Olympic Euphoria and Social Media: An Analysis of Firms Involved in the Olympics*

Patricia Dechow
patricia_dechow@haas.berkeley.edu
Haas School of Business
University of California at Berkeley
2220 Piedmont Avenue
Berkeley, CA 94720-1900

Alastair Lawrence
lawrence@haas.berkeley.edu
Haas School of Business
University of California at Berkeley
2220 Piedmont Avenue
Berkeley, CA 94720-1900

Mei Luo
luomei@sem.tsinghua.edu.cn
School of Economics and Management
Tsinghua University
Beijing 100084, China

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ABSTRACT: We investigate the equity valuation effects of social media websites during one of the world's largest events: the Olympics. Using listings of Olympic-firms posted on Chinese social media websites in the years leading up to the Olympics, we identify those firms that are publically labeled and discussed in chat-rooms as "Olympic theme stocks"—firms that are expected to be either directly or indirectly involved in the Olympics. We find a correspondingly large increase (between 30 and 80 percent) in the valuation of Olympic stocks relative to other Non-Olympic stocks in the years prior to the Olympics and a large reversal in valuation during the actual Olympic year. Our analysis of underlying fundamentals reveal that Olympic stocks do not generate excess cash flows or earnings sufficient to justify the price increases either pre or post the Olympics. Moreover, we find the greater over-valuation of Olympic firms does not appear to be explained by greater news coverage in traditional media outlets (newswires and press releases). Our results suggest that social media websites are likely to be one forum used by retail investors to identify stocks in which to invest. However, when retail investors are influential on prices, a consequence of this naïve investment strategy appears to be a greater potential for mispricing.

KEYWORDS: Olympics, Olympic euphoria, social media, valuation, fundamentals, overreaction, earnings announcements, China.

JEL CLASSIFICATION: G12, G14, and M41.

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1. Introduction

The Olympics are one of the most exciting media events in the world. The number of people watching the Olympics is estimated to be over 4.6 billion viewers from around the globe, representing approximately 70 percent of the world's population (Nelson 2008). Can the excitement and visibility of the Olympics impact the valuation of firms that potentially benefit from the Olympics? Such firms (hereafter, "Olympic stocks") include those in the airline, construction, hospitality, media, and service industries that either directly or indirectly contribute to the broader Olympic experience. While it is plausible that Olympic stocks will benefit from the Olympics through increases in financial performance, it is also likely that investors may *ex ante* overestimate such benefits.

Research has documented significant benefits to firm visibility. Merton's (1987) model of capital market equilibrium under incomplete information suggests that, holding fundamentals constant, firm value is increasing in the number of investors that are aware of the firm's existence. Lehavy and Sloan (2008) find empirical evidence consistent with Merton's theoretical predictions and highlight that investor recognition has a more pronounced effect on stock prices than do firm fundamentals. Furthermore, recent research suggests that increases in firm visibility are associated with improvements in analyst following, media coverage, and market value (e.g., Bushee and Miller 2012). While the Olympics likely offer benefits to Olympic stocks through increases in visibility and financial performance, it is reasonable to expect that, amidst all of the hype of the Olympics, investors may overestimate such benefits. A large body of research in finance suggests that investors overreact to consistent patterns of good or bad news.[1] The Olympics provides a

1 See Barberis, Shleifer, and Vishny (1998) for a review of the literature pertaining to the undereaction and overreaction in stock returns.

situation where the hosting country's population are fully cognizant of the event (because of its wide and popular appeal) and creates a situation where people are constantly being updated with news about progress being made to hold the event and make it a success.

Leading up to the Olympics, social media websites in China flagged and made lists of stocks that were expected to be either directly or indirectly involved in the Olympics. Clicking on a company name on the list allowed the viewer to visit the firm's standardized financial page and at the bottom of the page view chat-room postings. To add a posting, the viewer is not required to have an account, hence all viewers can readily read and add to the current chat-room opinions. Evidence suggests that the discussion in chat-rooms or bulletin boards about companies tends to be positive.[2] If inexperienced retail investors with little financial knowledge focused their investment decision on the information on the social media sites, then this raises the possibility that these investors could overestimate the financial benefits of the Olympics on such stocks.

Using data from Chinese firms surrounding the 2008 Beijing Olympics that took place from August 8 to August 24, 2008, we examine whether firms flagged on social media websites as expected to benefit from the Olympics are over-valued by investors. We identify 108 firms that are publically labeled and discussed in chat-rooms as "Olympic-related" or "Olympic theme stocks"—firms that are expected to be either directly or indirectly involved in the Olympics. We then investigate whether there are significant increases in valuations of Olympic stocks relative to Non-Olympic. We find that Olympic stocks outperform the rest of the Chinese stock market by between 30 to 80 percent during the years 2004 through to mid-2007. However, our analysis of underlying fundamentals reveal that Olympic stocks do not generate excess cash flows or earnings

2 For example, Tumarkin and Whitelaw (2001) investigate RagingBull.com's discussion forum where users can provide a numerical score of their opinion on the stock (positive, neutral, negative) along with their commentary. They find that the numerical scores are predominantly positive.

sufficient to justify the price increases either pre or post the Olympics. In particular, a comparison of Olympic to Non-Olympic stocks from 2006 to 2010 reveal that there are insignificant differences in earnings and cash from operations and that Olympic stock have significantly lower free cash flows. Moreover, we find no difference in the stock price response to earnings around quarterly earnings announcements for Olympic versus Non-Olympic stocks. These results suggest that the higher excess returns of Olympic stocks do not appear to be driven by investors responding to unusually positive earnings news.

Our next test examines whether standard media coverage (newswires and press releases) increased for Olympic stocks. Specifically, it is possible that the higher excess returns relate to information being disclosed either directly by the company or by journalist informed about the company's business. We find that Olympic firms have similar media coverage to Non-Olympic firms from 2004 through to 2006 but that Olympic firms have greater media coverage in 2007 and 2008 when the Olympic games occurred. We then investigate whether the greater media coverage explains the higher excess returns to Olympic firms. However, our results suggest that media coverage does not appear to explain the higher excess returns to Olympic firms in the pre-Olympic time period.

Our results also shed light on whether greater investor recognition could explain the difference in returns. If as Merton (1987) suggests, investors only purchase stocks for which they are aware, then Olympic stocks could increase in price because their greater recognition reduced their cost of capital or expected future returns. However, we find that the positive excess returns documented prior to mid-2007 completely reverse by the date of the Olympic Games. The reversal in returns is unlikely to be driven by investors no longer being "aware" of Olympic stock and

hence the cost of capital rising since: (i) the Olympics were still very much in the mind of the Chinese public up to the date of the Olympic games; (ii) traditional media coverage actually continues to rise for Olympic stock relative to Non-Olympic after mid-2007; and (iii) the lists of Olympic firms lists remained posted on Social Media websites during the entire time period.

An alternative explanation for the greater stock price reversals for Olympic stocks is that there was a market "correction." Specifically, the global financial crisis began in mid-2007.[3] At around that date, the Shanghai Composite Index (SSE) reached an all-time high.[4] As people began to question whether the growth in returns could continue, investors began to sell. Retail investor sentiment is likely to have changed from "very optimistic" to "worried" or "pessimistic." This in turn put downward price pressure on all stocks (not just Olympic stocks). As market valuations declined and became more in line with fundamental values, Olympic stocks that had been relatively more over-priced, exhibited greater market corrections.

Our results have the following key takeaways. First, they suggest that the mispricing effects of investor euphoria are likely to be enhanced when investors communicate with each other through social media, and so their unrealistic expectations are confirmed and supported by other investors. These findings add to other evidence highlighting the market consequences of social media (e.g., Antweiler and Frank 2004; Blankespoor, Miller, and White 2014). Second, it is likely that the trading in Chinese equity markets prior to the Olympics was mostly due to retail investors. Relative to institutional investors, retail investors appear more likely to rely on media outlets and less likely to rely on fundamental information sources such as analyst revisions and earnings

3 On June 22, 2007, Bear Stearns revealed that two of its subprime mortgage funds needed collateral and that it was pledging a collateralized loan of up to $3.2 billion to "bail out" one fund and negotiating with other banks to loan money for another fund (for more details see for example: http://www.vanityfair.com/politics/features/2008/08/bear_stearns200808). This revelation is generally viewed as the starting point for revisions in expectations about real-estate values and the value of mortgage-backed securities.

4 The Shanghai Composite Index reached an all-time high of 6,124.044 points on October 16, 2007.

releases (e.g., Kalay 2013). Thus, our findings concerning Social Media identified "theme" stocks are more likely to apply in developing equity markets or in corners of the equity markets primarily comprised of less sophisticated investors. Third, the results are relevant to recent research that debates the benefits of hosting mega-events. Studies highlight that the expected benefits to hosting countries are often overstated and the costs are understated (e.g., Owen 2005; Whitson and Horne 2006; Barclay 2009). While recent evidence (e.g., Rose and Spiegel 2011) suggests that increases in foreign trade appear to be one main benefit of the Olympics, the increases arise due to the signal that a country sends when bidding to host the games, rather than the act of holding the Olympics. Our findings are consistent with prior country-level analysis suggesting that local and country benefits of the Olympics appear limited. Specifically, not only do hosting countries tend to overstate the benefits of the Olympics but investors appear to overstate the benefits to firms involved in the Olympics.

The remainder of this paper is organized as follows. Section 2 describes the institutional structure of the Chinese stock market, Section 3 outlines our main predictions and related research, and Section 4 describes the data and sample. Section 5 reports the results of our main analyses and Section 6 provides implications and conclusions.

2. Institutional Structure of the Chinese Stock Market

The two main stock exchanges in China are the Shanghai Stock Exchange and the Shenzhen Stock Exchange. Securities listed on these two exchanges are either Class A or Class B-shares. Class A-shares are listed in Yuan (RMB) and Class B-shares are listed in U.S. dollars ($USD). As of 2012, the market capitalizations of listed domestic companies in these exchanges (not including investment companies, mutual funds, or other collective investment vehicles) was

$3.7 trillion USD, reflecting the second largest equity markets in the world behind the U.S equity market with a total market capitalization of $18.7 trillion (The World Bank 2013). Despite the fact that the Chinese equity markets are the second largest in the world, there are a few key features of these markets that are inherently different from those of the U.S. equity markets.

The most pervasive difference between Chinese and U.S. equity markets is the significant state ownership in China and the resulting split-share structure of tradable and non-tradable domestic Class A-shares. The split share structure is a result of China's share issue privatization (SIP), which commenced upon the founding of the Shanghai Stock Exchange and the Shenzhen Stock Exchange in 1990, where state-owned enterprises went public issuing tradable and non-tradable Class A-shares. The tradable shares went to minority private investors and the non-tradable (or restricted) Class A-shares where held by the Chinese government who retained control of the enterprise. In 2005, the Split-Share Structure Reform was implemented to gradually end the dual share structure by removing legal and technical obstacles of transferring government owned shares to private investors.[5] While 90 percent of the listed firms finished the reform by 2007, many of the sales to private investors included lock-up periods of one to two years following the sales. Thus, the number of tradable Class A-shares in China significantly increased from 2007 to 2010 following the expiration of such lock-up agreements.

Prior to the Split-Share Structure Reform in 2005, the majority of sales of state-owned enterprises were made to retail investors and not institutional investors. Hence, another major difference between Chinese and U.S. markets is that a large proportion of trades in China during the pre-Olympic years were likely to have been made by less sophisticated retail investors. In

5 For more information concerning the privatization of the Chinese equity markets or the Split-Share Structure Reform, see Li, Liu, and Wang (2013).

contrast, institutional investors hold approximately 67 percent of the market value of equity in the U.S. (e.g. Blume and Keim 2012). Therefore, the marginal investor in the U.S. is more likely to be an institutional investor. However, valuation inferences from the Chinese markets still have implications for a large subset of the U.S. markets where the effects of retail investors are more prevalent. For example, institutional investors tend to avoid stocks with market capitalizations less than 500 million. In the U.S. there are currently 4,779 stocks trading on the NASDAQ, NYSE, and AMEX and of these, 1,963 have market capitalizations of less than $500 Million. Thus 41.0 percent (1,963/4,779) of companies on the U.S. stock exchanges are likely to have low institutional holdings. Furthermore when OTC traded stocks are included in the calculation, this percentage rises from 41.0 percent to 64.4 percent (9,579/14,883) of firms. Thus even in the U.S., the marginal investor for a large percentage of stocks are likely to be retail investors.

Other differences to note between U.S. and Chinese markets include short selling restrictions, listing-requirements, and limits on price movements. Leading up to the Beijing Olympics, short selling was not permitted and rules introducing short-selling were specifically delayed until after the Olympics (e.g., China South Morning Post 2008). Only in 2010 did China start allowing short-selling and it is slowly increasing the number of stocks that can be shorted (e.g., Financial Times 2012). In addition, Chinese firms can be delisted when they report three years of consecutive accounting losses. Finally, in China, price movements are capped at 10 percent per day so large information events can take several days to be impounded into priced (e.g., He, Wong, and Young 2011). Such caps are not implemented in the U.S. equity markets.

3. Related Research and Prediction

A growing body of literature suggests that media provides a key role in identifying or rebroadcasting firm-specific financial information which in turn affects investor trading and stock prices (e.g., Antweiler and Zhang 2004; Barber and Odean 2008; Birz and Lott 2011; Engelberg and Parsons 2011; Li, Ramesh, and Shen 2011), reduces information asymmetry (e.g., Bushee, Core, Guay, and Hamm 2009), and sheds light on accounting frauds (e.g., Miller 2006; Dyck, Morse, and Zingales 2010). However, the growing literature on media attention has only more recently explored whether media attention contributes to mispricing. For example, using over-the-counter Nasdaq market maker data from 2003 to 2007, Tetlock (2011) finds evidence suggesting that short-term (i.e., weekly) return reversals are partly explained by individual investors overreacting to stale news.

All investors have a limited amount of attention to give to the vast amounts of available information (e.g., Hirshleifer and Teoh 2003) and hence, it is difficult and costly for investors to search among the thousands of companies that they can potentially buy (e.g., Bloomfield 2002; Barber and Odean 2008). As a result, investors only know about a subset of available securities. More sophisticated investors such as hedge funds and short-sellers are likely to increase their knowledge of firms by using financial reporting information to evaluate earnings quality and valuation-based trading strategies to identify mispriced firms (e.g., Dechow, Hutton, Meulbroek, and Sloan 2001; Curtis and Fargher 2008; Karpoff and Lou 2010, Hirshleifer, Teoh, and Yu 2011). In contrast, less sophisticated investors are likely to identify potential investment based on their familiarity with the company's products (e.g., Apple's iphone); specific causes they are interested in (e.g., solar energy); or firms with more media coverage and press dissemination (e.g., Kalay

2013). This suggests that less sophisticated investors are more likely than sophisticated investors to use traditional media and social media channels to identify potential new investments.

Given that investors can overreact to consistent patterns of news (e.g., Barberis et al. 1998; Li and Yu 2012) and that individual investors overreact to stale media articles (Tetlock 2011), it is likely that investors who focus their search efforts on news conveyed in media outlets will overestimate the benefits of information relayed by the media. Specifically, if less sophisticated investors focus their investment decision on the information posted and discussed on social media sites, then it is possible that such investors will overreact to the euphoria of the Olympics. This in turn could result in price increases that are not justified by the fundamentals.

There are several reasons to believe that such effects could occur in China surrounding the Beijing Olympics. First, prior research suggests that countries often overestimate the benefits and underestimate the costs of the Olympics, and that the overall financial benefits of the Olympics are limited (e.g., Owen 2005; Whitson and Horne 2006; Barclay 2009). Hence, since hosting countries overestimate the expected benefits of the Olympics, it is plausible and even likely that investors could similarly overestimate the effects of the Olympics for specific stocks. Second, in the years leading up to the Beijing Olympics, there was considerable hype, enthusiasm, and patriotic pride in China from being able to host the Olympics. It is likely that much of this Olympic euphoria was also reflected in Chinese social media websites that specifically flagged Olympic-stocks and allowed viewers to voice their opinions and express their excitement for such firms. The following excerpt from the Chinese media highlights the public awareness of how Chinese Olympic stocks were expected to benefit from the Olympics.

> When Beijing holds its Olympic Games, foreign visitors will fly "Air China" to Beijing, go to "Bank of China" to get cash, take the taxi run by "Beijing Bus", stay at hotels of "China World Trade Center", buy the Olympic toy produced by "HaiXin", eat Peking duck at "QuanJuDe", drink "YanJing Beer", watch TV cable programs from "Beijing Gehua CATV Network", go shopping at "WangFuJing", and return home with Chinese medicines from "Beijing TongRenTang".
>
> Source: Lawtime December 20, 2010.

Note that the press release makes no reference to whether this information is already impounded into Olympic theme firms' stock prices.

Third, two key institutional features of the Chinese markets also support an overreaction to the Olympic euphoria. First, as highlighted in Section 2, the majority of trades on the Chinese exchanges reflect those of individual investors who are the group of investors that are most likely to value stocks based on Olympic euphoria from social media websites rather than on fundamentals. Second, as short selling was not permitted in China prior to 2010, more sophisticated investors were not able to capitalize on Olympic stock return movements that were unjustified by fundamentals by shorting the stocks. Moreover, prior to the Olympics in China the main brokerage firms had "trading halls" in the larger cities. Trading halls provide computers for trading and computers for searching for company information. It is likely that trading halls also provided retail investors the opportunity to discuss and recommend stocks to one another and hence potentially reinforced Olympic euphoria.[6] Taken together, we predict that Chinese individual investors purchased Olympic stocks flagged by social media sites because of the excitement and hype about the Olympics rather than because information sources suggested that these stocks offered profitable investment opportunities. We make the following predictions:

6 Trading halls declined in popularity in China due to the bear market in 2008 and 2009 and the increasing number of Chinese with home-internet access, but still exist today.

P1: *Returns of Olympic stocks flagged by social media websites will outperform Non-Olympic stocks in the years prior to the Olympics.*

P2: *Fundamental performance of Olympic stocks flagged by social media websites will not justify the price increases.*

P3: *Returns of Olympic stocks flagged by social media websites will show stock return reversals in later time periods as investors realize that they over-extrapolated the benefits of the Olympics.*

4. Data and Sample

4.1. *Sample Selection*

We identify 108 Olympic-theme firms traded on the Shanghai and Shenzhen stock markets. We term shares trading on these two exchanges as "Chinese A-share" or "Class A-shares." We obtain the 108 firms by combining information from two major social media websites: Sina.com and jrj.com. Sina.com and jrj.com each provided a list of between 50 to 100 Olympic-theme stocks on their website from 2005 until 2010.[7] A firm is deemed Olympic-theme by the social media sites if it is:

(i) an *official sponsor* of the Olympics;
(ii) an *Olympic partner* (for example China Airlines was designated the airline partner and so could utilize the Olympic trademark etc. in its promotions);
(iii) a *contractor* for the Olympic Games.
(iv) a *designated suppliers* for the Olympics*;* or
(v) a *merchandise producers* for the Olympics.

Appendix A provides examples of Olympic firms included in the sample.

[Appendix A]

7 The website for sina.com is http://finance.sina.com.cn; the website for jrj.com is http://stock.jrj.com.cn/2008-05-10/000003629794.shtml.

We compare the Olympic firms to all other Class A-share firms listed on Shanghai and Shenzhen stock markets (1,547 Chinese A-share firms). We term these other firms “Non-Olympic” firms throughout the paper. To be included in the Non-Olympic sample, a firm is required to have monthly return data over any of the time periods that we examine (2001 through to 2008). Thus the composition of the Non-Olympic sample slightly changes over time with IPO activity and delistings.

3.2. Data Description and Variable Measurement

The CSMAR database provides information on the total A-shares outstanding, as well as the restricted A-shares (that cannot be traded) and unrestricted shares. We obtain information on the top 10 largest shareholders in each company. The top 10 largest shareholders typically include individual blockholders, state-owned shares, institutional investors, and blocks of shares owned by other companies.

Figure 1 provides a detailed breakdown of the composition of the ownership of shares outstanding for the Olympic stocks (Figure 1 Panel A) and Non-Olympic stocks (Figure 1 Panel B). As can be seen in both Figures the proportion of restricted stock has declined over time. Many of these restricted shares were owned by state entities and as highlighted in Section 3, under the Split-Share Structure Reform, state shares were converted from restricted to tradable. Thus, overtime state-owned shares are moving from the “restricted” to the “top 10 largest owner” category, since the states did not immediately sell these shares to retail investors. We have information on institutions that are among the top 10 largest owners and we can see that the proportion of institutions owning shares increases overtime. This could be either because of conversions of non-tradable shares to tradable or because institutions grew and became more

active in the Chinese stock market. The remaining tradable shares we classify as available for "retail investors" to trade. However, there are likely to be institutional holders included in this percentage since we do not know the extent of institutional holdings beyond those included in the top 10. Therefore, the category "retail investors" is likely to overstate the proportion of shares available for retail investors to trade.

[Figure 1]

Table 1 Panel A calculates the ratio of retail investors to tradable A-Shares. The results in Panel A indicate that the proportion of retail investors as a percent of tradable A-shares has declined from approximately 92 percent in 2003 to approximately 55 percent in 2010. Thus Figure 1 and Table 1 Panel A highlight that between 2005 and 2008 retail investors appear to have a potentially strong influence on prices since they make up a large proportion of the float.

Table 1 Panel B provides the industry composition of Olympic versus Non-Olympic stocks. The Table reveals that Olympic stocks are under-represented in chemicals and manufacturing. This is not particularly surprising given China's emphasis on manufacturing. Olympic stocks are over-represented in real-estate, tourism, and entertainment. Again, this is to be expected given the construction contracts and development required for the Olympics.

Table 1 Panel C provides firm-specific descriptive statistics on Olympic versus Non-Olympic firms over the years that we examine. Olympic firms are on average larger in size than Non-Olympic firms. This reflects the fact that contracts for the major construction programs required for the Olympics games were provided to relatively large firms. In addition, the Olympic firms are in industries with relatively more tangible assets and relatively less intangible assets. Note that since we pool observations across all years, the higher market values for Olympic stocks

reflect the greater stock price appreciation for Olympic firms discussed in the next section. Note also that Panel B reveals that Olympic firms are over-represented in real-estate. Part of the hype in the pre-Olympics years was that real estate prices would soar as land was purchased for construction projects and so this again would result in relative higher market values for Olympic firms. Panel C also indicates that return on assets (ROA) is 0.027 for Olympic versus 0.021 for Non-Olympic suggesting that Olympic firms are performing more strongly than the Non-Olympic firms. The mean Book-to-Market is similar for Olympic versus Non-Olympic firms (0.629 versus 0.691). The mean Earnings-to-Price is higher for Olympic firms (0.027 versus 0.018).

[Table 1]

5. Results

5.1. Returns Leading up to the Olympics

We obtain daily and monthly raw stock returns and financial statement data from WIND and CSMAR databases. Cumulative raw returns are computed as the firm's monthly returns compounded over the period of interest. In the case of IPO firms, CSMR does not provide monthly returns for the month of the IPO and so return accumulation begins in the first month following the IPO.

Figure 2A provides the cumulative raw returns for Olympic versus Non-Olympic stocks from January 2001 through December 2008. We do not adjust for the market return since we are interested in determining the actual returns earned by Olympic stock and since our Non-Olympic firms include all other firms listed on the Shanghai and Shenzhen stock markets—they essentially represent the market return. Figure 2A indicates that the return to the Chinese stock market was

approximately 200 percent between 2001 and 2007. The Olympic Games were held in August of 2008 and the market had been declining rapidly due to the global financial crisis. Figure 2B provides the difference in cumulative raw returns for the two groups. Figure 2B reveals that Olympic stock out performed Non-Olympic stock by approximately 30 percent between 2001 and August 2007. However, Figure 2 tends to understate the difference in returns since the Chinese market earned negative returns in earlier years. For example the cumulative return difference increases to over 80 percent when we cumulate returns from the end of 2004 through to mid-2007. Thus investors are relatively more optimistic about Olympic stocks when the Olympic games are several years away in the future.

[Figure 2]

Table 2 Panel A provides the specific differences in semi-annual returns between Olympic and Non-Olympic stocks from 2001 to 2008. Note that the Chinese stock market earned negative returns form July 2001 through to mid-2005. The table highlights that the returns of Olympic stocks outperformed those of Non-Olympic stocks from 2004 to 2006. Specifically, the returns of Olympic stocks outpaced those of Non-Olympic stocks by: 3 percent; 4 percent; 1 percent, 3 percent, and 17 percent from the first half of 2004 through to the last half of 2006. Three of the five differences are significant at conventional levels. Interestingly, although Olympic firms earned returns of 107 percent in the first half of 2007, Non-Olympic firms earned 114 percent so as a result, Non-Olympic stocks outperform Olympic stocks by 7 percent ($p > 0.10$). From 2007 through to the end of 2008, Olympic firms under-perform relative to Non-Olympic firms. This suggests that as the date of the Olympic games became closer in time, it was easier to determine which companies would benefit from the Olympics and more difficult for investors to remain

"euphoric" about the growth opportunities and cash generation that Olympic firms could earn. As a consequence by the date of the Olympic games, all excess returns to Olympic firms had been lost (see Figure 2 Panel B).

The descriptive statistics in Table 1 indicates that Olympic firms are larger in size than Non-Olympic firms. In Panel B of Table 2 we investigate whether the significant difference in returns that we document from mid-2004 through to the end of 2006 are driven by Olympic firms being larger in size. In Panel B we rank all observations into five quintiles and then report the cumulative returns for Olympic and Non-Olympic firms for each size quintile. Interestingly, returns are higher for the largest quintile (in the U.S. larger firms tend to earn lower returns than small firms). In addition, there are proportionally more Olympic firms in the largest size quintile. However, across all five quintiles, Olympic firms earn higher returns than Non-Olympic firms. Therefore, Olympic stocks do not appear to earn higher returns than Non-Olympic firms purely because they are larger in size.

[Table 2]

5.2. Fundamentals of Olympic Stocks

The financial statement variables we report include (i) return on assets (ROA), calculated as earnings (CSMAR code B002000101) scaled by average assets (A001000000); (ii) cash from operations (CFO) (CSMAR code C001000000) scaled by average assets; and (iii) free cash flows (FCF) equal to cash from operations plus cash from investing (CSMAR code C002000000) scaled by average assets. We scale by ending assets for IPO firms with missing beginning of year assets.

Figure 3 plots the difference in fundamentals between Olympic and Non-Olympic stocks from 2001 to 2010. If the Olympics had significant financial benefits to Olympic stocks then we

would expect to see significant increases in the financial performance of Olympic stocks relative to Non-Olympic stocks in the years leading up to or following the Olympics. Figure 3A provides the annual differences in ROA, and highlights that the ROA of Olympic stocks was slightly higher than that of Non-Olympic stocks from 2001 to 2006, ranging from approximately 2 to 4 percent. However, from 2007 to 2010 the ROA of Olympic stocks was actually slightly lower than that of Non-Olympic stocks, ranging from approximately 3 to 4 percent.

[Figure 3]

Table 3 tabulates the differences in fundamentals between Olympic and Non-Olympic stocks from 2001 to 2010. We specifically focus on ROA differences between Olympic and Non-Olympic firms from 2006 to 2010, the years where the effects of the Olympics, if any, should be most evident. The second column of Table 3 provides the annual differences in ROA and reinforces Figure 3's findings that there are only slight differences in ROA between Olympic and Non-Olympic firms. While the ROA of Olympic firms is significantly higher than that of non-Olympic firms by 1.1 percent in 2006, it is lower than that of Non-Olympic firms from 2007 to 2010. Specifically, the ROA of Olympic firms is less than that of Non-Olympic firms by -1.1 percent ($p < 0.05$) in 2007, -0.4 percent ($p > 0.10$) in 2008, -0.5 percent ($p > 0.10$) in 2009, and -1.1 percent ($p < 0.05$) in 2010. Together, Figure 3A and Table 3 suggest that the Olympics appeared to have little to no effect on the ROA of Olympic firms relative to non-Olympic stocks. In addition, the ROA of Olympic stocks actually decreased relative to Non-Olympic stocks in the years after the Olympics, suggesting there were little long-term benefits.

[Table 3]

Figure 3B presents the annual differences in CFO, and highlight that as per the ROA

analysis there are only small differences in the CFO of Olympic stocks and Non-Olympic stocks between 2001 and 2010. Specifically the CFO of Olympic stocks was slightly higher than that of Non-Olympic stocks from 2001 to 2004, ranging from approximately 4 to 6 percent. However, from 2006 to 2008 the CFO of Olympic stocks was lower than that of Non-Olympic stocks, ranging from approximately 3 to 4 percent. Unlike the ROA results, the CFO of Olympic stocks exceeds that of Non-Olympic stocks in 2009 by approximately 1.5 percent; however, in 2010 it is roughly equivalent to that of Non-Olympic stocks in 2010 with a mean of approximately 4.0 percent. Table 3 confirms that there is little evidence suggesting that the CFO of Olympic stocks is higher than that of Non-Olympic stocks. Specifically, it shows that the positive difference between the CFO of Olympic and Non-Olympic firms in 2009 is 1.6 percent and is significant at the ten-percent level. However, all other differences in CFO between Olympic and Non-Olympic firms from 2005 to 2010 are either insignificant or negative and significant.

Figure 3C and the fourth column of Table 3 provide very similar inferences as those in Figure 3B using free cash flows (FCF) instead of CFO. Figure 3D presents the total cumulative free cash flows (CFCF) for Olympic and Non-Olympic stocks from 2001 to 2010. The figure highlights the CFCF are very similar and negative for Olympic and Non-Olympic stocks from 2001 to 2005. However, the negative gap between CFCF for the Olympic stocks widens from 2005 through 2008, suggesting that Olympic stocks were investing heavily relative to Non-Olympic firms (likely because of construction products and other investments for the Olympics games). The difference in CFCF peaks in 2008 and is -7.9 percent and significantly lower for Olympic stocks. After 2008, the gap is smaller and is no longer significantly different. Thus at least in the two years following the Olympic games (2009 and 2010), Olympic stocks still have not generated positive cumulative cash flows. Thus as of 2010 Olympic firms do not appear to generate free cash flows

sufficient to cover their earlier investments.

Even though Olympic firms do not appear to have unusual earnings or cash flows, it is possible that investors were positively surprised by their earnings performance and are responding to the release of this information. Our next test examines the five-day (t-2 to t+2) stock price response to earnings announcement to determine how much of the stock price run up in 2005 through to August 2007 is explained by earnings news. Table 4 presents the quarterly earnings price responses from 2004 to 2008. The bottom of the table reports the average difference in the five-day price response between Olympic and Non-Olympic stocks over this period. This difference is 0.3 percent and is insignificant ($p > 0.20$). Moreover, there is only one earnings announcement (Q2 of 2006) where the stock price response to earnings for Olympic stocks is significantly greater (*Diff* = 0.9 percent; $p < 0.05$) than that of Non-Olympic stocks.

Panel B of Table 4 reports the following regression:

$$CR = a + b_1 Olympic + b_2 Change\ in\ Earnings + b_3 Olympic\ x\ Change\ Earnings + b_4 Assets + e$$

Where *CR* is the five day earnings announcement return; *Olympic* is an indicator variable equal to 1 if the firm is an Olympic stock, zero other wise; *Change in Earnings* is the year-over-year quarterly change in earnings; and *Assets* is the log of total Assets. We run this regression each quarter and report the mean coefficient across the 20 quarters and the Fama-MacBeth t-statistics. The results of this regression are reported in Column (3) and indicate that the coefficient on *Change in Earnings* is positive and significant, indicating that the market responds to earnings news. However, the coefficient on *Olympic x Change Earnings* is not significant. Thus investors do not respond differentially to the earnings of Olympic stocks.

[Table 4]

In summary, the results in Table 3 and Figure 3 of underlying fundamentals reveal that Olympic stocks do not generate excess earnings or cash flows sufficient to justify the price increases either pre or post the Olympics. Further the results in Table 4 indicate that investors are not responding differentially to Olympic stocks because they have unusually positive earnings news.

5.3. Media Coverage

We next investigate whether greater traditional media coverage explains the higher returns to Olympic stocks in the pre-Olympic years. We collect data on media coverage from FACTSET. FACTSET reports a daily "media count" variable for each firm and we cumulate the daily media count numbers to create a monthly media count variable. The media count numbers include both company issued press releases (often written in Chinese) and traditional media coverage (newswires, etc.). One Olympic firm and 32 Non-Olympic firms are not covered by FACTSET and so are excluded from our media tests. Media count data is available for Chinese firms for the period 2002-2010. The number of news sources covered by FACTSET has steadily increased over time, with fewer media outlets covered in the 2002 through 2005 period.[8]

If the traditional media sources contributed to the Olympic euphoria supporting the over-valuation of Olympic stocks in 2006 and 2007, then we would expect to see significant increases in the traditional media attention of Olympic stocks relative to Non-Olympic stocks in the years corresponding to the excess returns. Figure 4 shows the difference in traditional media attention of Olympic and Non-Olympic stocks from 2002 through to the end of 2008. Positive

8 FACTSET provides access to the underlying articles for more recent years (2010-2013). Prior to 2010 the coverage of the underlying articles is more limited and the information reported is often in Chinese. As a consequence it is difficult for us to do a comprehensive analysis of tone or sentiment of the media coverage during years leading up to the Olympics. We also contacted data-providers of sentiment measures but they had limited sentiment coverage for Chinese A-shares.

values indicate that the media coverage of Olympic stocks is greater than that of Non-Olympic stocks. Figure 4 highlights that there are only small differences in the monthly media coverage of Olympic and Non-Olympic stocks from 2002 to 2006. However, in 2007 and especially in 2008 media coverage of Olympic stocks significantly increases relative to Non-Olympic stocks.

[Figure 4]

In Table 5 we cumulate the monthly media count for each firm to create an annual measure of media count per firm. Table 5 reports the average media coverage each year and the difference (Diff) in media coverage between Olympic and Non-Olympic stocks from 2004 through 2009. We find insignificant differences ($p > 0.15$) in the annual media coverage between Olympic and Non-Olympic stocks from 2004 to 2006 but significant differences in 2007 and 2008. Specifically, the differences in annual media count between Olympic and Non-Olympic firms are 4.3 ($p < 0.10$) in 2007 and 8.1 ($p < 0.05$) in 2008. However, there is no evidence of significant increases in media coverage during the years in which the stock returns for Olympic stocks were high compared to Non-Olympic stocks (2004 through 2006). These findings suggest that increases in traditional media coverage played an important role in the large stock prices increases documented in Figure 2.

Panel B of Table 5 provides a further examination of this issue. Specifically, Table 1 Panel C indicates that Olympic firms are larger in size than Non-Olympic firms and media coverage is likely to be a function of firm size. In Panel B we run the following regression:

$$CRM = a + d_1 Olympic + d_2 Media\ Count + d_3 Olympic\ x\ Media\ Count + d_4 R\_Assets + e$$

where *CRM* is the monthly return and *Media Count* is media count for the corresponding month and *R_Assets* is the quintile rank of assets scaled between 0 and 1 (our results are similar when we

use the log of assets). Note that in Table 2 Panel B we examine the differences in cumulative returns from July 2004 through December 2006. For consistency, in Panel B of Table 5 we use the same time period and investigate the impact of *Media Count*. We run the regressions each month and report the average coefficient and the Fama-MacBeth t-statistic. Regression (1) indicates that *Olympic* is significantly related to monthly returns. Regression (2) indicates that *Olympic* remains significant after including *Media Count* and the interaction effect. Regression (3) includes *R_Assets* and results are similar to Regression (2). Interestingly we find that the coefficient on the interaction effect (d_3) is negative and significant. This suggests that over the time period examined Olympic firms with greater media coverage earned lower monthly returns. Thus the results in Table 5 suggest that greater traditional media coverage does not appear to explain the higher returns to Olympic stocks relative to Non-Olympic stocks.

[Table 5]

6. Conclusion

We investigate the valuation of Chinese listed firms surrounding the 2008 Beijing Olympics. Watching the Olympics is popular throughout the world and is particularly exciting for the population of the hosting country. We examine whether Olympic euphoria impacted the valuation of stocks reputedly involved in the Olympics. Our research focuses on firms identified by social media websites as benefiting either directly or indirectly from the Olympics. These social media websites do not attempt to quantify the financial benefits to individual Olympic theme firms. Instead, the discussion of the "benefits" appears in "chat-rooms." Chat-rooms provide a forum for website viewers to read other people's comments and to write their own comments. We

contend that the information disclosed in chat-rooms is more likely to be based on rumors and gossip than a deep analysis of fundamentals.

We argue that Chinese retail investors are likely to be less financially sophisticated and so more susceptible to relying on “non-financial information” such as that disclosed in chat-rooms on social media websites. We provide evidence that Olympic theme stocked listed on social media websites have large stock prices increases relative to Non-Olympic firms of over 30 percent up to mid-2007. We show that these price increases do not appear to be related to underlying fundamentals or news revealed at earnings announcement regarding fundamental performance. We find that although Olympic stocks outperform the rest of the Chinese stock market up to the beginning of 2007, by the time of the Olympic games in 2008 almost all these excess returns reverse. This is consistent with retail investors purchasing Olympic stocks flagged by social media sites because of the euphoria surrounding the Olympics rather than because information sources suggested that these stocks were priced below fundamental value.

Our results suggest that retail investors appear to purchase Olympic stock without considering whether the anticipated growth opportunities are already reflected in the price. We contend that this phenomenon is likely to be enhanced when retail investors communicate with each other through social media and other outlets and so have confirming positive information. In addition, when retail investors are the predominant traders in a stock (the marginal investor), then even in established equity markets, it can be difficult for sophisticated investors to take advantage of any mispricing. For example, a current situation that parallels China’s Olympic response appears to be evolving in Japan.

> Hedge funds have begun shorting some Japan stocks that have had huge gains in the lead up to and aftermath of Tokyo's winning bid for the 2020

> Olympic Games…"**It's all retail money chasing these stocks higher**. The smarter guys are actually looking to short these but they are going to have to time the top… At the moment you don't want to step in front of a freight train but once things settle down people are going to short this stuff," he said, adding that foreign investors in general had not reacted to the Olympics euphoria. (bolding added).
>
> Source: Reuters, Sept 9, 2013.

The case of Japan highlights the inherent uncertainty of when the euphoria will end. This uncertainty creates risk and makes it difficult for sophisticated investors to trade against euphoric momentum. Similar euphoria can also potentially occur at the industry level, and firm level, when investors overestimate the anticipated market expansion and growth.[9]

Our results contribute to research that points out that countries hosting mega-events tend to over-estimate the benefits and under-estimate the costs. We find that this "irrationality" also appears to extend to firms that are viewed as likely to benefit from the mega-event. Specifically, investors in China appeared to over-estimate and over-extrapolate the benefits to firms from their involvement in the Olympics.

We suggest that the over-estimation is likely to be more severe in a less developed equity market such as China since sophisticated investors have less opportunity to profit from this misconception. It would be interesting for future research to identify other mega-events and determine whether our findings hold in new situations. For example, do Olympic firms in Brazil exhibit similar differences in returns or are other market forces at work that keep prices more in line with fundamentals? Did British Olympic theme stocks also show price increases or was the sentiment concerning the benefits of the Olympics less optimistic than in China? Answering such

9 Recent industry examples include solar-energy, technology, and recent firm examples include social-media companies such as Facebook Inc., Pandora Media Inc., Sina Corp., Splunk Inc., Solar City Corp., Twitter Inc., and Workday Inc. As of December 2013 these firms had price-to-sale ratios ranging between 8 and 60 compared the S&P 500 price-to-sales ratio of 1.56.

questions and determining the differential impact of social media and sophisticated investors would help us better understand market efficiency and drivers of valuation.

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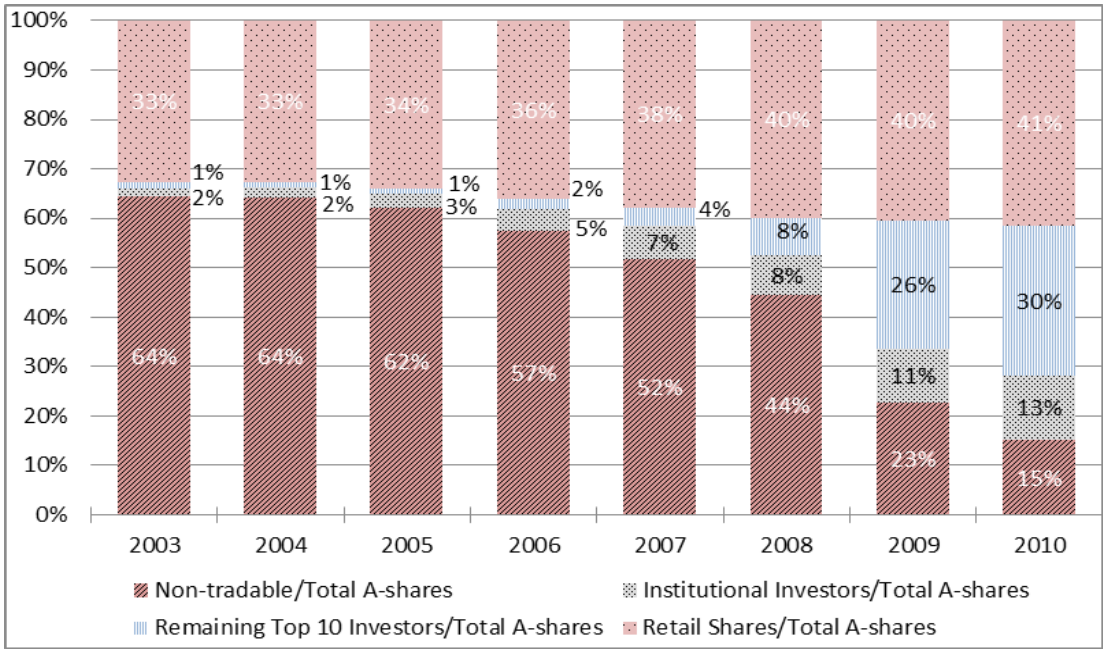
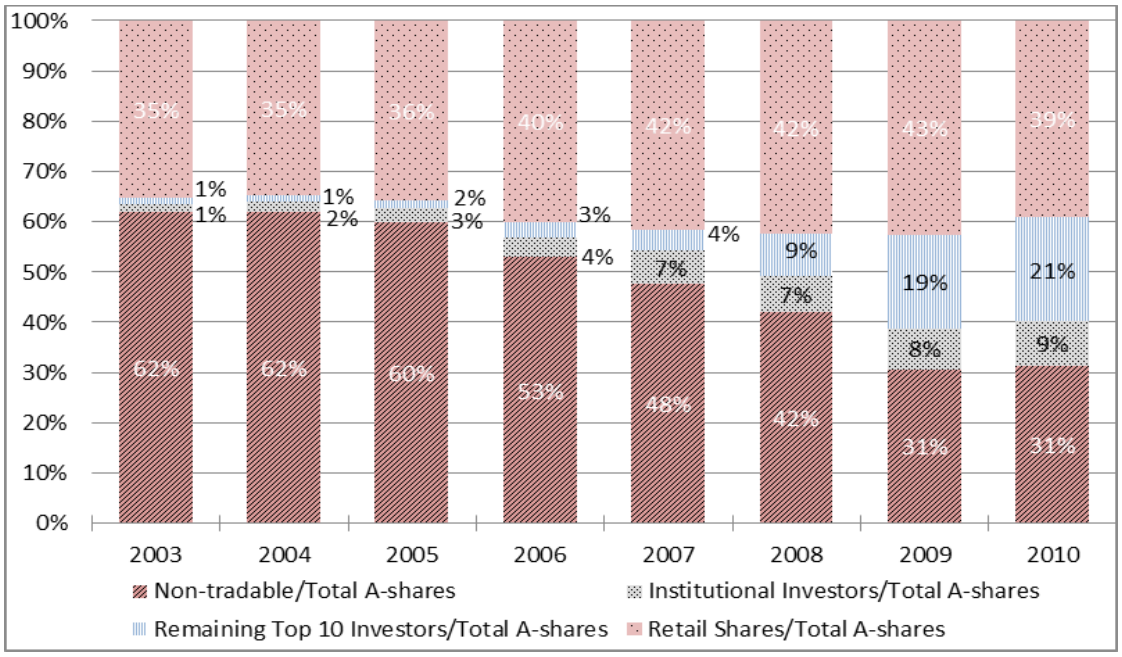
FIGURE 1

Investor Composition of Class-A Shares

Panel A: Investor Composition of Class-A Shares for Olympic Firms



Panel B: Investor Composition of Class-A Shares for Non-Olympic Firms

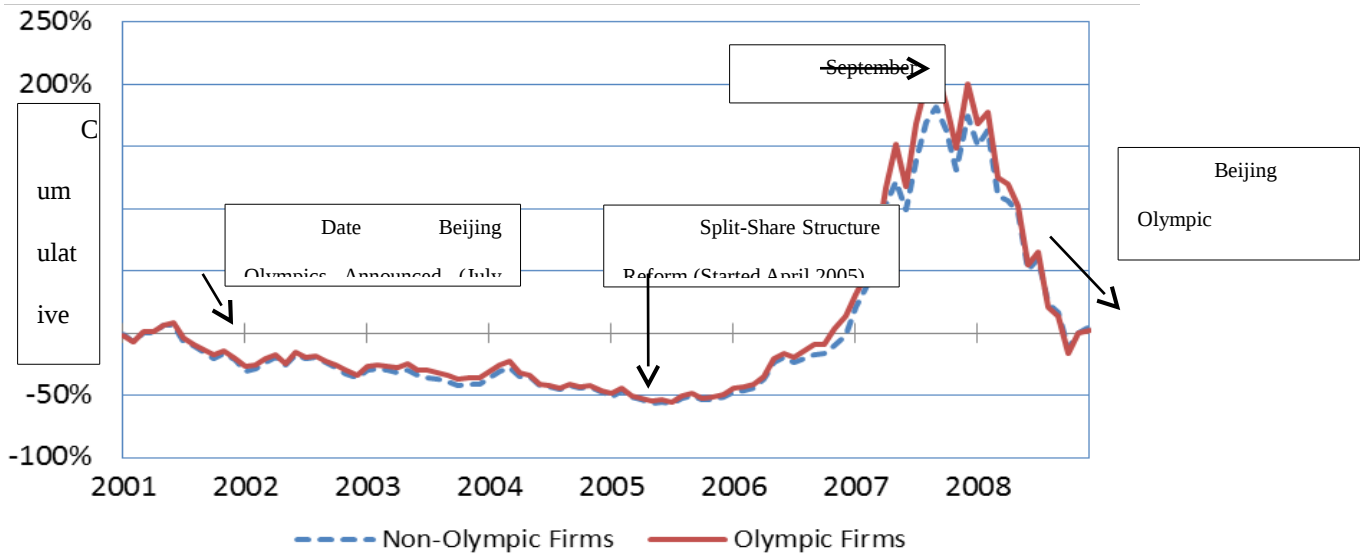


This figure presents the investor composition of Class-A Shares for Olympic and Non-Olympic stocks. Non-tradable Class-A shares reflect the portion of Class-A shares that the Chinese government retained in order to maintain control of the enterprise after it went public. Institutional investor ownership is calculated as the percentage of tradable Class-A shares held by institutions among the top 10 largest investors. Remaining top 10 investors is calculated as the percentage of tradable Class-A shares held by the top 10 larges investors that are not institutions. We classify the remaining tradable shares as retail shares. While we can identify institutional holders included in the top 10 holders, we do not know the extent of institutional holdings beyond those included in the top 10; therefore, our categorization of “retail investors” is likely to overstate the proportion of tradable shares owned by retail investors. The proportion of restricted stock has declined from 2003 to 2010 as many of the restricted shares owned by state entities were converted from restricted to tradable shares under the Split-Share Structure Reform, and so we observe an increase percentage of shares owned by the top 10 largest owners of tradable shares and a decrease in retail investor tradable shares as a percentage of total tradable shares.

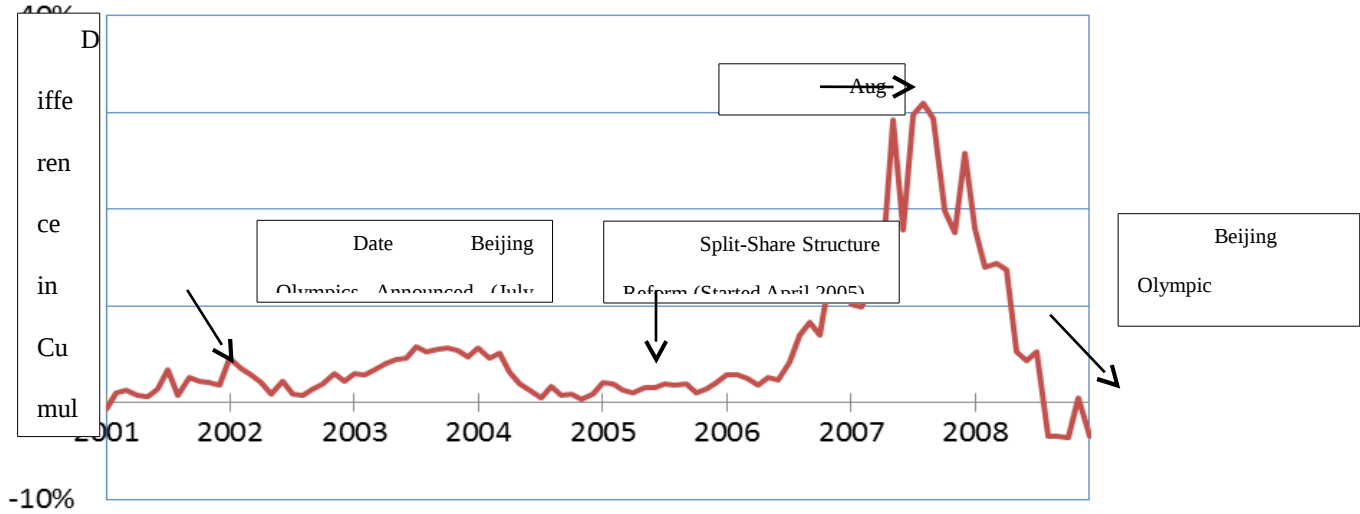
FIGURE 2

Cumulative Returns of Olympic and Non-Olympic Stocks

Panel A: Cumulative Returns of Olympic and Non-Olympic Stocks from 2001 to 2008



Panel B: Differences in Cumulative Returns of Olympic and Non-Olympic Stocks from 2001 to 2008



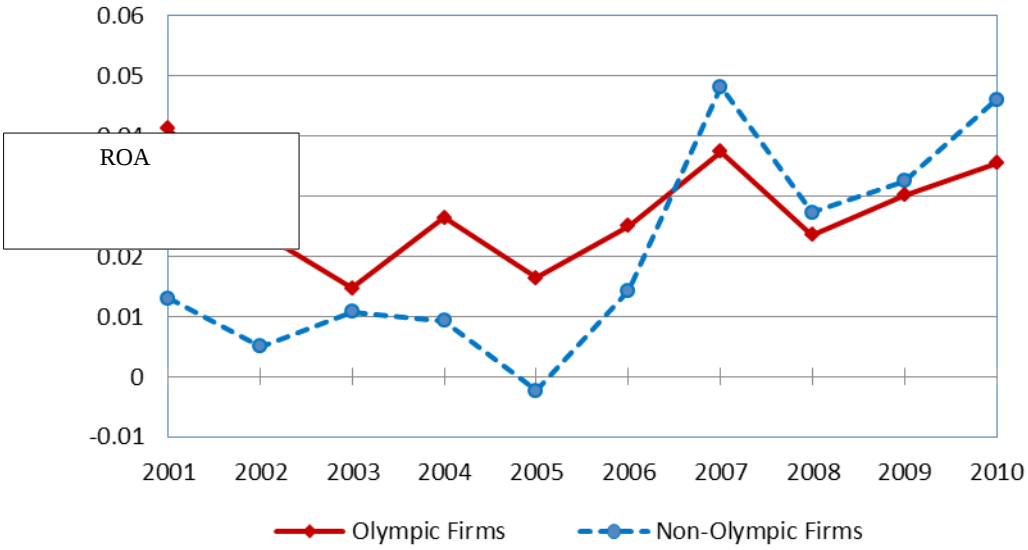
This figure presents cumulative returns for Olympic and Non-Olympic stocks from the announcement to the completion of the Beijing Olympic Games. Panel A presents the cumulative monthly raw returns for both Olympic and Non-Olympic stocks from 2001 to 2008. Panel B presents the difference in cumulative monthly raw returns between Olympic and Non-Olympic stocks. Returns are computed as the monthly compounded raw return starting in January 2001 or from the month after the IPO, and ending at the respective period month-end. Returns of Olympic stocks outperformed those of Non-Olympic stocks from 2001until mid-2007, peaking at approximately 30 percent as of

August 2007, only to quickly reverse during late 2007 and 2008. The sample consists of 108 Olympic stocks and 1,547 Non-Olympic stocks.

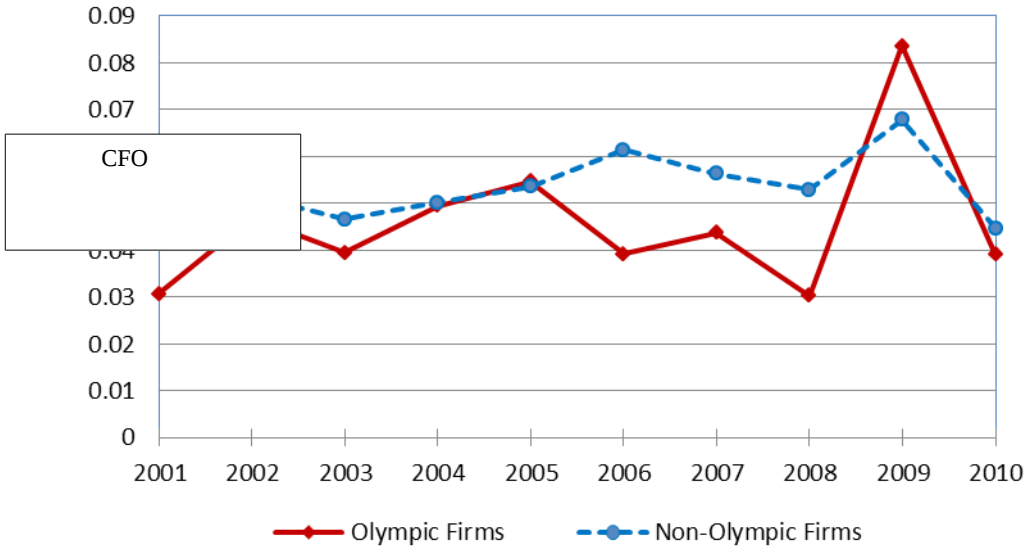
FIGURE 3

Differences in Fundamentals between Olympic and Non-Olympic Stocks

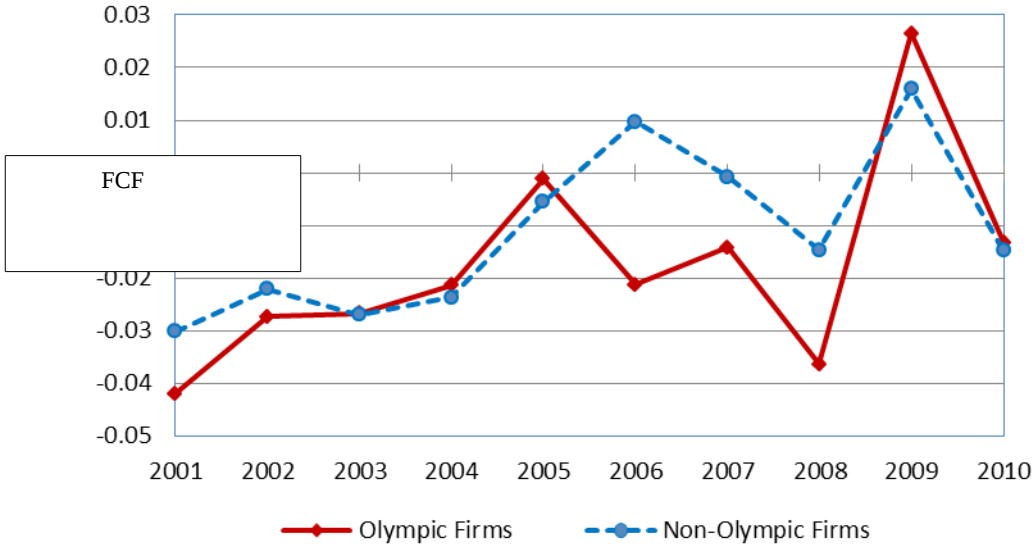
Panel A: Differences in Return on Assets (ROA) between Olympic and Non-Olympic Stocks



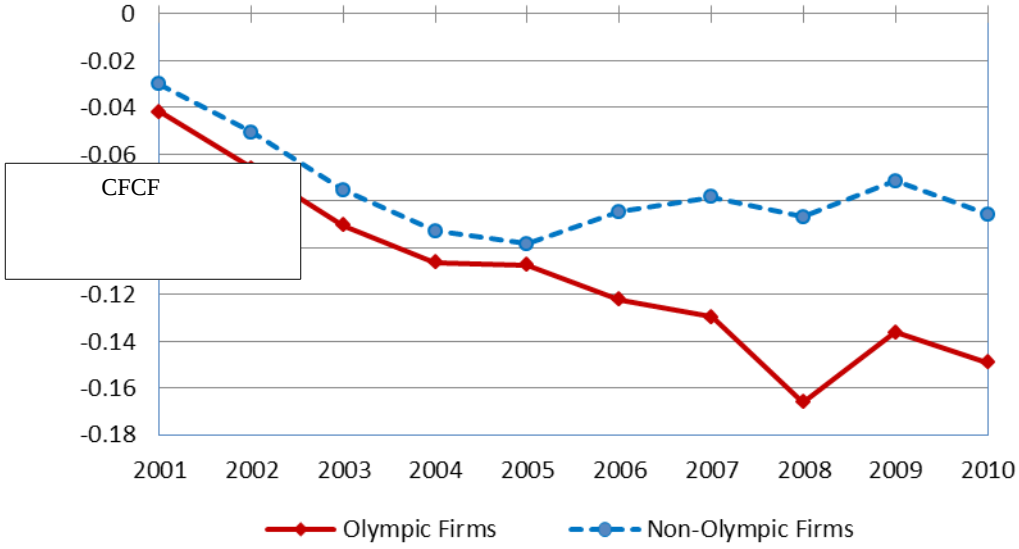
Panel B: Differences in Cash Flow from Operations (CFO) between Olympic and Non-Olympic Stocks



Panel C: Differences in Free Cash Flow (FCF) between Olympic and Non-Olympic Stocks



Panel D: Differences in Cumulative Free Cash Flow (CFCF) between Olympic and Non-Olympic Stocks

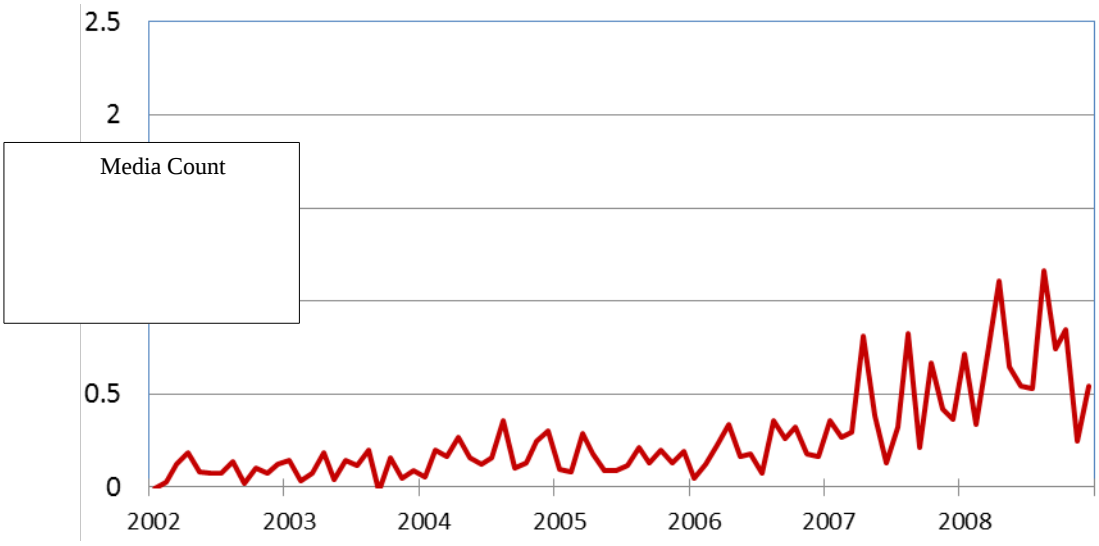


This figure presents yearly differences in fundamentals between Olympic and Non-Olympic stocks from 2001 to 2010. Panel A presents differences in Return on Assets (ROA) between Olympic and Non-Olympic Stocks. Panel B presents the differences in Cash Flow from Operations (CFO) between Olympic and Non-Olympic Stocks. Panel C presents the differences in Free Cash Flow (FCF) between Olympic and Non-Olympic Stocks. Panel D presents the differences in Cumulative Free Cash Flow (CFCF) between Olympic and Non-Olympic Stocks. ROA is computed as annual net

income scaled by average assets. CFO is computed as cash flows from operations scaled by average assets. FCF is computed as the sum of cash flow from operations and cash flow from investing, scaled by average assets. CFCF is computed as cumulative annual FCF starting from fiscal year 2001 or the IPO year, whichever is later, and ending in the respective year-end. Differences in ROA, CFO, FCF, and CFCF do not appear sufficient to justify the price increases of Olympic stocks relative to Non-Olympic stocks from 2005 through to 2007. The sample consists of 108 Olympic stocks and 1,547 Non-Olympic stocks.

FIGURE 4

Differences in Traditional Media Coverage between Olympic and Non-Olympic Stocks



This figure presents the difference in monthly media articles for Olympic and Non-Olympic stocks from 2002 to 2008. Media count is computed as the number of media articles in FACTSET for the fiscal-year. FACTSET's media count variable is only available beginning in 2002. The media count numbers include both company issued press releases (often written in Chinese) and traditional media coverage (newswires, etc.). There are insignificant differences in the annual media coverage between Olympic and Non-Olympic stocks from 2002 to 2006 but significant differences in 2008. The lack of evidence of significant increases in media coverage during the run in Olympic stocks relative to Non-Olympic stocks from July 2004 to December 2006, suggest that the traditional media coverage did not contribute to the excess returns of Olympic stocks during this time period. The sample consists of 107 Olympic stocks and 1,521 Non-Olympic stocks.

TABLE 1

Descriptive Statistics

Panel A: Percentage of Tradable Class-A Shares Owned by Retail Investors

	2003	2004	2005	2006	2007	2008	2009	2010
Olympic	92%	91%	90%	85%	78%	72%	52%	49%
Non-Olympic	92%	91%	90%	85%	79%	73%	61%	57%

Panel B: Industry Distribution of Olympic and Non-Olympic Stocks

Industry Code	Industry Name	% Olympic Stocks	% Non-Olympic Stocks	Diff.
J	Real Estate	13.0	4.7	8.3
K	Hotels, Tourism	8.3	2.5	5.8
C0	Food and Beverages	6.5	3.5	3.0
L	Media, Movie, Broadcasting	3.7	0.9	2.8
C6	Non-Metallic Manufacturing	11.1	8.5	2.6
E	Construction	4.6	2.0	2.6
H	Retail	7.4	5.3	2.1
C9	Other Manufacturing	1.9	1.0	0.8
A	Agriculture	2.8	2.2	0.6
G	Telecommunication, Computers	8.3	7.9	0.5
C1	Clothing	3.7	3.5	0.2
I	Finance	1.9	1.7	0.1
F	Transportation	3.7	3.7	0.0
B	Oil, Gas, Mines	1.9	2.3	-0.5
C2	Furniture	0.0	0.5	-0.5
D	Utilities	2.8	3.3	-0.5
C3	Paper, Sporting Goods	0.9	2.0	-1.1
M	General Industry	1.9	3.9	-2.0
C5	Electronic Equipment	1.9	5.6	-3.7
C8	Pharmaceutical	0.9	6.5	-5.6
C7	Machinery Manufacturing	11.1	17.0	-5.9
C4	Chemicals	1.9	11.6	-9.8

Panel C: Characteristics of Olympic and Non-Olympic Stocks

	Olympic Stocks (Unique Firms = 108)				Non-Olympic Stocks (Unique Firms = 1,547)			
	Mean	Median	Q1	Q3	Mean	Median	Q1	Q3
Total Assets (MM RMB)	62,680	2,993	1,385	6,266	16,348	1,617	869	3,439
Market Cap. (MM RMB)	14,727	1,874	1,032	4,000	3,573	1,222	706	2,299
Return on Assets (ROA)	0.027	0.032	0.014	0.052	0.021	0.029	0.008	0.056
Book-to-Market	0.629	0.618	0.449	0.782	0.621	0.592	0.401	0.759
Earnings-to-Price	0.027	0.039	0.018	0.061	0.018	0.032	0.010	0.057

This table presents the descriptive statistics of Olympic and Non-Olympic stocks. Panel A presents the portion of Class-A shares that are owned by retail investors reported separately for Olympic and Non-Olympic firms. The proportion of retail investor ownership significantly declines from 92 percent in 2003 to approximately 55 percent in 2010 due to the implementation of the Split-Share Structure Reform in 2005. Retail ownership is similar across Olympic and Non-Olympic stocks from 2003 to 2008; however, the percentage of retail ownership for Olympic stocks decreases relative to Non-Olympic stocks in 2009 and 2010. While we can identify institutional holders included in the top 10 holders, we do not know the extent of institutional holdings beyond those included in the top 10; therefore, our categorization of "retail investors" is likely to overstate the proportion of tradable shares owned by retail investors. Panel B illustrates the distribution of Olympic and Non-Olympic stocks for each CSRC industry grouping. We use the two-digit industry codes to classify the manufacturing industry and the single-digit codes to classify the rest of the industries. % Olympic Stocks is the percentage of Olympic stocks that are in each particular industry. % Non-Olympic Stocks is the percentage of Non-Olympic stocks that are in each particular industry. The difference in industry composition between Olympic and Non-Olympic stocks highlights that Olympic stocks are under-represented in chemicals, manufacturing, and pharmaceuticals, and over-represented in real-estate, tourism, and entertainment. Panel C summarizes the individual characteristics of Olympic and Non-Olympic firms. Total Assets is the total assets reported as of the fiscal year-end. Market Cap. is the market capitalization as of the fiscal year-end. Return on assets is computed as fiscal year earnings scaled by average assets. Book-to-Market is the book value of equity as of the fiscal year-end scaled by the market value of equity as of the fiscal year-end. Earnings-to-Price is net income as of the fiscal year-end scaled by the market value of equity as of the fiscal year-end.

TABLE 2

Returns of Olympic and Non-Olympic Stocks

Panel A: Differences in Semi-Annual Returns of Olympic and Non-Olympic Stocks

Semi-Annual Period Ending On	Olympic Semi-Annual Returns	Non-Olympic Semi-Annual Returns	Diff.
2001/06	8%	6%	1%
2001/12	-27%	-27%	0%
2002/06	5%	5%	0%
2002/12	-23%	-24%	0%
2003/06	5%	1%	3%
2003/12	-12%	-15%	2%
2004/06	-6%	-3%	-2%
2004/12	-10%	-13%	**3%***
2005/06	-16%	-20%	**4%****
2005/12	10%	8%	1%
2006/06	68%	64%	3%
2006/12	33%	16%	**17%*****
2007/06	107%	114%	-7%
2007/12	44%	45%	-2%
2008/06	-46%	-41%	**-5%*****
2008/12	-31%	-26%	**-5%*****

Panel B: Jul-2004 to Dec-2006 Cumulative Returns of Olympic and Non-Olympic Stocks Partitioned by Size Quintiles

	July 2004 to December 2006 Cumulative Returns	
Quintiles	Olympic	Non-Olympic
Size Quintile 1 (Smallest)	54.2%	26.2%
	(n = 15)	(n = 262)
Size Quintile 2	68.0%	49.0%
	(n = 10)	(n = 267)
Size Quintile 3	40.3%	38.3%
	(n=17)	(n=260)
Size Quintile 4	97.0%	72.5%
	(n=25)	(n=252)
Size Quintile 5 (Largest)	111.0%	71.0%
	(n=35)	(n=242)

This table presents differences in raw returns between Olympic and Non-Olympic stocks. Panel A tabulates the differences in raw semi-annual returns from 2001 to 2008 for Olympic and Non-Olympic stocks. Semi-annual returns are computed as the monthly compounded raw return ending for the six months ending at the respective semi-annual period date. T-tests reflect differences in cumulative returns between Olympic and Non-Olympic stocks. Returns of Olympic stocks significantly outperformed those of Non-Olympic stocks from July 2004 to December 2006, only to reverse during 2007 and 2008. Panel B provides the total cumulative raw return from July 2004 to December 2006 for Olympic stocks and Non-Olympic stocks portioned by size quintiles. Size quintiles are formed using total assets as of July 2004. The excess returns of Olympic stocks over Non-Olympic stock for each size quintile suggest that firm characteristics, and specifically firm size, are not responsible for the excess returns of Olympic stocks relative to Non-Olympic stocks. The sample consists of 108 Olympic stocks and 1,547 Non-Olympic stocks.
*, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests.

TABLE 3

Differences in Fundamentals between Olympic and Non-Olympic Stocks

	Olympic – Non-Olympic Diff.			
(1)	(2)	(3)	(4)	(5)
Year	ROA Diff.	CFO Diff.	FCF Diff.	CFCF Diff.
2001	0.028***	-0.012	-0.012	-0.011
2002	0.019	-0.005	-0.005	-0.015
2003	0.004	-0.007	0.000	-0.015
2004	0.017**	-0.001	0.002	-0.013
2005	0.019***	0.001	0.004	-0.009
2006	0.011*	-0.022**	-0.031***	-0.038
2007	-0.011**	-0.013	-0.013	-0.051
2008	-0.004	-0.023**	-0.022*	-0.079*
2009	-0.002	0.016*	0.011	-0.065
2010	-0.011***	-0.006	0.002	-0.063

This table presents yearly differences in fundamentals between Olympic and Non-Olympic stocks from 2001 to 2010. Return on assets (ROA) is computed as annual net income scaled by average assets. Cash flow from operations (CFO) is computed as cash flows from operations scaled by average assets. Free cash flow (FCF) is computed as the sum of cash flow from operations and cash flow from investing, scaled by average assets. Cumulative free cash flow (CFCF) is computed as cumulative annual FCF starting from fiscal year 2001 or the IPO year, whichever is later, and ending in respective year-end. Differences in ROA, CFO, FCF, and CFCF do not appear sufficient to justify the price increases of Olympic stocks relative to Non-Olympic stocks from 2005 through to 2007. The sample consists of 108 Olympic stocks and 1,547 Non-Olympic stocks.

*, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests.

TABLE 4

Earnings Announcement Date Returns of Olympic Firms and Non-Olympic Firms

Panel A: Differences in Earnings Responses of Olympic and Non-Olympic Stocks

	Day *t-2* to *t+2* Earnings Announcement Returns (CR)		
Quarter	Olympic	Non-Olympic	Diff.
2004/03	-4.5%	-2.9%	-1.6%**
2004/06	-0.1%	-1.5%	1.4%***
2004/09	-0.8%	-0.5%	-0.3%
2004/12	-0.7%	-2.0%	1.3%*
2005/03	-1.9%	-2.3%	0.4%
2005/06	1.9%	2.0%	-0.1%
2005/09	-4.2%	-3.7%	-0.5%
2005/12	-0.4%	0.4%	-0.8%
2006/03	1.1%	0.2%	0.9%
2006/06	1.8%	0.8%	0.9%*
2006/09	-0.9%	-1.4%	0.5%
2006/12	3.0%	2.9%	0.1%
2007/03	2.8%	2.9%	-0.1%
2007/06	3.2%	2.6%	0.6%
2007/09	-2.5%	-4.3%	1.9%*
2007/12	-0.6%	-1.2%	0.6%
2008/03	7.5%	6.5%	1.0%
2008/06	-3.7%	-2.2%	-1.5%*
2008/09	-5.5%	-5.1%	-0.5%
2008/12	1.7%	0.7%	0.9%
Average			0.3%
T-Stat			1.22

Panel B: Differences in Earnings Response Regressions

	Dependent Variable		
	Day *t-2* to *t+2* Earnings Announcement Returns (CR)		
	(1)	(2)	(3)
Olympic	**0.0023**	**0.0022**	**0.0009**
	1.095	**1.07**	**0.45**
Change in Earnings		0.2173**	0.2161**
		2.23	2.24
Olympic * Change in Earnings		0.0017	0.0028
		0.11	0.02
Assets			0.0025**
			2.81
Constant	-0.0039	-0.0041	-0.0581**
	-0.61	-0.63	-2.55
Avg. Observations	1,226	1,226	1,226
Mean R^2	0.001	0.001	0.014

This table examines the earnings responses of Olympic and Non-Olympic stocks. Panel A presents differences in 5-day cumulative returns (CR) between Olympic and Non-Olympic stocks surrounding quarterly earnings announcements. Cumulative returns (CR) are measured as the total return over the 5-day (*t-2* to *t+2*) earnings announcement window. T-tests reflect differences in cumulative returns between Olympic and Non-Olympic stocks. During the Olympic stock run-up from July 2004 through to December 2006 there no earnings annoucements where the stock price response to earnings for Olympic stocks is significantly greater at the 5-percent level than that of Non-Olympic stocks. Panel B presents the Fama-MacBeth (1973) regressions using the 20 quarters from January 2004 to December 2008. Olympic is an indicator variable taking the value of "1" for Olympic stocks and "0" otherwise. Change in Earnings is computed as (quarterly earnings in *t* minus quarterly earnings in *t-4*) scaled by *t-4* ending total assets. Assets is computed as the natural logarithm of total assets as of the end of quarter *t*. T-statistics are reported below the regression coefficients. The findings of Panels A and B suggest that that the higher excess returns of Olympic stocks are not due to investors responding to the release of financial reporting information, and in particular, to the release of earnings news. The sample consists of 106 Olympic stocks and 1,417 Non-Olympic stocks.
*, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests.

TABLE 5

Differences in Traditional Media Coverage between Olympic and Non-Olympic Stocks

Panel A: Differences in Traditional Media Coverage between Olympic and Non-Olympic Stocks

Year	Olympic Media Count	Non-Olympic Media Count	Diff
2004	3.7	1.3	2.4
2005	3.1	1.3	1.8
2006	5.1	3	2.1
2007	10.9	6.6	4.3*
2008	14.3	6.2	8.1**

Panel B: Monthly Returns and Traditional Media Coverage

	Dependent Variable		
	Monthly Returns From July-2004 to Dec-2006		
	(1)	(2)	(3)
Olympic	**0.0091*** **	**0.0091*** **	**0.0081*** **
	2.86	**2.81**	**2.73**
Media Count		0.0022	0.0018
		1.46	1.48
Olympic * Media Count		-0.0029**	-0.0026*
		-2.06	-1.92
R_Assets			0.0083
			1.17
Constant	0.0151	0.0147	0.0106
	1.05	1.02	0.66
Avg. Observations	1,346	1,346	1,346
Mean R^2	0.002	0.003	0.031

This table presents analyses examining whether the over-valuation of Olympic stocks is related to traditional media coverage. Panel A presents yearly differences in media articles between Olympic and Non-Olympic stocks from 2004 to 2008. Media Count is computed as the number of media articles in FACTSET for the fiscal-year. The media count numbers include both company issued press releases (often written in Chinese) and traditional media coverage (newswires, etc.). T-tests reflect differences in Media Count between Olympic and Non-Olympic stocks. There are insignificant differences in the annual media coverage between Olympic and Non-Olympic stocks from 2004 to 2006 but significant differences in 2008 through 2010. The lack of evidence of significant increases in media coverage during the run in Olympic stocks relative to Non-Olympic stocks from July 2004 to December 2006, suggest that traditional media coverage did not contribute to the excess

returns of Olympic stocks in 2005 and 2006. Panel B presents Fama-MacBeth (1973) regressions examining the relation between monthly returns and traditional media coverage from July 2004 to December 2006. Monthly returns are computed as the raw monthly return. Olympic is an indicator variable taking the value of "1" for Olympic stocks and "0" otherwise. R_Assets is the quintile rank of assets as of January 2004 or the IPO date if later. T-statistics are reported below the regression coefficients. The regression analyses reinforce Panel A's inferences that the greater over-valuation of Olympic stocks is not driven by traditional media coverage. The sample consists of 107 Olympic stocks and 1,521 Non-Olympic stocks.
*, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively, using two-tailed tests.