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Advertising Persuasion in Dual Markets

Aneel Keswani, David Stolin and Demetrios Vakratsas*

Abstract

Many firms operate in “dual” markets by selling the same products and services to both individual and institutional customers. Can they also persuade both with the same advertising content? The authors investigate this issue by examining a unique database including information on institutional and individual mutual fund flows, advertising frequency, and (persuasive and informative) advertising content. They find that the effects of persuasive advertising content on institutional and individual fund flows are similar, and sizeable in terms of elasticity. In addition, they find that only the individual market responds to informative advertising content. Hence dual market firms can use persuasive content to achieve advertising economies.

Keywords Persuasion; Institutional Markets; Advertising Content; Finance.

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Advertising Persuasion in Dual Markets

1. Introduction

Our knowledge regarding persuasion as an effective advertising mechanism is largely limited to consumer markets (e.g. Sethuraman et al. 2011). Whether persuasive advertising can also be effective in institutional markets is an issue that received much less attention in the literature with the possible exception of the pharmaceutical market (Hurwitz and Caves 1988; Rizzo 1999), which possesses various unique features (Vakratsas and Kolsarici 2008). However, many markets are “dual,” serving both individual and institutional customers (Quelch 1987). Examples include automakers selling to consumers as well as to fleet owners, package shipping companies with individual and business customers, consumer packaged goods firms selling to both consumers and institutional customers, and financial services with individual and institutional investors. For firms serving such markets the effectiveness of advertising persuasion in the institutional market can be as important as it is in the consumer market. Moreover, effective persuasion can present dual market firms with a mechanism through which they can influence both with the same content and thus achieve advertising economies. In this study we seek to narrow the institutional-consumer market knowledge gap (e.g. Lilien 2016), by investigating the effectiveness of persuasive advertising in dual markets.

We focus on the dual mutual fund market which consists of both individual and institutional investors. We analyze a unique database which contains mutual fund flow information separately for individual and institutional investors as well as advertising content and frequency information from a range of publications targeted to both types of investors. We adopt the Mullainathan et al. (2008) perspective of uninformative persuasion, namely that uninformative persuasive ads frame situations in a manner familiar to audiences and favorable

for firms. Similarly to Anderson et al. (2013) we identify persuasive and informative advertising directly through content analysis. We code ads as informative if they include mutual performance information and examine whether the remainder, uninformative, ads follow a decision-framing approach. Our work captures the reality of dual-selling markets and provides novel evidence through the comparison of response to persuasive, as well as informative, advertising of both constituent (individual and institutional) markets.

We expect uninformative advertising to have a persuasive effect on institutional decision-makers, as well as individual consumers, by lowering their decision-making costs. This is consistent with the limited rationality view of institutional decision-making (March and Simon 1958), which has found support in the marketing and finance literature (Low and Mohr 2000; de Dreu and Bikker 2012). More specifically, institutional customers use mental strategies such as decision framing to simplify their decision-making in order to cope with limited rationality (March 1994; Schwenk 1984). Persuasive advertising then takes advantage of decision maker cognitive simplification strategies, also referred to as coarse thinking, to frame decisions in a manner favorable for the advertiser and familiar to the decision maker. For example, Mullainathan et al. (2008) observe that “grabbing an opportunity” is a common and, perhaps more importantly, familiar way to frame the mutual fund investment decision in an advertising message. Due to its nature as public good, advertising is an accessible source for institutional investors and can dominate alternative decision inputs (Feldman and Lynch 1988). Hence, we expect uninformative advertising to focus on decision-framing and have a significant effect on the institutional market. The size of this effect, and its comparison to that for the consumer market, remains an empirical question which we further pursue with our analysis.

Our empirical evidence confirms that persuasive advertising has a significant effect on the institutional market. We also find the institutional market persuasive advertising elasticity to be similar in size to that for the consumer (individual) market. By contrast, only the consumer market responds to informative advertising. We thus claim the following two contributions: a) our work advances knowledge on advertising in institutional markets, by providing evidence of persuasive effects, quantifying them in terms of advertising elasticity, and comparing them to the response of individual consumers within a dual market setting, b) from a context perspective, our work contributes to our understanding of advertising effects in financial markets by ruling out basic explanations based on familiarity or attention (Grullon et al. 2004; Barber and Odean 2008). More specifically, we show that investors engage in at least limited processing of advertising messages by differentiating their response to persuasive and informative advertising content. Thus, we offer a more nuanced explanation of the advertising effect, namely that advertising lowers decision-making costs.

2. Method

2.1 Data

We examine a unique database which consists of two components: the first contains financial data on fund flows for individual and institutional investors, with associated fund performance metrics and other fund characteristics, whereas the second contains advertising content and frequency information drawn from the analysis of specialized magazine publications.

Our monthly data on mutual fund flows spans the five-year period 1999-2003 and were obtained from the Investment Management Association (IMA), the UK fund industry body. This proprietary dataset contains information on the net buying and selling position (the net flow) of each fund, separately for individual (retail) and institutional investor categories. As this data was

considered to be informationally sensitive by fund management companies, the decision to release this information was put to a vote by the members of the IMA. In addition, the IMA member companies also asked that there be at least a five-year embargo period between flows realization dates and the dates of data release. This dataset has two key advantages over, for example, traditionally used U.S. flow data. First, fund flows are unambiguously classified into individual and institutional by the IMA (as opposed to third parties inferring this information from fund characteristics, Salganik-Shoshan, 2016). Second, the dataset provides us with the exact net flows for each fund every month, whereas typically researchers have to approximate fund flows based on fund sizes and investment returns. Retail investors are individuals investing in a particular fund, whereas institutional investors include organizations managing insurance and pension funds. Although not all UK fund management companies are members of the IMA, the yearbook for the mutual fund industry in the UK (the Unit Trust Yearbook) suggests that member firms were responsible for approximately three-quarters of funds managed in the UK during our sample period¹.

In addition, our database contains variables that control for other potential influences on flows. Specifically, the finance literature (Jain and Wu 2000; Sirri and Tufano 1998; Lou 2012) has documented that fund size and past fund performance, along with lagged flows, are important determinants of flows into mutual funds. Our monthly fund return (performance) data come from Quigley and Siquefield (2000), who collect monthly returns for UK funds over the

¹ Since the publication of the Asset Management Market Study in 2018 by the fund industry regulator in the UK (the Financial Conduct Authority or FCA) in which it severely criticised mutual fund industry conduct, mutual fund companies in the UK have become much more wary about releasing their proprietary data from any source including making data available through the fund industry body, suggesting that it is currently unlikely that this type of data will be released.

period 1975-1997, and subsequently extend this data set to the end of 2003. Keswani and Stolin (2012) highlight that mutual fund investors focus on relative performance above and beyond absolute performance in determining their mutual fund flows. We therefore proceed in two steps. First, we calculate the raw return performance of funds each month. As fund investors have been shown to care about past performance over a time span of one year and above when making their fund trading decisions (Gruber 1996; Sirri and Tufano 1998), we compound the past 12 monthly return observations for each month, giving us an absolute measure of fund performance. Second, we calculate the corresponding performance percentile relative to the entire population of domestic equity funds. We use the resulting relative performance measure throughout the analyses that follow. We also hand collect data on fund fees from back copies of the UK Fund Yearbook. In the UK, mutual funds normally charge initial and annual fees but typically do not charge redemption fees, therefore we collect data on the former two variables. However, we do not incorporate fees in our final specification, which uses first differences, since they remain essentially invariant over the observation period and hence their effects are differenced away.

Our advertising data consist of both content and frequency information from a sample of seven publications. The publications chosen are either weekly or monthly specialized magazines targeted at individual (retail) investors and investment professionals such as institutional investors or investment advisers. Similarly to Anderson et al. (2013), we classify advertising content in the selected publications as either informative or persuasive, which is consistent with our uninformative persuasion perspective. We code an ad as informative if it focuses on a given fund's performance, which has been shown to be a salient attribute for the choice of mutual funds (Sirri and Tufano 1998; Capon et al. 1996). Specifically, we code ads as informative if

they compare the performance of a fund to a) other funds in the sector, or b) the performance of the stock market during the same period. Thus, our informative advertising classification is comparable to our ranked performance measure since they both are benchmarked. We then calculate the monthly frequency of informative ads for each fund across all publications. Since we adopt a decision-framing perspective for persuasive advertising, we also verify whether uninformative ads frame the mutual fund purchasing decision in a manner favorable to the advertiser and familiar to the audience. Our analysis suggested that uninformative ads can be classified into one of the following four decision-framing categories: a) “grabbing an opportunity,” b) “a choice that should be smart,” c) “choosing a professional service from a trusted company,” d) “securing the future.” We note that categories a) and c) are also identified by Mullainathan et al. (2008) and all can be considered as familiar to investors. We therefore verify that uninformative ads use a persuasive decision-framing approach and count their monthly frequency for each fund across all publications. In addition, we estimate the average placement cost for each publication using Nielsen data on ad spending over the observation period. Finally, we record the ad size, whether the ad was a full page, a full two pages, a half page, a small ad on one page or a small ad that appears on two pages. Ad cost and size information allows us to calculate a “visibility” advertising metric, explained in the model specification section, to adjust raw frequency data. Hence our metric captures both qualitative (content) and quantitative (cost, size) aspects of advertising.

Table 1 contains descriptive statistics for flows (in millions of British pounds) and advertising data used in our analysis. To make comparisons possible, we focus on 56 domestic equity funds in which both individual and institutional customers invest over the entire observation period. Of the 56 funds, 48 advertise; all advertising funds use persuasive messages

whereas 12 use both informative and persuasive messages. Thus 36 funds use only persuasive messages whereas no funds use only informative messages.

2.2 Model Specification

Our data has a panel structure consisting of information for 56 funds (cross-sections) over 60 months (time series). In addition, the dependent variable of interest (net flows) may be influenced by its past (lagged) values, necessitating a dynamic panel modeling approach. Thus, we use the following dynamic panel model specification (e.g. Baltagi 2008):

$$(1) \quad y_{it}^j = \lambda y_{it-1}^j + \sum_{k=1}^K \beta_k x_{kit} + \mu_i + v_{it}$$

Where y_{it}^j denotes net flows for fund i at time t for investor type j ($=\{\text{individual, institutional}\}$), and x_{kit} are time-varying regressors including (informative and persuasive) advertising, fund size, and performance, $\mu_i \sim IID(0, \sigma_\mu^2)$ represents individual specific effects, and $v_{it} \sim IID(0, \sigma_v^2)$. Thus, our set of explanatory variables is consistent with Jain and Wu (2000), but in addition we consider differences in advertising content (informative, persuasive) and market (individual, institutional).

To eliminate the individual fund effects μ_i in equation (1) we take first differences:

$$(2) \quad \Delta y_{it}^j = \lambda \Delta y_{it-1}^j + \sum_{k=1}^K \beta_k \Delta x_{kit} + \Delta v_{it}$$

As mentioned earlier, first-differencing is the reason for not including fund fees as a control variable since they remain invariant over the observation period and hence would have been differenced away. First-differencing also gets rid of any endogeneity due to individual effects.

To capture (informative and persuasive) advertising effects we use a composite advertising measure which is the product of ad placement frequency of informative or persuasive ads at month t and the cost-weighted average size of ads placed in that month. The latter can be

viewed as a “visibility” advertising metric which accounts for ad size as well as reach since advertising cost is associated with higher circulation. Hence our measure captures not only quantitative aspects of advertising (frequency, cost and ad size) but also qualitative aspects, namely content (informative, persuasive) which is classified using the process described in the data section. As elaborated in the data section, we use a ranked measure for the fund performance variable based on the buy-and-hold return over the past 12 months with 100 as a maximum value. The top-percentile funds are assigned the value of 100, the next percentile funds the value of 99, and so on. It should be noted that the 56 funds included in the sample are ranked with respect to all funds in their category (domestic equity) and not just with respect to the other funds in the sample. Hence, their ranking is global rather than local. Thus, our performance measure is benchmarked just like the type of information we track in the ads (benchmark performance). This allows us to test the relevance of the information included in the ads through the significance of the performance effect on flows. More specifically, a significant effect of benchmarked performance on net flows would suggest that such information contained in advertisements is relevant to investor decision-making.

To account for potential endogeneity of advertising we use lagged dependent variables as instruments (Arellano and Bond 1991). We estimate the model using a two-step GMM estimator with up to four dependent variable lags as instruments. We construct diagnostic tests (Sargan and AR(1) and AR(2)) to check the validity of our approach (Baltagi 2008). We also estimate a model for all investors (investor aggregation) as well as for the case where we do not distinguish between informative and persuasive advertising (content aggregation) to form a baseline for our findings.

3. Findings and Discussion

We begin our discussion by first presenting the findings of a model that does not distinguish between informative and persuasive advertising effects and then proceed with the full model findings.

3.1 Model without content effects

Table 2 contains model estimation results. We use a single advertising variable, ad size-adjusted frequency for all ads regardless of content (informative or persuasive). The results suggest that advertising is significant for both markets. This is consistent with the findings of Jain and Wu (2000) on advertising effects on mutual fund flows for all investors. The corresponding coefficients (betas) are not comparable across markets since the fund flow statistics indicate that institutional and individual flows have different distributions. To facilitate interpretability of the advertising coefficients, we calculate advertising elasticity at mean levels for each market as $\beta \frac{\bar{x}}{\bar{y}}$ where β is the corresponding advertising coefficient, and \bar{x} and \bar{y} are the corresponding mean advertising frequency and net flows reported in Table 1. Means are calculated over advertising funds, i.e. when a fund's mean advertising level is non-zero, since in the non-advertising case elasticity is undefined. The reported advertising elasticities (middle of Table 2) appear to be high. However, it should be noted that the aggregate advertising effect (left column) is comparable with that reported by Jain and Wu (2000), who do not distinguish between investor types but consider fixed effects of advertising. More specifically, Jain and Wu find that advertising funds attract on average 20% more net flows than non-advertising funds. Similarly, our findings suggest that an incremental advertising exposure would lift net flows by .21 or 21% over the 0.99 average of total net flows from both types of investors (.21/.99), reported in Table 1. Hence the estimated advertising effect possesses face validity. Nevertheless,

we do not rule out the aggregation of advertising content as a possible reason for the high elasticities. This will be addressed in the full model analysis.

Fund size effects are negative whereas past performance has a positive effect for both individual and institutional investors. Our findings of a significant negative relationship between fund size and subsequent flows are consistent with Chen et al. (2004) who argue that investors put less money into larger funds because they expect lower future performance. However, it should be noted that the economic magnitude of the size effect is distinctly second-order and much smaller than the effect of lagged flows and past performance for both institutional and individual investors. The significant effect of (ranked) past performance confirms that it is a salient attribute in the mutual fund investment decision (Capon et al. 1996; Sirri and Tufano 1998), a finding which applies to both markets. Consequently, the benchmarked information we track in advertisements is relevant to investor decision-making. The diagnostic statistics support the validity of our approach. The Sargan test does not reject the null hypothesis of no overidentifying restrictions, whereas the AR tests indicate that there is first order serial correlation but no second order serial correlation.

3.2 Full model with content-specific advertising

Table 3 contains the results from the full model accounting for advertising content effects, including persuasive and informative advertising elasticities. The effects of the rest of the explanatory variables remain essentially unchanged compared to the previous model, suggesting robustness of our model specification. The diagnostic tests also provide similar guidance regarding the validity of our assumptions as the previous analysis. The only substantive change in the findings concerns the effects of persuasive and informative advertising content and the corresponding elasticities. The first observation is that advertising elasticities are generally lower

than the ones derived from the previous analysis, and hence their face validity is much improved. Assuming similarity between the mutual fund investment decision to that of purchasing a durable good (Sirri and Tufano 1998), the estimated informative and persuasive elasticity levels are within the range of durable goods elasticities (0.19-0.51) reported in the most recent meta-analytic study on advertising effects (Sethuraman et al. 2011). The comparison of elasticities corresponding to the two models, points to an upward content aggregation bias. To our knowledge, ours is the first study to report this type of bias.

The second observation is that when market type is not taken into account, persuasive and informative advertising elasticities are similar (left column of Table 3). However, when we disentangle market type effects, the findings offer additional insights. More specifically, persuasive and informative elasticities now differ considerably within each market. Therefore, there is also market aggregation bias which is important for dual marketers to account for, since they need to compare responses across both markets. The findings reveal an asymmetry with respect to the response of each market. Only the individual market responds to informative advertising (institutional market informative advertising elasticity is low and insignificant), although both types of investors respond to past performance. Hence, the more informed institutional markets tend to discount information contained in ads. However, both markets respond similarly, in terms of elasticity, to persuasive advertising. This finding confirms our expectations regarding the persuasive effect in institutional markets and suggests that it is possible for dual marketing firms to efficiently target both markets with the same persuasive message. More broadly, our findings suggest that advertising can reduce decision-making costs either through the provision of information (informative content effect on the consumer market) or decision frames (persuasive content effect on both markets).

4. Summary and Conclusion

Our study investigates whether advertising can have a persuasive effect in dual markets and finds that, at least in the case of mutual funds, this is true. We find persuasive advertising elasticities for institutional and individual markets to be similar (and sizeable) which allows firms competing in dual markets to target both with the same message and achieve advertising economies. Informative advertising, on the other hand, is only effective in the consumer (individual investor) market. The finding on the differential response of consumer and institutional markets to advertising suggests that both markets engage in at least limited processing of ads or, broadly speaking, “content matters.” This rules out basic explanations on the role of advertising, at least in financial markets, based on attention or familiarity (Grullon et al. 2004; Barber and Odean 2008). Our analysis also revealed two types of aggregation bias with respect to the advertising effect. The first is what we call content aggregation bias: not accounting for advertising content would, somewhat surprisingly, lead to higher advertising elasticities, at least in the context of our application. This, to our knowledge, is the first time that such type of a bias is reported. The second is market aggregation bias which is particularly important to monitor for dual marketing firms.

From a broader perspective, our study contributes to the literature of (persuasive) advertising effects in institutional markets, which has been limited to the prescription pharmaceutical market, by examining a dual market setting. In addition, our study joins a growing literature on informative and persuasive advertising content and its effect on market response (e.g. Anderson et al. 2013; Kolsarici and Vakratsas 2010), and reports both informative and persuasive advertising elasticities. It is also the first, to our knowledge, study to report advertising elasticities for financial services.

A limitation of our work is that the analysis is performed at the market level and hence lacks individual behavior insights regarding the effects of advertising. However, it should be noted that replicating our analysis at the individual level is a challenging task as such data may be difficult to obtain for all the funds included in our study or across all brokerage firms used by investors for their transactions. Nevertheless, investor-level analysis presents a promising avenue for future research. We also did not consider degrees of sophistication, due to lack of such information, which could influence the decisions of institutional investors. For example, de Dreu and Bikker (2012) found that the extent to which institutional investors exhibit coarse thinking depends on their level of sophistication, an insight worthy of further investigation. Finally, we hope that our work will spur further research on persuasive advertising effects in institutional markets.

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TABLE 1

Descriptive Statistics: mean monthly net flows and advertising frequency
(*std deviation*)

	All Funds	Persuasive ^b Advertisers	Informative Advertisers	Non-Advertisers
Individual Flows^a	0.24 (2.84)	0.25 (3.02)	1.87 (5.12)	0.19 (1.41)
Institutional Flows	0.75 (4.30)	0.96 (4.6)	0.91 (3.45)	-0.55 (1.03)
All ads	2.08 (2.5)	2.47 (2.54)	3.77 (2.62)	
Persuasive ads	1.99 (2.45)	2.37 ^c (2.49)	3.37 (2.6)	
Informative ads	0.09 (0.29)	0.10 (0.31)	0.40 ^d (0.53)	
N	56	48	12	8

a. Flows in millions of British pounds (£)

b. All advertising funds engage in persuasive advertising

c. This represents the average frequency among all persuasive advertisers

d. This represents the average frequency among all informative advertisers

TABLE 2
Dynamic Panel Model without advertising content effects
(t-values)

Variable	All Investors	Individual Investors	Institutional Investors
<i>Lagged flow</i>	0.05 (6.52)	0.21 (33.44)	0.04 (12.45)
<i>Advertising</i>	0.21 (9.71)	0.07 (10.78)	0.09 (8.70)
<i>Fund Size</i>	-0.01 (-15.70)	-0.003 (-35.21)	-0.01 (-34.10)
<i>Fund Performance</i>	0.10 (6.67)	0.01 (7.16)	0.06 (7.36)
	<i>Advertising Elasticity</i>		
	0.43	0.69	0.23
	<i>Diagnostic Tests</i>		
<i>Sargan test statistic</i> <i>(Prob>Chi-square)</i>	51.43 (1.00)	53.62 (1.00)	53.43 (1.00)
<i>AR(1) test statistic</i> <i>(p-value)</i>	-3.09 (<0.01)	-2.98 (<0.01)	-2.91 (<0.01)
<i>AR(2) test statistic</i> <i>(p-value)</i>	0.68 (0.25)	1.04 (0.15)	0.43 (0.33)

TABLE 3

Dynamic Panel Model results with content-specific advertising
(*t-values*)

Variable	All Investors	Individual Investors	Institutional Investors
<i>Lagged flow</i>	0.04 (4.15)	0.19 (34.13)	0.04 (11.21)
<i>Persuasive advertising</i>	0.12 (5.59)	0.02 (4.84)	0.06 (5.27)
<i>Informative advertising</i>	1.34 (3.87)	1.38 (41.83)	0.08 (0.57)
<i>Fund Size</i>	-0.01 (-15.64)	-0.002 (-10.07)	-0.01 (-18.22)
<i>Fund Performance</i>	0.07 (6.79)	0.02 (9.14)	0.06 (8.89)
	<i>Persuasive advertising elasticity</i>		
	0.23	0.19	0.15
	<i>Informative advertising elasticity</i>		
	0.19	0.29	0.03
	<i>Diagnostic tests</i>		
<i>Sargan test statistic</i> (<i>Prob>Chi-square</i>)	52.95 (1.00)	53.35 (1.00)	50.74 (1.00)
<i>AR(1)</i> (<i>p-value</i>)	-3.09 (<0.01)	-3.00 (<0.01)	-2.89 (<0.01)
<i>AR(2)</i> (<i>p-value</i>)	0.60 (0.28)	1.10 (0.14)	0.38 (0.35)

APPENDIX

Publications used for the advertising content data

1. *Money Observer* was launched in 1979 and is a monthly personal finance magazine. It was the winner of the Consumer Financial Magazine of the Year award 2001, 2002 & 2004.
2. *Bloomberg Money* was a monthly personal-finance magazine that operated between the 1997 and 2006.
3. *What Investment?* is a monthly personal-finance publication aimed at both advisers and investors.
4. *Personal Finance* is a monthly publication aimed primarily at retail investors.
5. *Money Management* magazine is a monthly personal finance magazine and is published by the Financial Times Group. It was originally launched in 1962 as *The Unitholder* and later became a part of the FT Business stable. Money Management is written predominantly for financial professionals such as financial advisers.
6. *Fund Strategy* is a weekly magazine distributed to the top 6,000 investment intermediaries in the UK. In order to receive a copy the individual must spend at least 20% of their time researching the investment market or derive at least 20% of their income from writing investment fund business. Its audience consists of independent advisors, stockbrokers, discretionary fund managers, fund of fund managers and their researchers and analysts.
7. The *Investors Chronicle* was established in 1860 and is a weekly magazine for private investors published by the Financial Times Group.