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Product market advertising, heterogeneous beliefs, and the long-run performance of initial public offerings

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ABSTRACT

We study the long-run effects of product market advertising on the equity of firms conducting initial public offerings (IPOs). We find that firms going public with a greater extent of advertising prior to their IPOs are valued higher both in the IPO as well as in the immediate aftermarket, are associated with greater upward price revisions from the pre-IPO filing range means, and have smaller long-run post-IPO stock returns. The above results hold even after controlling for the effects of investor attention, as proxied by the pre-IPO media coverage received by firms going public. We show, using a number of additional tests, that the above findings are consistent with the implications of the heterogeneous beliefs theories of Miller (1977), Harrison and Kreps (1978), and Morris (1996), along with an assumption that product market advertising increases the heterogeneity in outside investor beliefs about firms going public.

1. Introduction

The role of product market advertising on financial markets has recently begun to interest financial economists. Anecdotal evidence indicates that at least some firm managers take into account the effect of product market advertising not only on their customers but also on investors in their financial assets, especially at the time of their going public. For example, an article published in *Wall Street Journal* ("Advertising Blitz? There Must Be an IPO Involved," May 30, 2011) pointed out the link between product market advertising and a firm's initial public offering (IPO) in Hong Kong: "Hong Kong is awash in advertising from companies seeking billions of dollars from local share listings." The examples quoted in the article include: Samsonite International SA, which advertised heavily before it upped the size of its IPO from US$1 billion to $1.51 billion; Prada SpA, which ran an advertising campaign around Hong Kong while waiting in the wings with an IPO of $2 billion; L'Occitane International SA, whose IPO was preceded by a marketing blitz and ended with 160 times oversubscription; and even insurance giant AIA Group Ltd., which bought considerable advertising space around Hong Kong under the slogan "The Power of We" before its giant IPO despite already being a household name with a strong customer base in HK.[1]

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[1] Some firm managers also take into account the effect of product market advertising on investors in the secondary markets. For example, in the spring of 2002, Ford Motor Corp. ran a series of advertisements featuring Chairman and CEO Bill Ford Jr. without mentioning any products. The only purpose of these ads was clearly to boost confidence among investors in the firm. Also consider the following quote from a *Business Week* article ("What Price Reputation?" July 9, 2007) on the advertising campaign by United Technologies Corp. (UTC): "the color schematic of UTC's Silorsky S-92 copter is embedded with messages aimed at Wall Street..... The underlying theme: UTC is a great investment because it is a leader in innovation and eco-friendly technologies that help the bottom line."

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Similarly, our sample of U.S. IPOs from 1990 to 2007 also suggests that many firms advertise heavily prior to their IPOs. For example, Warner Music Group, which went public in November 2005, increased its advertising expenditures from $147 million in 2004 to $195 million in 2005. Subsequent to its IPO, Warner's advertising expenditures decreased to $144 million in 2007 and 2008. Coincidentally, many financial analysts (e.g., Richard Greenfield at Fulcrum Global Partners) suggested that Warner's offering price represented an undeserved premium over EMI Group, a bigger music publishing unit with less debt. This phenomenon also exists across different industries. For example, consider the Business Services industry, which is defined based on the Fama-French 48 industry classification and is the biggest industry in our sample (with 256 IPO firms). The average advertising intensity (advertising/sales) of the IPO firms in the Business Services industry in the years prior to their IPOs is 0.088 from 1990 to 2007 and 0.111 from 1997 to 2007. In comparison, according to the industry advertising data from Schonfeld & Associates (http://www.saibooks.com), the average advertising intensity of all the IPO and non-IPO firms in the Business Service industry is 0.027 from 1997 to 2007. Also consider the Retail industry, which is the second largest industry in our sample (with 121 IPOs). The average advertising intensity of these 121 IPO firms in the years prior to their IPOs is 0.114 from 1990 to 2007 and 0.216 from 1997 to 2007. In comparison, according to Schonfeld & Associates, the average advertising intensity of all the IPO and non-IPO firms in the same industry is 0.030 from 1997 to 2007. Clearly, the IPO firms outspend their publicly traded industry peers prior to their IPOs.

The preliminary evidence from our IPO sample indicates that the high level of advertising expenditures prior to IPOs is not driven by product market considerations alone (i.e., not driven solely by the need to improve sales and profitability). In particular, if we compare the IPO firms with high and low advertising intensity in the years prior to their IPOs, the sales of low advertising intensity IPO firms are almost twice as large as the sales of high advertising intensity IPO firms. The profitability (EBIT/Assets) of low advertising intensity IPO firms is on average 9.9% while the profitability of high advertising intensity IPO firms is on average −6.7%. More interestingly, we also find that the negative operating profits of many IPO firms in our sample is driven primarily by their advertising expenditures. For example, United Auto Group, prior to its IPO in October 1996, spent $10.71 million in advertising in 1995 and its EBIT in the year ended at −$3.70 million. Similarly, Adams Golf Inc., prior to its IPO in July 1998, spent $8.65 million in advertising in 1997 and its EBIT in the year ended at −$3.67 million. Recently, Constant Contact Inc., prior to its IPO in October 2007, spent $9.78 million in advertising in 2006 and its EBIT in the year ended at −$6.10 million. Teoh et al. (2002) suggest that IPO firms have a tendency to manage earnings upward prior to their IPOs. Considering this tendency, it is puzzling why many IPO firms still sacrifice their earnings by spending heavily in their advertising prior to their IPOs. However, there is very little research analyzing the effects of product market advertising around IPOs on the IPO market. The objective of this paper is to fill this gap in the literature.

The only paper in the existing literature analyzing the effects of product market advertising on IPOs is Chemmanur and Yan (2009). They analyze theoretically and empirically how product market advertising is related to a firm's going public decision and its IPO underpricing. In their asymmetric information model, a firm's product market advertising, IPO underpricing, and amount of financing raised (relative to the full investment level) are visible to both its customers in the product market and to equity market investors in the new issues (IPO) market. In this setting, they show that firm insiders with private information about their firm's future cash flows use product market advertising and IPO underpricing (and underfinancing) to jointly signal true firm value to outsiders. They then empirically analyze some of the implications of their theoretical model. In particular, they show that firms reach a peak amount of advertising in their IPO year relative to the years before and after their IPOs; further, the greater the amount of product market advertising undertaken by a firm in its IPO year, the smaller the magnitude of underpricing in the firm's IPO. However, Chemmanur and Yan (2009) do not study any of the long-run effects of product market advertising on IPOs, which is the primary focus of the current paper. In particular, in this paper we study how product market advertising around a firm's IPO is related to the short and long run valuations of its equity, its IPO offer price revision during the book-building period, its long-run post-IPO stock returns, and the composition of investors (retail versus institutional) in the firm's equity in the immediate aftermarket. Further, unlike Chemmanur and Yan (2009), here we rely on the implications of heterogeneous beliefs models (see, e.g., Morris, 1996) rather than on asymmetric information models to interpret our findings. This is because, in general, asymmetric information models with fully rational outsiders are unable to explain long-run post-IPO stock return underperformance or other long-run effects of product market advertising on the IPO aftermarket.

We first study the relationship between product market advertising and post-IPO long-run stock returns. Our measures for long-run stock returns consist of cumulative annual returns (Ritter, 1991), buy-and-hold long-run stock returns (see, e.g., Loughran and Ritter, 1995), and abnormal returns based on Fama and French's (1993) three-factor model and Carhart's (1997) four-factor model. The statistics of our long-run return measures are consistent with the IPO literature, showing that IPO stocks on average experience negative post-IPO stock returns in the long run. Based on these long-run return measures, we find that firms going public with a greater extent of product market advertising prior to their IPOs experience more negative long-run stock returns subsequent to their IPOs. For example, consider the IPO firms with advertising intensities (advertising/sales) above the sample median in the years prior to their IPO years and those with advertising intensities below the sample median. We find that a one-standard deviation increase in the pre-IPO advertising intensity would increase the post-IPO buy-and-hold return by 4.9% in the two-year window and 9.1% in the three-year window.

Next, we study the relationship between product market advertising and IPO valuations. We use the ratio of offer price to intrinsic value to measure the IPO valuation at the offer price and the ratio of first day secondary market closing price to intrinsic value to measure the IPO valuation in the aftermarket.[2] Using the above measures, we first establish that IPO firms are

[2] We measure an IPO stock's intrinsic value based on its matching firm's price/sales or price/EBITDA multiples. Matching firms are selected by industry, sales, and EBITDA margin. We discuss our intrinsic value measures in detail in Section 3.5.