Nielsen's Advertising Spending Public Reports and Returns on Thai Media Stocks

PinyadaSaengsakdaharn*[a], NarapongSrivisal[b], Jananya Sthienchoak[c]
[a]Investor Relations Department, VGI Global Media Public Company Limited
Viphavadi-Rangsit Road, Bangkok, Thailand
[b]Department of Banking and Finance, Faculty of Commerce and Accountancy
Chulalongkorn University
Payathai Road, Bangkok, Thailand
[c]Social Innovation Research Unit, Chulalongkorn University
Payathai Road, Bangkok, Thailand
*Corresponding Author: jananya@cbs.chula.ac.th

Abstract

The media industry has remarkably been growing in recent years. Since advertising is the main source of revenues for firms in this industry, this paper investigates whether the data on Nielsen advertising spending reportshelp predict returns of media stocks listed on the Stock Exchange of Thailand. We employ the data published by Advertising Association of Thailand, which are publicly availableon a monthly basis, more frequently than the availability of typicalThai firms' financial reports. The regression results reveal that year-on-year growth as well as surprised Nielsenaggregate advertising spending predict significantly higher returns of firms in the media industry in the following month, but there is no evidence for predictability immediately orwithin the same week of the report announcements. In addition, we document that only the advertising spending on TV and traditional media sectors can predict returns.

Keywords: Media, Advertising Spending, Return Predictability

Introduction

Advertising is one of the key marketing instruments used to expose firms' products and services to customers to boost sales revenue. With the development of information technology and increasing use of smartphones, the media through which advertising is done have evolved from traditional media such as newspaper, radio, and magazine to social media for online communities. Effective advertising creates competitiveness landscape for firms. McKinsey & Company (2015)estimatedthat the total global advertising spending in 2015 was around USD 1.7 trillion, representing 2.3% of global GDP. The figure was expected to reach USD 2.1 trillion by 2019, growing at a compound annual growth rate (CAGR) of 5.2%. For Thai economy, Nielsen (2015) estimated that the figure was around THB 122 billion in 2015, contributing to 0.8% of the country's GDP. PricewaterhouseCoopers (2015)estimated that Thai's entertainment and media spending would grow at 6.3% CAGR over the next five years.The apparent importance of advertising and the growth of media industry could make this industry a profitable one and, thereby, catch investors' attention. In Thailand, firms' financial statements and performance are released to public on a quarterly basis, but Nielsen (Thailand) Company Limited's reports on advertising spendingare available on a monthly basis.The advertising spending is the major revenue of media firms, and the Nielsen's figures are claimed by the media

industry to be the major source of the advertising spending information.Thus,they are frequentlycited in media firms' annual reports as well as widely used by securities analysts. Although Nielsen offers detailed advertising spending data at high prices,the Advertising Association of Thailand provides the Nielsen's monthly summary reports to public for free. Hence, it is interesting to explore whether these readily available free data contain helpful information for investors in terms of media firms' stock return prediction.

Purpose of the Study

This paper aims to investigate the predictability of Nielsen's monthly advertising spending information, which are publicly available for free,on returns of media stocks listed on the Stock Exchange of Thailand.

Objectives

The objective of this paper is to answer two following questions in specific:

1. Whether growth and surprised growth in advertising spending reported by Nielsen free data relatepositively to media firms' stock price returns.
2. Whether the return predictability variesacross sectors within the media industry.

Data and Methodology

The scope of this paper is on the Thai market during January 2011 to December 2015, which consisted of29 firms listed on the Stock Exchange of Thailand (SET) under Media and Publishing sector. However, only 24 out of the 29 firms that reported advertising revenue in their financial reports and were included in the Nielsen's advertising spending report during the period are used in our study.The Nielsen's monthly advertising spending data as well as the Nielsen's report announcement dates are retrieved from the website of the Advertising Association of Thailand. The data contain overall aggregate spending on the media industry as well as the breakdown of the aggregate spending into four media categories including television (TV), traditional media (TM), out-of-home media (OH), and cinema (CM).Table 1 shows the number of firms involving in different media categories.

Table 1
Number of Firms in Different Media Categories

Media Categories	Number of Firms
Television (including cable and digital TV)	2
Traditional Media (newspaper, radio, and magazine)	1
Out-of-Home Media (transit, outdoor, in-store)	4
Cinema	2
Television and Traditional Media	12
Television and Out-of-Home Media	1
Television, Traditional Media, and Out-of-Home Media	1
Television, Traditional Media, and Cinema	1
Media Not Included in Nielsen's Reports	5
Total Number of Firms	29

To see the predictability of Nielsen's advertising spending report on media stock returns, we investigate two measures that may contain new information to investors: year-on-year growth and surprised growth.The year-on-year growth is computed as advertising spending growth from the same calendar month in the previous year, in order to get rid of seasonal effect of the advertising spending within a year.The surprised growth is defined as the difference between actual Nielsen's growth and what can be perceived of as investors' expectation.

To estimate investors' growth expectation, we employ the positive correlation between advertising spending and the country's GDP. Mindshare (2017) claimed that advertising spending growth was expected to be close to GDP. Media Agency Association of Thailand also linked its forecast of Nielsen's advertising spending growth to GDP (MAAT, 2016). We, thus, estimate the surprised growth based on Thailand's forecasted GDP released from the Office of the National Economic and Social Development Board (currentlyrenamed as the Office of the National Economic and Social Development Council), the governmental institution responsible for official announcements of Thailand's GDP figures. More precisely, for each media category, we conduct rolling regressions of 60 prior months of Nielsen's advertising spending data on the median forecasts of GDP to predictthe next month's advertising spending.The difference between growths computed from the actual and predicted advertising spending is used as the surprised growth for the analyses that follows.

Nevertheless, each media company exposes differently to advertising businesses, possibly causing a variety of effectsfrom aggregate advertising spending on returns across firms. Firms relying more heavily on advertising-spending revenue should be affected more than firms whose major source of revenue is not from the advertising businesses. Hence, we instead examine predictability of the variable constructed from weighting the Nielsen's aggregate advertising spending growth by each firm's media revenue as a share of its total revenue.More precisely, we create our return predictability variable as

$$NS_{overall_{it}} = \sum_{j=1}^{4} NS_t^j W_{it}^j \quad (1)$$

where the subscripts$i, j,$and $t$indicate firm stock, media sector (TV, TM, OH, or CM), and monthly period respectively. The variable W_{it}^j is calculated from firm i's revenue from media category j divided by its total revenue using the most recently available data at time t. The variable NS is the Nielsen aggregate advertising spending year-on-year growth or surprised growth in unit of percentage point.Table 2 below provides summary statistics of the NS variales.

Now,to assess the overall return predictability of the Nielsen's advertising spending report, we employ the fixed effect estimation model as follows

$$R_{it} = \alpha_i + \gamma NS_{overall_{it}} + \beta_1 RmRf_t + \varepsilon_{it} \quad (2)$$

where R_{it} is returns of media stock i after the Nielsen's report announcement in month t. In this study, we examine the average daily returns over the periods of one day, one week, and one month after the announcement. This is because an emerging market like Thailand may contain some frictions that cause investors to take time to process information before responding to new information. The variable$RmRf_t$is market excess return over risk-freeasset in Thai market, defined over the same period as the variable R_{it}.

Table 2
Descriptive Statistics of the Nielsen Aggregate Advertising Spending Variables

Variable	No. of Observations	Mean	Standard Deviation	Min.	Max.
NS based on Year-on-year Growth					
Overall Media Industry	1,342	1.86	7.79	-29.22	49.11
Television	1,342	1.92	5.13	-27.93	47.96
Traditional Media	1,342	-0.60	3.65	-29.22	34.09
Out-of-home Media	1,342	0.57	4.27	-16.54	33.64
Cinema	1,342	-0.02	0.97	-7.10	7.19
NS based on Surprised Growth					
Overall Media Industry	1,342	-0.80	8.32	-34.61	50.94
Television	1,342	0.82	4.96	-33.75	49.80
Traditional Media	1,342	-0.43	3.59	-27.59	33.96
Out-of-home Media	1,342	-0.80	5.14	-32.28	25.86
Cinema	1,342	-0.39	1.35	-9.08	2.32

The variables at the overall media industry level are estimated from weighted average of sectoral Nielsen aggregate advertising spending growth variables, where the weights used are from each firm's media revenue as a share of its total revenue.

Next, we investigate the predictability at a more disaggregate level to see whether the Nielsen's advertising spending reports of all or just some particular categories may contain information helpful for predicting returns.Again, we employ the fixed effect estimator to estimate the model:

$$R_{it} = \alpha_i + \sum_j^4 \gamma_j W_{it}^j NS_t^j + \beta_1 RmRf_t + \varepsilon_{it} \quad (3)$$

where all the variables are defined in the same way as in equation (2), but we now adjust the model to allow for different correlations of returns and Nielsen's advertising spending growth across media categories.

Finally, as a robustness check, we re-estimate the extended versions ofModel (2) and (3) which now control for size, value, and momentum from previous period return, similar to the essence of Carhart's four-factor asset pricing model. The added variables are used in natural log specifications.

$$R_{it} = \alpha_i + \gamma NS_{overall_{it}} + \beta_1 RmRf_t + \beta_2 \ln CAP_{it} + \beta_3 \ln BM_{it} + \beta_4 R_{i,t-1} + \varepsilon_{it} \quad (4)$$

$$R_{it} = \alpha_i + \sum_j^4 \gamma_j W_{it}^j NS_t^j + \beta_1 RmRf_t + \beta_2 \ln CAP_{it} + \beta_3 \ln BM_{it} + \beta_4 R_{i,t-1} + \varepsilon_{it} \quad (5)$$

where CAP_{it} and BM_{it} measure firm i's market capitalization and book-to-market values respectively at time t defined as average over the same period as the variable R_{it}. All the returns, capitalization, and book-to-market data are retrieved from secondary databases such as Bloomberg and DataStream.

Literature Review

Empirical researches have found a mixed result of the association between advertising spending and firm performance. One strand of researches finds that advertising spending is positively associated with firm performance. These

researches include that of Ali Shah, Stark, and Akbar (2009), Chen and Lin (2013), and Assaf, Josiassen, Mattila, andCvelbar (2015). Chenand Lin studied Proton's sales performance and found that online, television, and print advertising provided a significant and positive impact.Assaf, Josiassen, Mattila, and Cvelbar studied hotel performance and found a positive impact from advertising spending as well.While Ali Shah,Stark, and Akbar focused on firm value, rather than sales performance, and found a positive association between advertising expenditures and firms' market value.

In contrary, another strand of researches find that advertising spending does not necessarily increase sales. Luoand Donthu (2005) commented that the top 100 marketers' advertising spending were not efficient and they could have had generated around 20% more sales volume on average if they had utilized their media spending efficiently.This result is in line with those previously found by Aakerand Carman (1982) and Smithand Park (1991), which suggest that high level of advertising inefficiency leads to sales loss.Danaher and Rust (1994) also showed that inefficient media spending contributed to lower profit margin and thus suppressing a firm's ability to sustain a healthy growth.

From the viewpoint of media firms, who receive advertising spending as the main source of revenue, the importance of advertising - as evidenced from afore-mentioned literature review - and the growth of advertising spending should contribute favorably to firm performance. In addition, changing effectiveness of different media should channel advertising spending to those more effective media. This wouldboost the performance of those media firms who are able to provide services through these new media channels, and away from media firms who are not.

Findings

At the overall level of media industry, Table 3 and Table 4 show the regression results respectively using year-on-year growth and surprised growth of the Nielsen's advertising spending. Essentially, return over the month following the announcements is significantly positively correlated with both year-on-year and surprised growth of the Nielsen's advertising spending. This result is robust, whether market capitalization and book-to-market values are controlled for. However, we cannot document statistical evidence for predictability of returns in the shorter periods after the announcements, except for marginally significant correlation between the Nielsen's surprised growth and one week returns.

Table 3
Regression Results of Returns on Overall Nielsen's Year-on-year Growth

	1 day	1 week	1 month	1 day	1 week	1 month
$NS_{overall}$	-0.0077	0.0066	0.0070***	-0.0076	0.0067	0.0074***
	(0.0108)	(0.0042)	(0.0024)	(0.0108)	(0.0042)	(0.0024)
$RmRf$	0.663***	0.557***	1.064***	0.662***	0.555***	1.039***
	(0.089)	(0.0685)	(0.0843)	(0.0891)	(0.0684)	(0.0844)
ln CAP				0.0009	0.0005	0.0001
				(0.0008)	(0.0003)	(0.0002)
ln BM				0.002	0.00144***	0.000704**
				(0.0014)	(0.0005)	(0.0003)
R_{t-1}				0.00659	0.0169	0.0104
				(0.0301)	(0.0115)	(0.0066)
Constant	-0.00001	0.00083**	0.0005**	-0.0054	-0.0021	0.0006
	(0.0009)	(0.0003)	(0.0002)	(0.0058)	(0.0022)	(0.0013)
Obs	1,342	1,342	1,342	1,342	1,342	1,342
Adj R2	0.0388	0.0474	0.114	0.0382	0.0523	0.120

These regression results are estimated by the fixed effect estimator with average daily returns of media stocksafter the Nielsen's advertising spending report announcement as the regressand. Each column differs in the duration used to compute average daily returns. The variable $NS_{overall}$ is calculated from the average Nielsen's advertising spending year-on-year growth weighted by shares of revenue from media sectors. The numbers in parenthesis report standard error, and *, **, *** indicate statistical significance at 10%, 5%, and 1% significance level respectively.

Table 4
Regression Results of Returns on Overall Nielsen's Surprised Growth

	1 day	1 week	1 month	1 day	1 week	1 month
$NS_{overall}$	-0.0072	0.0069*	0.0073***	-0.0084	0.0061	0.0066***
	(0.0101)	(0.0039)	(0.0023)	(0.0102)	(0.0039)	(0.0023)
$RmRf$	0.663***	0.553***	1.054***	0.662***	0.552***	1.037***
	(0.0890)	(0.0685)	(0.0844)	(0.0891)	(0.0684)	(0.0845)
ln CAP				0.0009	0.0005*	0.0001
				(0.0008)	(0.0003)	(0.0002)
ln BM				0.0021	0.0014**	0.0006**
				(0.0014)	(0.0005)	(0.0003)
R_{t-1}				0.00643	0.0171	0.0106
				(0.0301)	(0.0115)	(0.0066)
Constant	-0.0002	0.0010***	0.0006***	-0.0053	-0.0022	0.0005
	(0.0009)	(0.0003)	(0.0002)	(0.0058)	(0.0022)	(0.0013)
Obs	1,342	1,342	1,342	1,342	1,342	1,342
Adj R2	0.0388	0.0479	0.116	0.0383	0.0521	0.119

These regression results are estimated by the fixed effect estimator with average daily returns of media stocks after the Nielsen's advertising spending report announcement as the regressand. Each column differs in the duration used to compute average daily returns. The variable $NS_{overall}$ is calculated from the average Nielsen's advertising spending surprised growth weighted by shares of revenue from media

sectors. The numbers in parenthesis report standard error, and *, **, *** indicate statistical significance at 10%, 5%, and 1% significance level respectively.

Now, zooming in to the sectoral disaggregate level of the media industry, we find similar result that the predictability exists for one-month duration, but not for the shorter periods after the announcements, as illustrated in Tables 5 and 6. Nonetheless, only television and traditional media seem to be relevant.Higher year-on-year or surprised growths of the Nielsen's advertising spending on television and traditional media help predict higher returns on stocks of firms with revenue from these two sectors in the month following the spending announcement. The results regarding TV and Traditional Media sectors are robust on both model specifications of controlling factors. However, when controlling for size and value of firms, we also find marginal significance of positive one-week return predictability of the year-on-year growth in spending on traditional media category. More surprisingly, an announcement of higher spending on advertising in Cinema sector significantly predicts lower average return of cinema-firm stocks over the next month.

Table 5

Regression Results of Returns on Sectoral Nielsen's Year-on-year Growth

	1 day	1 week	1 month	1 day	1 week	1 month
$NS^{TV}W^{TV}$	-0.0049	0.0039	0.0079**	-0.0054	0.0041	0.0093**
	(0.0165)	(0.0064)	(0.0037)	(0.0168)	(0.0064)	(0.0037)
$NS^{TM}W^{TM}$	-0.0262	0.0130	0.0121**	-0.0237	0.0149*	0.0132***
	(0.0232)	(0.0089)	(0.0051)	(0.0233)	(0.0089)	(0.0051)
$NS^{OH}W^{OH}$	0.0039	0.0057	0.0034	0.0039	0.0051	0.0022
	(0.0198)	(0.0076)	(0.0044)	(0.0199)	(0.0076)	(0.0044)
$NS^{CM}W^{CM}$	-0.0093	0.0006	-0.0246	-0.0261	-0.0139	-0.0333*
	(0.0868)	(0.0335)	(0.0191)	(0.0876)	(0.0337)	(0.0193)
$RmRf$	0.668***	0.555***	1.068***	0.667***	0.550***	1.040***
	(0.0893)	(0.0689)	(0.0843)	(0.0893)	(0.0687)	(0.0843)
$\ln CAP$				0.0009	0.000552*	0.0001
				(0.0008)	(0.0003)	(0.0002)
$\ln BM$				0.0020	0.0015***	0.0008***
				(0.0014)	(0.0005)	(0.0003)
R_{t-1}				0.0066	0.0171	0.0107
				(0.0301)	(0.0115)	(0.0066)
Constant	-0.0002	0.0009***	0.0005**	-0.0058	-0.0022	0.0006
	(0.0009)	(0.0004)	(0.0002)	(0.0059)	(0.0023)	(0.0013)
Obs	1,342	1,342	1,342	1,342	1,342	1,342
Adj R2	0.0373	0.0458	0.115	0.0366	0.0511	0.123

These regression results are estimated by the fixed effect estimator with average daily returns of media stocks after the Nielsen's advertising spending report announcement as the regressand. Each column differs in the duration used to compute average daily returns. The variable NS^j is the Nielsen's advertising spending year-on-year growth of media sector j, and W^j captures share of revenue from media sector j to total revenue.The sectors include Television (TV), Traditional Media (TM), Out-of-home Media (OH), and Cinema (CM). The numbers in parenthesis report standard error, and *, **, *** indicate statistical significance at 10%, 5%, and 1% significance level respectively.

Table 6

Regression Results of Returns on Sectoral Nielsen's Surprised Growth

	1 day	1 week	1 month	1 day	1 week	1 month
$NS^{TV}W^{TV}$	-0.0049 (0.0171)	0.0097 (0.0066)	0.0122*** (0.0038)	-0.0048 (0.0172)	0.0101 (0.0066)	0.0132*** (0.0038)
$NS^{TM}W^{TM}$	-0.0278 (0.0237)	0.0101 (0.0091)	0.0106** (0.0052)	-0.0259 (0.0237)	0.0115 (0.0091)	0.0112** (0.0052)
$NS^{OH}W^{OH}$	-0.0004 (0.0165)	0.0025 (0.0063)	0.0015 (0.0036)	-0.0040 (0.0173)	-0.0013 (0.0066)	-0.0023 (0.0038)
$NS^{CM}W^{CM}$	0.0224 (0.0626)	0.0048 (0.0241)	-0.0091 (0.0138)	0.0212 (0.0630)	0.0020 (0.0242)	-0.0139 (0.0138)
$RmRf$	0.666*** (0.0893)	0.551*** (0.0688)	1.051*** (0.0844)	0.665*** (0.0894)	0.549*** (0.0686)	1.027*** (0.0844)
ln CAP				0.0009 (0.0008)	0.0005 (0.0003)	0.0000 (0.0002)
ln BM				0.0020 (0.0014)	0.0015*** (0.0005)	0.0008** (0.0003)
R_{t-1}				0.0064 (0.0301)	0.0171 (0.0115)	0.0106 (0.0066)
Constant	-0.0002 (0.0009)	0.0010*** (0.0004)	0.0005*** (0.0002)	-0.0054 (0.0058)	-0.0019 (0.0022)	0.0009 (0.0013)
Obs Adj R2	1,342 0.0375	1,342 0.0463	1,342 0.117	1,342 0.0368	1,342 0.0514	1,342 0.124

These regression results are estimated by the fixed effect estimator with average daily returns of media stocks after the Nielsen's advertising spending report announcement as the regressand. Each column differs in the duration used to compute average daily returns. The variable NS^j is the Nielsen's advertising spending surprised growth of media sector j, and W^j captures share of revenue from media sector j to total revenue. The sectors include Television (TV), Traditional Media (TM), Out-of-home Media (OH), and Cinema (CM). The numbers in parenthesis report standard error, and *, **, *** indicate statistical significance at 10%, 5%, and 1% significance level respectively.

Discussion

The regression results show the predictability of Nielsen's advertising spending on media stock returns after controlling for market factors, which is consistent with our expectation.Because advertising spending is one of the major sources of revenue for media firms, it could be used as a good indicator for media firms' performance which, in turn, able to affect stock returns. As Nielsen (Thailand) Company Limited is regarded as a reliable source of the advertising spending information, and the Nielsen's reports are publicly provided for free on a more frequent basis than firms' financial reports, it isnot surprising that investors may utilize this spendingdata for

trading media stocks. Nevertheless, the predictability we document here is more pronounced for the period of one-monthafter the report releasing dates, while the results for the shorter durations studied here are very weak. This implies that Thailand's capital market, especially related to the media industry, may contain some frictions that cause investors to take time to process information. Anyhow, our results suggest that it is possible for investors to make use of the Nielsen's advertising spending data to develop their trading strategies and gain higher returns.

In addition, when investigating the predictability of Nielsen's advertising spending by categories, we find that television and traditional media are more relevant. We find no statistically significant evidence for the predictability of spending on out-of-home media, and the spending on advertising in cinema sector exhibits marginally significant correlation with one-month ahead returns, but the correlation is negative. Plausible explanations that only advertising spending on television and traditional media sectors contains sensibly helpful information for predicting future returns arerelative sizes and market structures of the sectors. Even though out-of-home media have been evolving dramatically in recent years, television and traditional media sectors in Thailand are still relatively much larger and can reach out to far more general audiences.The data from Nielsen show that television and traditional media compriseabout 70% and 18% of the total advertising spending respectively.Moreover,unlike firms conducting business in the television and traditional media sectors, out-of-home media sector contains many small firms, most of which are not listed on the Stock Exchange of Thailand. Therefore, investors may view aggregate spending on out-of-home media as noisy information and largely reflecting private companies.Similarly for advertising spending on cinema, there are two public companies involving only in cinema sector and one listed firm involving in cinema as well as in television and traditional media sectors.For these three firms, their revenue from advertising with cinema is minimal compared to other sources of revenue. Hence, the linkage between advertising spending on cinema and their performance should be weak.

Conclusion and Contribution

This paper investigates the predictability of Nielsen's monthly advertising spending information, which are publicly available, on returns of media stocks listed on the Stock Exchange of Thailand. Specifically, we aim to answer two questions: (1) whether growth and surprised growth of advertising spending reported by Nielsen relate positively to media firms' stock price returns, and (2) whether the effects vary across sectors within the media industry.

Employing data of media firms listed on the Stock Exchange of Thailand during 2011 to 2015, we analyze the impacts of Nielsen's advertising spending in three different time lagsafter announcement: (1) next-day, (2) one-week, and (3) one-month.We find positive correlation between the overall Nielsen's advertising spending growth and average returns one month following the announcement, but not during the shorter analyzed periods.The results suggest that investors in the media sector may take somewhat long time to process the information before making investment decisions.Our further analyses into sectoral level indicate that advertising spending on television and traditional media (i.e. newspaper, radio, and magazine) has predictabilityfor media firms' stock higher returns after theannouncements.These results are robust in bothyear-on-year and surprised growth specifications as well as in both simple market factor and four factorsof asset pricing models.

However, advertising spending on cinema media demonstrates a negative effect on returns after one month of announcements, although the result is marginally significant.Thecause could be from the quality of data, as there are only two dominant firms in this sector.In addition, these firms' revenue was not largely driven by cinema advertising, thus their strategic directionscould contribute to this result.

Since the predictability power of Nielsen's report has never been studied before, our findings would thus contribute to both the academic realm and the practitioners/investors. For the academic realm,Nielsen's advertising spending data could be further developed to bea pricing factor for media firms' stocks. An in-depth study using more detailed data sold by Nielsen would be recommended for this next-stage. Forpractitioners, our findings would benefitinvestors when they consider using the publicly available Nielsen's reportsin making their investment decisionsin the trendy media industry.

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