

## Statistics Sends Strong Signal to Market: Sales Stability Creates Long-Run Success, Not Just Sales

**Vancouver, Canada (July 12, 2018):** It was a bittersweet triumph. Their model had been validated in the real world. Share prices of Wayfair—which had billed itself as “the Amazon of furniture”—had fallen 23 percent over one day after the company announced a fourth-quarter loss. Wayfair’s model was broken—and Daniel McCarthy’s model, created with Wharton marketing professor Pete Fader, identified the flaw.

“It’s a dimension that is oftentimes ignored,” says McCarthy, a statistician at Emory University who spent six years working as a hedge fund analyst before deciding to do a PhD in statistics. “It’s the stability of sales—the repeatability of sales from existing customers—that has significant implications for the long-run ability of a company to survive.”

Acquiring customers is a fundamental goal of any start-up company, but those raw numbers can be a misleading metric for assessing the value of that company. What if you are spending a ton on marketing to get customers, but then failing to retain enough of them to recoup the expense? That is precisely what McCarthy and Fader’s so-called “customer-based corporate valuation” (CBCV) analysis [[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3040422](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3040422)] showed. Wayfair was losing \$10 dollars on every customer. Its share price, they calculated, was overvalued by 84 percent.

It wasn’t just Wayfair’s unstable sales that rocked the market; McCarthy and Fader had shown they could accurately predict the value of a company with publicly available data. “If you were looking at this issue purely as a marketing expert or purely as a statistician, you didn’t see what was going on,” says McCarthy. “But bringing these fields together created the opportunity to see something in publicly available data that the market had missed. For me, personally, it’s also just the most fun topic I could ever study, bringing together all the disciplines that I find interesting.”

McCarthy and Fader had already generated extraordinary interest in how subscription-based businesses retain customers with their CBCV study [[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2701093](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2701093)] of DISH Network and Sirius XM satellite radio, conducted with Bruce Hardie, a marketing professor at the London Business School. And yet, despite being the most downloaded marketing science paper of all time on the Social Science Research Network, the media didn’t catch the significance of their new way of looking at company value. “The share prices of those companies were fair,” says McCarthy, “and when prices are fair, there’s not much to say. It took a discrepancy between the traded price of a stock and our estimated price to get the media’s attention.”

The ability to do this has extraordinary value for a company's C-suite, shareholders, and private equity investors, and it comes as no surprise that the surge of interest in McCarthy and Fader's model led to them setting up a company, called Theta Equity Partners. "We've only been incorporated since April and reaction has been very strong, as we are working with a number of private equity and corporate clients to help them understand their own valuations or the valuations of investment prospects they are considering," says McCarthy.

"As a statistician, I'm focused on the prediction. For example, 'If this company were to acquire 1,000 customers tomorrow, this is what's going to happen to them—this is how those customers will peel away from the company over time based on our understanding of previous customer behavior.' I strongly believe that predictions like these, which tell us companies' sales *stability*, are what investors will increasingly focus on when they perform corporate valuation, and not just sales growth in a vacuum."

A current limitation of the CBCV approach, though, stems from the fact that public disclosure of customer data is voluntary, so many companies disclose little to no information about their customer base. But recent research conducted by McCarthy and Columbia PhD student Elliot Oblander looks to change that: "In our latest work, we are building a methodology to generalize the CBCV framework to companies that disclose very little data themselves by utilizing data collected from alternative data providers. We have partnered with Second Measure [<https://secondmeasure.com/>]*—*a leading firm that has access to a large panel of credit card data*—*and will use novel statistical estimation techniques to leverage this data source so we can apply CBCV techniques to a much broader array of companies," says Oblander.

**Talk details:**

Emerging Perspectives on 'Customer-Based Corporate Valuation'

Tuesday, July 31, 2018

2:00 – 3:50 p.m.

<http://ww2.amstat.org/meetings/jsm/2018/onlineprogram/ActivityDetails.cfm?SessionID=215453>

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**About JSM 2018**

JSM 2018 is the largest gathering of statisticians and data scientists in the world, taking place July 29–August 2, 2018, in Vancouver. Occurring annually since 1974, JSM is a joint effort of the American Statistical Association, International Biometric Society (ENAR and WNAR), Institute of Mathematical Statistics, Statistical Society of Canada, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis, Royal Statistical Society and International Statistical Institute. JSM activities include oral presentations, panel sessions, poster presentations, professional development courses, an exhibit hall, a

career service, society and section business meetings, committee meetings, social activities and networking opportunities.

**About the American Statistical Association**

The ASA is the world's largest community of statisticians and the oldest continuously operating professional science society in the United States. Its members serve in industry, government and academia in more than 90 countries, advancing research and promoting sound statistical practice to inform public policy and improve human welfare. For additional information, please visit the ASA website at [www.amstat.org](http://www.amstat.org).