine

these events using Act Analytics' ESG Sentiment Scores which uses Natural Language Processing (NLP) to diagnose trusted independent media stories as being positive or negative on a stock.

For the 5-month period from November 20, 2020 to April 20, 2021, the Act Fast Score for Apple (AAPL) has varied from a low of 38.2 to a high of 56.4. Over one 6-day period, from February 28th, 2020

to March 4th, 2020, the Fast Score fell from 55.49 to 39.68, spanning almost the entire 151-day range. This rapid large-magnitude decline in the Act Fast Score started with the passage of a bill in the Arizona House that limits Apple's ability to control billing for App Store purchases.

This was followed by the announcement of antitrust cases against Apple in Europe. As more news became available in the U.K. and E.U. antitrust situation, the sentiment score fell dramatically over the 6-day period.

Figure 1

APPLE INC.

AAPL

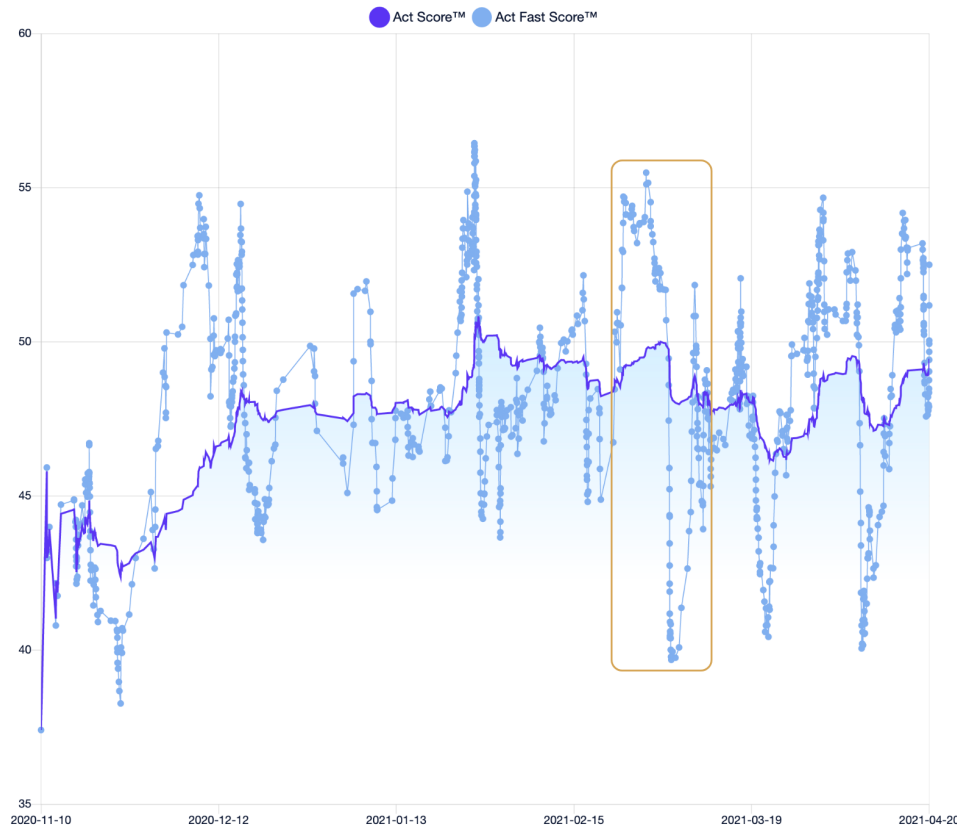
Act Score™
49.45/100

Act Volume Score™
25.24 Very High

Act Momentum Score™
0.04 Trending up ↗

★ ADD TO WATCHLIST

AAPL Charts



Act Analytics score history for AAPL with period of interest highlighted (screenshot from April 20, 2021)

News

Apple announces Apple Card Family for spouses to build credit together, and over-13s to use it too
2021-04-20 Act Fast Score™: 52.50

After getting cleared of gender bias, Apple announces Apple Card Family for spouses to build credit together, and over-13s to use it too
2021-04-20 Act Fast Score™: 51.18

Apple's long-awaited location tracking gadget, AirTags, start at \$29 and launch on April 30
2021-04-20 Act Fast Score™: 50.04

Apple goes to battle with Spotify in premium podcast push - Reuters
2021-04-20 Act Fast Score™: 49.94

Apple goes to battle with Spotify in premium podcast push - Reuters.com
2021-04-20 Act Fast Score™: 49.68

Apple goes to battle with Spotify in premium podcast push
2021-04-20 Act Fast Score™: 49.42

Apple Introduces iPhone 12 and iPhone 12 mini in a Stunning New Purple

Category Selector

- Pollution
- Nature
- Water
- Labor
- Diversity
- Human Rights
- Health
- Legal
- Business

1. The Act Fast Score calculates sentiment using the weighted-average of the sentiment calculated for the most-recently published 25 articles for a stock, with more recent articles receiving higher weights.

Figure 2

Positive Run	End Date	Negative Run	End Date
0.16%	3/11/2021	-0.74%	4/16/2021
0.22%	3/29/2021	-0.83%	12/23/2020
0.23%	1/5/2021	-0.84%	3/30/2021
0.23%	3/4/2021	-0.89%	4/1/2021
0.30%	4/15/2021	-0.96%	3/12/2021
0.38%	2/19/2021	-1.28%	4/14/2021
0.91%	2/4/2021	-1.38%	4/12/2021
1.23%	4/19/2021	-1.44%	3/3/2021
1.23%	1/13/2021	-1.50%	1/12/2021
1.26%	1/8/2021	-1.83%	3/10/2021
1.28%	3/31/2021	-1.90%	1/19/2021
1.97%	3/9/2021	-2.39%	3/18/2021
2.00%	4/13/2021	-3.48%	3/26/2021
2.44%	3/23/2021	-4.04%	1/4/2021
2.52%	12/28/2020	-4.11%	2/24/2021
2.88%	3/1/2021	-4.24%	1/6/2021
3.05%	3/16/2021	-5.01%	3/8/2021
4.00%	4/9/2021	-7.20%	2/18/2021
12.93%	1/27/2021	-8.45%	2/3/2021

Stock-specific return anomaly runs using the S&P 500 as the market index (12/21/2020 - 4/20/2021)

The left side of this table shows the ranked positive return anomalies and the right side shows the negative return anomalies. There is a 2-trading day negative return run of -5.01% that ends on 3/8/2021. This is the 3rd largest-magnitude negative run over the 120-day period. The first day of the decline was Friday, March 5th, and the decline continued on Monday, March 8th. Over this 2-trading day period, AAPL's price return was -3.1% vs. $+1.3$ for the S&P 500.

What is particularly intriguing about this case is that there was an extended decline in sentiment over 6 days before the stock-specific decline began. There was a multi-day period of substantially-falling sentiment before the market responded to the news.

It is also notable that the sentiment score declined over multiple days with the publication of more news stories pertaining to alleged anticompetitive practices. In many other cases, a large change in sentiment rating is due to a succession of positive or negative news events, as opposed to amplification of

one story as we see here. A cascade of different news stories which reinforce a sentiment trend will also be of interest, but we chose this specific case because of the extended trend associated with multiple news stories on a single issue.

This case, and similar cases, has potentially important implications for how the capital markets respond to emerging news. An extended period between when the news emerges and when the market responds provides opportunities for investors. For ESG-oriented investors, responding quickly to relevant news may be important in capturing potential upsides associated with responsible investing.

Case studies are, by their very nature, anecdotal. Even as we acknowledge the limitations in looking at specific events, we hope that readers will find them interesting in thinking about how automated real-time calculations of sentiment on relevant investing criteria may be useful. For more case studies, white papers and updates, visit us online at www.act-analytics.com.