ADVERTISING, EARNINGS PREDICTION AND MARKET VALUE: AN ANALYSIS OF PERSISTENT UK ADVERTISERS

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Abstract

This paper examines whether major media advertising expenditures help in predicting future earnings. We consider the role of media advertising in firms' marketing efforts and posit that persistent advertisers are more likely to benefit from advertising activities in creating long-lived intangible assets. Employing a sample of persistent UK advertisers over the period 1997-2013, we find that advertising expenditures are significantly positively associated with firms' future earnings and market value. We also report size and sector-based differences in the association between advertising and firms' future earnings. Our additional analysis provides support for the arguments that despite the recent rise in digital advertising budgets, traditional advertising media are still effective in positively influencing firms' performance. Overall, the results of this study are consistent with the view that advertising expenditures produce intangible assets, at least for firms in certain sectors. These findings have implications for marketers in providing evidence of the value generated by firms' advertising budgets, for investors in validating the relevance of advertising information in influencing future earnings, and for accounting regulators in relation to the provision of useful insights for any future deliberations on financial reporting policies for advertising expenditures.

Key Words

Advertising, Disclosure, Earnings, Value Relevance, Intangible Assets

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INTRODUCTION

In today's competitive environment, advertising plays an important role in creating and enhancing customer awareness about firms and their products and services (see e.g., Joshi and Hanssens, 2010; Servaes and Tamayo, 2013; McAlister, Srinivasan, Jindal and Cannella, 2016). Some companies make large outlays on advertising and other marketing activities in the hope of generating long-term brand equity (Shah, Stark and Akbar, 2009; Joshi and Hanssens, 2010).[1] For instance, firms in the UK spend large sums on advertising which constitute a considerable percentage of their total marketing budgets. There has also been a significant increase in UK advertising expenditures, which reached £22.1 billion in 2017 (Advertising Association/Warc Expenditure Report, January, 2019).

Whether advertising spending creates value for the firm and how financial reporting treats advertising expenditures are regarded as prime research priorities in the marketing, accounting and finance literatures (Rust, Ambler, Carpenter, Kumar, and Srivastava, 2004; Gu and Li, 2010; Luo and de Jong, 2012). In the marketing literature, this priority is underlined by the increasing scrutiny given to advertising and other marketing activities' budgets, and the pressure exerted on managers to demonstrate the value created by these resources. The significance of understanding the returns on marketing and advertising expenditures is echoed by relevant professional institutions such as the Marketing Science Institute and the American Association of Advertising Agencies (Srivastava, Fahey, and Christensen, 2001; MSI, 2018). These priorities are also acknowledged by firms in industries that invest heavily in both traditional and digital advertising. For example, Unilever Plc – one of the world's leading spenders on advertising emphasises the challenges of evaluating the value of digital and social media advertising by pointing out that '…*digital*

advertising is playing an increasingly important role in brand advertising ... tackling viewability standards and fraud in digital advertising through verification of views – and demonstrating the value of digital advertising spend – are ongoing challenges for the industry' (Unilever Plc, 2017, p. 8).

Despite the shift in advertising budgets, moving from traditional to digital media (e.g., Ma and Du, 2018), there is a paucity of clear evidence in the relevant literatures on whether advertising and marketing activities in general, and traditional media advertising in particular, play a role in influencing firm performance. These shortcomings are emphasised by a number of authors, calling for more studies on the effects of advertising and other marketing investments on shareholder value, in order to help improve the financial reporting of firms' advertising and marketing outlays (e.g., Mizik and Nissim, 2011; Hanssens and Pauwels, 2016; Hughes, Hughes, Yan, and Sousa, 2018). Our study contributes to this research agenda by examining the impact of major media advertising expenditures (that is, press, radio, TV, cinema, direct mail, outdoor, and internet) on firms' future earnings and market values for a sample of persistent UK advertisers over the period 1997-2013.[2] In particular, we posit that persistent advertisers may be using advertising as a strategic choice not only to create awareness about their products, but also as a means to differentiate their brands from those of their competitors and are therefore more likely to benefit from advertising.

Our study is especially relevant in the current environment, which has seen a shift from the traditional to the new digital economy featuring firms, such as Apple, Google and Microsoft, with future earnings and market valuation largely based on intangible assets (Lev, 2018). Existing financial reporting regulations (International Accounting Standard, IAS 38) in the UK, that neither

allow firms to capitalise advertising expenditures nor require their disclosure, have resulted in a lack of reliably reported advertising data. Drawing on the agency theory perspective (Jensen and Meckling, 1976), we argue that the absence of advertising expenditure disclosures may not only contribute to information asymmetries between shareholders (principals) and managers (agents), but also permit opportunistic managerial behaviour, such as managing earnings by cutting discretionary advertising outlays to meet earnings targets (Guilding and Pike, 1994; Cohen *et al.,* 2010; Currim, Lim and Zhang, 2018).

Further, consistent with the signalling theory (Spence, 1973; Morris, 1987; Stiglitz, 2002), advertising expenditures may serve as a signal to communicate firms' strategic investment in promoting brands and their future earnings potential (Joshi and Hanssens 2010). However, given the financial reporting requirements to treat advertising as a current period expense, an increase in advertising expenditures would result in a corresponding reduction in the reported current period earnings. As a result, it is an empirical question whether advertising expenditures are positively or negatively linked with the firms' future earnings and market values. Similarly, there are two opposing views with regard to the role of advertising in influencing purchase decisions. The *advertising as information* view supports the impact of advertising only on current sales. In contrast, the *advertising as persuasion* view suggests a role for advertising in influencing both current and future performance (Comanor and Wilson, 1967; Nelson, 1974; McAlister *et al.,* 2016). It is therefore important to examine whether the benefits of advertising outlays extend beyond the current period in generating long-term intangible assets for firms.

This paper contributes to the relevant literature in several ways. First, we provide evidence of a positive link between advertising spending and firm performance for persistent advertisers. In line

with the agency theory, we emphasise the need for expanded disclosure of advertising expenditures to alleviate information asymmetries between agents and principals that may help curtail potential managerial opportunism. Second, consistent with the signalling theory, we show that information on advertising expenditures serves as a positive signal about future earnings, and investors could find this information useful in revising their estimates of a firm's valuation (Holmstrom, 1979; Mizik and Nissim, 2011). Our findings suggest that the benefits of advertising expenditures for persistent advertisers extend beyond the current period and thus advance the ongoing debate on whether advertising expenditures generate long-term benefits for firms (e.g., Core, Guay, and Van Buskirk, 2003; Joshi and Hanssens 2010; Tackx, Rothenberger and Verdin, 2017).

In addition, we find sector and size-based differences in the association between advertising expenditures and firms' future performance. Theoretically, these findings support the long-term strategic investment view of advertising in influencing firms' future profitability and market values (Ben-Zion, 1978; Joshi and Hanssens 2010), at least for certain sectors. Further, our additional analysis indicates that despite the recent increase in firms' digital advertising outlays, traditional advertising is still useful as it is positively associated with firms' market values. Our study thus contributes to the stream of literature on the usefulness of traditional versus digital advertising (De Vries *et al.,* 2017; Ma and Du, 2018).

Third, most of the existing studies on advertising originate from the US and typically rely on data derived from the Compustat database, which uses a broader definition of advertising, representing the cost of both advertising media and promotional expenses. As advertising and promotion are regarded as two different marketing tools, with different motives and diverse short and long-term implications for firms (Mela, Gupta, and Lehmann, 1997), the observed effects from prior US

studies may not be entirely attributable to advertising expenditures. In contrast, this study employs data which solely consist of major media advertising expenditures produced by a commercial data source – costly information for market participants. The finding of a significantly positive association between this costly information on advertising and firms' future earnings and market values affirms the importance of advertising and reassure marketing managers in justifying their efforts in planning and budgeting for advertising outlays.

Overall, the findings of this study not only have important implications for regulators in devising future financial reporting policies with regard to advertising, but also inform investors and other stakeholders (e.g., analysts, researchers) seeking to understand the nature of advertising expenditures, strengthening the arguments for expanded disclosure of advertising and other intangible assets in the financial statements of firms.

The rest of the paper is organised as follows. The next section provides an overview of the relevant literature, theoretical perspectives and the development of research hypotheses. The following section details the research methodology, data and sample characteristics. The subsequent section presents the discussion of results. The final section concludes the study and summarises the main findings and implications.

LITERATURE REVIEW

The Financial Reporting of Advertising Costs

Despite being a potential means to generate increased revenues over multiple periods, implying the creation of a long-lived asset, the accounting principle of conservatism requires that advertising

costs be treated as a current period expense. As a result, no asset with respect to advertising expenditures can be recognised in the financial statements (IAS 38), potentially obscuring the current value and changes in the value of these expenditures (Joseph and Wintoki, 2013). This has led a number of authors to question whether the current financial reporting standards sufficiently account for the role of advertising and other marketing-related activities in the financial statements (e.g., Mizik and Nissim, 2011). Similar arguments are also made by a number of authors in the accounting literature (e.g., Amir and Lev, 1996; Core *et al.,* 2003; Lev, 2018), who indicate a decline in the value relevance of accounting information and feel frustrated with the widening gaps between firms' book values and market valuations, due to the apparent failure of financial statements to account for intangible assets (e.g., R&D and advertising).[3]

From a financial reporting perspective, a related issue concerns the *disclosure* of financial information. In the UK, for instance, IAS 38 requires advertising and promotion expenditures to be written off as incurred and there are no requirements for the disclosure of these expenditures. In the US, on the other hand, while the Statement of Position (SOP) 93-7 requires that most advertising costs be expensed as they are incurred, or when the advertising first occurs, it also allows firms to capitalise *direct response advertising costs*, provided certain conditions are fulfilled. It also requires that total advertising expense be disclosed, but it does not specify a 'materiality' threshold (Legoria, 2005; Simpson, 2007; Heitzman, Wasley, and Zimmerman, 2010; McAlister *et al.,* 2016).[4]

Theoretically, in the absence of disclosure costs, managers would be inclined to voluntarily disclose information as long as they perceive that the net benefits from disclosure exceed the costs of disclosure (Verrecchia, 1990). Given the flexibility in reporting requirements, however, firms

may choose not to disclose their advertising costs due to fear of (i) giving away information to competitors; (ii) negative responses from the market as it is treated as a cost item; or (iii) an increase in political costs if disclosure were to reveal a monopolistic advantage or social inequalities (Gray, Radebaugh, and Roberts, 1990; Lundholm and Van Winkle, 2006).[5] While a sizable number of US firms disclose advertising expenditures in their financial statements, there is virtually no disclosure of advertising expenditures by UK firms (Shah *et al.,* 2009).[6] This study therefore employs a proprietary source of advertising data to examine the impact of major media advertising expenditures on firms' future earnings and market values.[7] In doing so, we aim to contribute to the debate on an interesting and important accounting policy issue – should data on advertising expenditures be disclosed in financial statements?

Theoretical Perspectives and Hypothesis Development

The evaluation of the benefits of advertising expenditures is important for investment and management purposes. The marketing, accounting and economics literatures provide theoretical arguments and frameworks in describing the nature of advertising (e.g., Srivastava, Shervani, and Fahey, 1998; Joshi and Hanssens, 2010). Lavidge and Steiner (1961), for instance, consider advertising as a means that must move consumers from unawareness to purchase of the product through a series of steps involving *information* (cognitive), *favourable attitude* (affective) to ultimately *action* (conative). Supporting the multipurpose goal of advertising, Hirschey (1982) argues that the firm's overall objective in undertaking advertising activities is profit and suggests that the analysis of advertising effectiveness must consider the complete body of intended effects. Similarly, Joshi and Hanssens (2010) present a conceptual framework and report findings which support both direct and indirect impact of advertising on the market value of firms.

Relevant literature on advertising often assumes either an *information* role for advertising, in informing consumers about the existence of products at various prices, or a *persuasion* role, in differentiating products and brands, resulting in loyal customers who are willing to pay premium prices (Comanor and Wilson, 1967; Nelson, 1974; Abernethy and Franke, 1996; McAlister, Srinivasan and Kim, 2007). Firms that allocate funds to advertising expect a return in the form of increased firm value. It is therefore expected that in order to increase its value by engaging in advertising activities, a firm should be able to derive future benefits in the form of improved cash flows. Advertising is intended to help firms by altering consumer preferences for particular products or vendors and, hence, influencing firms' sales. In addition, advertising expenditures could create a market-based asset that could lead to a consistent revenue increase and durable source of profit (Srivastava *et al*., 1998). Similarly, Grullon, Kantas and Weston (2004) suggest that a firm's advertising activities improve its familiarity to investors, which results in higher stock liquidity due to reduced information asymmetry. This in turn reduces the cost of capital and positively affects the market value of the firm. McAlister *et al*. (2007) hold a similar view, indicating that a firm's advertising lowers its systematic market risk.

Taking insights from the theoretical frameworks employed in the above studies on how advertising may influence firms' profits and market values, we posit that advertising serves multiple purposes. Advertising can have both a direct impact on firms' market values and an indirect influence through its effects on sales, earnings, and building brand equity, which ultimately affect firms' market values (Simon and Sullivan, 1993; Joshi and Hanssens, 2010, Currim *et al*., 2018).[8]

[INSERT FIGURE 1 HERE]

Table (1) provides a summary of some relevant studies examining the relationship between advertising and firms' profitability and market performance. While Graham and Frankenberger (2000) suggest that both current and lagged advertising expenditures explain earnings, Sougiannis (1994) only indicates a short-lived effect of advertising expenditures. Similarly, Chemmanur and Yan (2009) report that a greater amount of advertising is associated with a larger stock return in the advertising year but a smaller stock return in the year subsequent to the advertising year.

In contrast, Tackx *et al.* (2017) find that advertising expenditures have no significant impact on firm profitability. There is therefore no clear-cut consensus as to whether advertising expenditures help forecast future earnings. A similar picture emerges in the UK context as well, where literature on the role of advertising in influencing firms' future earnings is limited due to a scarcity of advertising expenditure data. While Reekie and Bhoyrub (1981) find no significant relationship between advertising and profits, Paton and Williams (1999) report that advertising is correlated with profitability for firms in consumer goods industries.

[INSERT TABLE 1 HERE]

Evidence on the value relevance of advertising expenditures is equally inconsistent. Some studies report a positive impact of advertising spending on firms' market values (Graham and Frankenberger, 2000; Joshi and Hanssens, 2010; Servaes and Tamayo, 2013). In contrast, other studies find no such relationship (Core *et al*., 2003; Eng and Keh, 2007), and a few studies even report a negative effect of advertising on firms' market based performance (Han and Manry, 2004; Lu and Beamish, 2004).

More recently, a debate has emerged in the relevant literature on whether the recent shift of advertising budgets from traditional to digital media (e.g., Ma and Du, 2018) is benefiting firms

and whether traditional media advertising is still useful for firms. Empirical evidence on these issues is rather scant, however. Using data from a European Telecom firm, De Vries, Gensler, and Leeflang (2017) indicate that traditional advertising is most effective for both brand building and customer acquisition. On the other hand, Ma and Du (2018) report that the ratio of digital advertising to traditional advertising has an inverted U-shaped relationship with firm value, suggesting the adverse effects of digital advertising when its share as a proportion of traditional advertising budget exceeds a certain threshold. In line with this, some firms have started to re-think their advertising media mix. One of the world's biggest advertisers, Procter and Gamble, for instance, has recently slashed its spending on digital advertising by more than $200 million, contending that such spending is largely wasteful (Kostov and Vranica, 2018).

While prior studies in the accounting and finance, economics and marketing literatures examine the relationship between individual product or product category advertising and sales or earnings, recent literature (e.g., Joshi and Hanssens, 2010, Servaes and Tamayo, 2013) focuses on understanding the firm level impact of advertising on firms' accounting and market-based performance. Consistent with this, we examine whether major media advertising expenditures are associated with UK firms' future earnings and market values. If we can demonstrate a role for advertising in predicting firms' performance, it will reassure managers about the value of their planning and budgeting for advertising outlays, and a case can also be built for the expanded disclosure of advertising in financial statements. Such an argument could be supported for at least two reasons. First, from an agency theory perspective (Jensen and Meckling, 1976), we argue that the lack of disclosure of advertising expenditures may contribute to information asymmetries between insiders and other stakeholders, allowing managers to act opportunistically, especially when their incentives are tied to the current period's earnings.

Disclosure of financial information provides managers and investors with information about potential investment opportunities and facilitates decisions about how to allocate investment funds and evaluate the outcome of investment decisions (Biddle, Hilary, and Verdi, 2009; Dechow, Ge, and Schrand, 2010; Armstrong, Barth, and Riedl, 2010). In line with the signalling theory (Spence, 1973; 2002), we therefore posit that information on advertising expenditures could be useful for investors and other stakeholders with regards to future earnings prospects and the market values of firms. With respect to advertising, Grinyer, Collison, and Russell (1994) indicate that, where such expenditures are not separately disclosed in the financial statements, the market is unlikely to be aware of them due to information asymmetry (see also Aboody and Lev, 2000).

Second, from an accountability perspective, the providers of funds would like to know whether management put the funds at their disposal to productive use in generating future cash flows and returns. Marketing managers are also increasingly interested in evaluating the return on their advertising and other marketing investment decisions to demonstrate the value generated by these investments to relevant stakeholders (Rust *et al*., 2004; MSI, 2018).

Further, evidence in the management literature indicates that firms pursue various strategic choices to gain competitive advantage (e.g., Porter, 1980; Pertusa-Ortega, Molina-Azorin and Claver-Cortes, 2009). Firms following a differentiation strategy can use advertising to promote their product and brand attributes, generating brand equity that influences firm value (Barth *et al*., 1998; Madden, Fehle and Fournier, 2006). Cost leaders, on the other hand, do not have any point of difference upon which to build brand equity and, therefore, advertising may not have any market value implications for those firms. More recently, McAlister *et al*. (2016) exploit the 1994 changes in the advertising disclosure regulations in the US (FRR 44) to demonstrate that advertising is

associated with the sales of both *differentiators* and *cost leaders*. Nonetheless, they find that the link between advertising and market value appears to be stronger for firms pursuing a differentiation rather than a cost-leadership strategy.[9]

We build on this literature and hypothesise that firms that are persistent advertisers are those that rely more on advertising not only to create awareness about their products and brands (Aaker, 1991; Keller, 2002) but also to differentiate their brands (Srinivasan *et al*., 2009). These firms are thus more likely to show a positive association between advertising activities and future earnings and market value. We therefore formulate the following two hypotheses:

H1:   Advertising expenditures have a positive association with firms' future earnings; and

H2:   Advertising expenditures have a positive association with firms' market values.

In addition, firms may pursue different strategies to compete in the market place. For instance, Zinkhan and Cheng (1992) find significant variation in advertising and promotion intensity across product versus service sector and consumer versus industrial sector firms (see also Chauvin and Hirschey, 1993; Graham and Frankenberger, 2000). In certain sectors (e.g., consumer goods and consumer services), firms target large audiences and often rely on advertising in pursuing low costs and/or differentiation strategies for their brands and services. In contrast, firms in industrial and technology sectors may employ an alternative strategy of investing in research and development to produce innovative products, technologies and processes that can help them generate a long-term competitive advantage (Core *et al.,* 2003; Shah *et al.,* 2009). Therefore, we expect that the effects of advertising on firms' performance may not be uniform across sectors. Similarly, large firms, by virtue of their size, may be better equipped than small firms to afford

large outlays on advertising and may benefit from economies of scale and scope in advertising. As a result, advertising expenditures are more likely to be effective for relatively larger firms (e.g., Hirschey and Spencer, 1992; Chauvin and Hirschey, 1993; Shah *et al.,* 2009).

Most of the prior literature examining size and sector-based differences, however, focuses on the value relevance of advertising, with very little evidence of the influence of advertising on firms' future earnings. We therefore hypothesise the following:

H3: Advertising expenditures have a stronger positive association with earnings for larger firms; and

H4: Advertising expenditures have a positive (*no*) association with earnings for firms from consumer goods and consumer services (*industrials and technology*) sectors.

To summarise, the review of relevant studies shows that the bulk of the evidence on the link between advertising and a firm's performance comes from the US and the findings are largely inconclusive. There is little evidence, however, in the UK concerning the impact of advertising on firms' future earnings, and whether there exist any sector and size-based differences in these relationships. One reason for this is the lack of availability of UK firm level advertising data (Paton and Conant, 2001; Shah *et al*., 2009). This study therefore employs advertising data from a proprietary source to examine the important issue of whether advertising expenditures play a role in predicting firms' future earnings, in order to provide useful information in considering any calls for the expanded disclosure of advertising expenditures (Shah *et al*., 2009; Mizik and Nissim, 2011; Luo and de Jong, 2012). If such disclosures were to be made, this would in turn help solve

the advertising data availability problem that hinders academic research, especially in the UK context.[10]

RESEARCH METHODOLOGY, DATA AND SAMPLE CHARACTERISTICS

Research Methodology

We expand upon the methodology of Barth *et al.* (1998) by first examining whether advertising expenditures help in forecasting future earnings. This follows Ohlson's (1998) response to Barth *et al.* (1998), suggesting that following such a line of enquiry would be useful in additionally establishing value relevance. We then look at whether there is an association between advertising expenditures and market value, after controlling for other relevant factors.

We focus on a sample of UK firms which are persistent major media advertisers in the period 1997–2013, as reported by our proprietary data source. We consider a firm as a persistent advertiser if it has positive advertising expenditures for all the sample years. We posit that persistent advertisers are more likely to be those that rely on advertising to differentiate their products and brands, and which create a competitive advantage by generating intangible brand equity that not only influences firms' future earnings but also has incremental market value implications.

As a consequence, if we find that advertising expenditures for our balanced panel sample of persistent UK advertisers are neither helpful in predicting future earnings nor useful in explaining market value, it seems less likely to justify calls for more disclosure of advertising expenditures, given that disclosure can carry with it costs.[11] Nonetheless, in order to provide comparisons and to

check for robustness, we also study an unbalanced panel sample, also derived from our underlying data, for the two sets of tests we perform.

Our research design is in two parts. First, we develop a geometric distributed lag model of the effect of advertising expenditures on earnings, controlling for the effects of other tangible and intangible assets.[12]

$$E_{it} = \alpha_t + \beta_1 \sum_{j=0}^{\infty} \lambda^j A_{it-j} + \beta_2 TA_{it-1} + \beta_3 OIA_{it-1} + \varepsilon_{it} \qquad (1)$$

Equation (1) describes a basic model in which earnings in year t for firm i (E_{it}) are a linearly separable function of a time-dependent constant effect (α_t), a geometric distributed lag effect from advertising (where A_{it-j} is the level of major media advertising expenditures for firm i in year t-j), and tangible and other intangible assets at the beginning of the year (TA_{it-1} and OIA_{it-1}, respectively). Earnings are measured as profits earned for ordinary shareholders *plus* research and development expenditures *plus* major media advertising expenditures. ε_{it} is an error term that is potentially heteroscedastic and auto-correlated.

Controlling for the effects of tangible assets and intangible assets at the beginning of the year is consistent with the resource based view of the firm (Barney, 1991; Srivastava *et al.,* 2001) and matches the treatment in Graham and Frankenberger (2000). Tangible assets are defined as book value (*BV*) at the beginning of the year, and other intangible assets are proxied by research and development expenditures (*RD*) for the previous year. The use of research and development expenditures in a year as a proxy for research and development capital can be found in several

prior studies (such as Hirschey and Weygandt, 1985; Green, Stark and Thomas, 1996; Shah *et al.,* 2009).

Our treatment of advertising expenditures allows them to have an immediate effect in the year in which they are incurred (Hirschey, 1982; Sougiannis, 1994; Graham and Frankenberger, 2000). Subsequent to the year of incurrence, their effects on earnings decline at a rate of λ. If advertising only has a short-lived effect, λ will be zero and β_1 will capture the entire effect of major media advertising expenditures on earnings. If λ exceeds zero, then this is consistent with major media advertising expenditures (i) helping in the prediction of future earnings; and (ii) creating an intangible asset. Further, if k is the cost of capital, estimates of β_1 and λ can be combined to produce an estimate of the average present value of the benefits associated with £1 of major media advertising expenditures.

Specifically, the present value (*PV*) is given by the following expression:

$$PV = \beta_1 + \beta_1 \frac{\lambda}{(1+k)} + \beta_1 \frac{\lambda^2}{(1+k)^2} + ... + \beta_1 \frac{\lambda^n}{(1+k)^n} + ... = \beta_1 \frac{(1+k)}{(1+k-\lambda)} \qquad (2)$$

Given the above, and because the geometric distributed lag effect is of infinite duration, the model is estimated in the following form:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1 A_{it} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it} \qquad (3)$$

where

$$\beta_t = \alpha_t - \lambda\alpha_{t-1}$$
$$\beta_{21} = \beta_2$$
$$\beta_{22} = -\lambda\beta_{21}$$
$$\beta_{31} = \beta_3$$
$$\beta_{32} = -\lambda\beta_{31}$$
$$\mu_{it} = \varepsilon_{it} - \lambda\varepsilon_{it-1}$$

Equation (3) is estimated using generalised least squares (GLS) panel data methods that allow for the error terms to be autocorrelated for individual firm time series, and for generalised heteroscedasticity. Nonetheless, prior to estimation, equation (3) is deflated by BV_{it-1} to partially mitigate heteroscedasticity problems.[13]

As a robustness check on the effects of advertising expenditures on earnings, we estimate two more specifications. First, we now assume that advertising expenditures have no impact in the year of incurrence but only affect earnings in later years. We maintain the assumption that advertising effects on earnings will decline at some rate λ. Equation (3) therefore becomes:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^* A_{it-1} + \beta_{21}BV_{it-1} + \beta_{22}BV_{it-2} + \beta_{31}RD_{it-1} + \beta_{32}RD_{it-2} + \mu_{it}^* \quad (4)$$

Again, equation (4) is estimated in deflated form, using BV_{it-1} as the deflator, and employing GLS panel data estimation methods. Similar to equation (3), an estimate of the average present value of future benefits arising as a result of £1 of advertising expenditures can be created as follows:

$$PV = \frac{\beta_1^*}{(1+k-\lambda)} \quad (5)$$

The second additional specification can be thought of as a simple linear information dynamics predictive equation (Ohlson, 1989; 1995). We use the same variables found to be significant in explaining UK market values in Akbar and Stark (2003), plus our estimates of advertising expenditures. Our approach is based upon the link between value relevance and the prediction of future performance established in the theoretical analyses of Stark (1997), Ohlson (1999) and Pope and Wang (2005). Hence, we estimate:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^{**} A_{it-1} + \beta_{21} BV_{it-1} + \beta_{31} RD_{it-1} + \beta_4 D_{it-1} + \beta_5 CC_{it-1} + \mu_{it}^{**} \qquad (6)$$

where D_{it-1} and CC_{it-1} are, respectively, dividends and capital contributions for firm i in year t-1. As with the other earnings forecasting equations, equation (6) is estimated after deflation by BV_{it-1} and using GLS panel data methods. This specification concentrates on the predictive ability of our measures of advertising expenditures for a component of earnings.[14]

Finally, we examine size and sector-based influences of advertising expenditure on the sample firms' future earnings. Initially, we estimate equations (3), (4) and (6), respectively, by splitting our sample into small and large firm sub-samples, classifying a firm in each cross-section as *large* when its size is above the median size for firms in the respective cross-section, with the remaining firms in that cross-section classed as *small*. The FTSE/DJ Industry Classification Benchmark (ICB) hierarchy provides ten industries to help investors monitor broad industry trends. Given our focus on non-financial firms, we therefore examine sector-based differences by estimating equations (3), (4) and (6) across four sub-sectors which are Consumer Goods (CG), Consumer Services (CS), Industrials (INDUS), and Technology (TECH). The choice of these sub-sectors is driven by the availability of a sufficiently large sample of advertising data to enable us to draw meaningful interpretations from our analyses.

The second part of the research design investigates whether major media advertising expenditures are associated with market value after controlling for other known valuation relevant variables. In particular, we model market value for firm i at time t (MV_{it}) as:

$$MV_{it} = \delta_t + \phi_1 E_{it}^* + \phi_2 A_{it} + \phi_3 BV_{it} + \phi_4 RD_{it} + \phi_5 D_{it} + \phi_6 CC_{it} + \omega_{it} \qquad (7)$$

Within this formulation, we use the same independent variables as are used in equation (6) to explain future earnings. Hence, we control for standard effects on market value such as earnings and book value (Core *et al.,* 2003; Akbar and Stark, 2003; Shah *et al.,* 2009). Earnings, *E**, are measured as profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures. We also control for research and development expenditures, dividends and capital contributions, because they have been found to be significant variables in explaining market values (Green, Stark and Thomas, 1996; Akbar and Stark, 2003; Hand and Landsman, 2005; Akbar, Shah and Stark, 2011).

As with the earnings models, equation (7) is estimated using panel data approaches which allow for autocorrelation in the error terms for individual firms, and heteroscedasticity. Again, to mitigate the effects of heteroscedasticity, equation (7) is estimated after deflation by BV_{it}.[15]

Data and Sample Characteristics

Data are initially collected for the years 1997 to 2013, and are derived from two sources. Apart from the data on major media advertising expenditures, all data are collected from Datastream. Advertising expenditures data are the estimates of major media advertising expenditures as reported by the commercial proprietary data source, ACNielsen MEAL. Only data for non-financial UK companies are collected on the standard grounds that the relationship between market

values and accounting numbers is considered to be different for financial as contrasted with non-financial companies. For a firm to enter the sample, it must satisfy the conditions that:

(i)   all the required data for the tests described in the previous section must be available for all years from 1997 to 2013; and

(ii)   closing and opening book values must be positive, because of their roles as deflators in estimating the various models.

Market value, *MV*, is calculated as the share price multiplied by the number of ordinary shares in issue and, for firm *i* in a given year *t*, measured four months after the financial year end in year *t*. Earnings, *E,* are initially measured as profits earned for ordinary shareholders and, where necessary adjusted by adding *RD* and advertising expenditures. *A* is the level of major media advertising expenditures. *RD* expenditures are defined as the sum of the amounts expensed in the year which are not capitalised, plus regular write-offs to the profit and loss account of research and development capitalised in the balance sheet. *BV* is calculated as the sum of shareholders' equity plus reserves. Dividends, *D*, are measured as dividends declared, and capital contributions, *CC*, are measured as the sum of equity raised for cash and for acquisitions.

The sampling strategy produces a balanced panel of 48 firms with a total of 720 firm-years, with two year lags, over the period 1999-2013. Firms in the balanced panel vary considerably in terms of the amounts spent on major media advertising. For example, Ted Baker only spent £7,900 in 1997, whereas Sainsbury's spent over £2,825,000. Total expenditures for the balanced sample grew at an average rate of 10.6%. At the same time, major media advertising expenditures for the total sample of firms for which we could identify such expenditures grew at an average rate of

5.6%. This difference in growth rates in expenditures is reflected in the proportion of identified advertising expenditures attributable to our balanced sample, which grows from 34% to 60% as a proportion of the total pooled sample. Overall, the proportion of advertising expenditures for the balanced sample is considerably higher in the pooled sample of firms for which we have positive advertising.

The unbalanced panel, the results from which are compared with those for the balanced panel, have the following characteristics. First, for the earnings prediction tests, if the requirement to have advertising data for all years is relaxed and, instead, an unbalanced panel is created in which firm-years are admitted into the panel if the firm has positive advertising data for that year, a sample with 4,517 firm-years is produced for the period 1999-2013. Second, for the market value tests, with a similar relaxation in data requirements, an unbalanced panel of 5,303 positive advertising firm-years is created, covering the years 1997-2013. Consistent with prior literature, all continuous variables are winsorised at the top and bottom one percent of the distribution for each sample to minimise the influence of any potential outliers.

RESULTS AND ANALYSIS

Earnings Prediction Models

Table 2 provides sector-wide distribution of the pooled sample and suggests significant sector-based variation in the samples. Table 3 presents summary statistics for the main variables and indicates that average advertising levels are relatively higher in the balanced panel sample compared with the unbalanced panel sample.

[INSERT TABLES 2 AND 3 HERE]

Table 4 presents the results for our three earnings prediction regression models, as described in equations (3), (4) and (6), for our balanced panel sample. For comparison purposes, the results for the unbalanced panel are also reported in the table. As we employ two years' lagged variables in our models, the analyses are performed on a panel of data running from 1999 to 2013.

[INSERT TABLE 4 HERE]

The results are consistent with respect to the association between major media advertising expenditures and firms' earnings. Equations (3) and (4), which both allow the association to be modelled as having a geometric lag structure (equation (3) assuming that part of the impact of the expenditures is felt in the period of incurrence and equation (4) assuming that the impact of advertising is felt starting one year after the year of expenditure) have significant and positive coefficients for our advertising variable. For the balanced panel, these coefficients suggest an average initial effect of £1 of major media advertising expenditures on earnings of £2.80 for equation (3), and £2.89 for equation (4). These results thus support hypothesis *H1*.

The coefficient of lagged earnings is also significant and, as indicated above, is an estimate of the rate of geometric decline in the impact of major media advertising expenditures on profits over time. For equations (3) and (4) the estimated rates of decline are 0.365 and 0.368, respectively, suggesting an estimated geometric depreciation rate ($1-\lambda$) of over 60%, whichever of these two estimation models we choose.

If we combine the coefficients of lagged earnings and advertising from equation (3), and assume a cost of capital of 12%, we can estimate the average present value of the benefits of £1 of major media advertising expenditures using equation (2), resulting in an estimate equal to £4.15.

Performing the same exercise using the estimates from equation (4), and inserting these into equation (5), produces a present value estimate of £3.85.

For both equations (3) and (4), the research methodology suggests implied restrictions on the relative sizes of the coefficients of RD_{it-1} (BV_{it-1}) and RD_{it-2} (BV_{it-2}). In particular, the coefficient of RD_{it-2} (BV_{it-2}) should be the negative of the product of the coefficient of E_{it-1} and RD_{it-1} (BV_{it-1}). Tests of the null hypotheses that these relationships hold produce test statistics that support the null for RD_{it-2} for the balanced sample, but reject the null for BV_{it-2}.

The estimates of equation (6) suggest that lagged advertising is useful in predicting one-period ahead earnings. All the other variables in the equation are also useful. The coefficient of the lagged book value is positive and significant. The total effect of lagged dividends on earnings (the coefficient of lagged dividends *less* the coefficient of the lagged book value) is also positive. The results for the unbalanced panel are broadly consistent with the conclusions drawn from the balanced panel analysis.

We carry out a number of robustness checks of our results based on our balanced panel sample (untabulated). First, we re-estimate our earnings models (3), (4) and (6) using firm-year and firm-clustered standard errors (Petersen, 2009) and arrive at similar results. Second, as advertising is more likely to influence operating profit, we replace our dependent variable with operating earnings and cash flow from operating activities, respectively, in our earnings models. Our main findings remain largely unaltered. Third, given that IAS 38 requires UK firms to capitalise development costs under certain conditions, we replace RD expense with capitalised RD and find largely similar results. Capitalised RD shows a positive and statistically significant relationship

with earnings. Finally, we include both expensed and capitalised RD in our estimation model and again find no significant change in our results.

In summary, the results from estimating equations (3), (4) and (6) on any of the panels of data suggest that the estimates of major media advertising expenditures identified in this study are useful in predicting future earnings. This occurs whether the predictive value is either embedded in a geometric lag structure for the benefits of advertising or within a simpler linear information dynamics framework. Further, the results from estimating equations (3) and (4) on the balanced panel are consistent with major media advertising expenditures producing, for the sample firms, a long-lived asset with an initial value of over £3 for each £1 spent and with a geometric depreciation rate of more than 60%.

Size and Sector-based Analyses

Table 5 presents the results for our size-based sub-sample analyses. The results suggest that advertising has a positive and statistically significant impact on firms' future earnings for both large and small firm sub-samples. The size of the coefficient of advertising for large firms' sub-sample, however, is larger than the small firms' sub-sample. The difference in coefficients of large versus small size firms' advertising is statistically significant at $p<0.01$. Similarly, assuming a cost of capital of 12%, an estimate of the average present value of future benefits arising as a result of £1 of advertising expenditures equals to £3.73 for large firms and £1.97 for small firms' sub-samples. The advantage of large firms' advertising over small size firms is consistent with some prior literature on the value relevance of advertising expenditures (e.g., Chauvin and Hirschey, 1993). Overall, our results indicate that large firms may benefit more from advertising than small firms, thus supporting hypothesis *H3*.

[INSERT TABLE 5 HERE]

The sector-based analysis (Table 6) shows significant variation in the impact of advertising on firms' profits across the four sectors. The overall differences across the sectors are significant at $p<0.01$. We find a positive and statistically significant influence for the consumer goods and consumer services sectors. The coefficient for current advertising for the former is, however, only significant at the 10% level. The estimated amortisation rates for these two sectors indicate that the influence of advertising lasts for more than one period. For the industrial and technology sectors, however, although we observe positive coefficients for both current and lagged advertising, these are statistically insignificant. Interestingly, for these two sectors, we observe that lagged RD has a positive and significant impact on future profits. These observations suggest that, given the nature of these two sectors, perhaps they tend to rely more on research and development to innovate and compete in the market place. Our results for the sector-based analysis support hypothesis *H4*.

[INSERT TABLE 6 HERE]

Overall, these results strengthen our previous contention that it may not be appropriate to have a standardised accounting policy of capitalisation and amortisation for advertising expenditures as we observe significant differences in the impact of advertising on firms' profitability across size and sectors, with advertising effects lasting for relatively longer periods in some sectors while, in others, the impact lasts for only a short period of time.

Market Value Effects

We now turn to the complementary part of the study. This investigates whether major media advertising expenditures are value relevant in a regression of market value on current major media advertising expenditures, controlling for the impact of other value relevant variables. The model is described in equation (7). Table 7 provides the results.

[INSERT TABLE 7 HERE]

Consistent with Shah *et al.* (2009), the results suggest that major media advertising expenditures are value relevant. The coefficient is large and statistically significant, whether for the balanced or the unbalanced panel. These results support hypothesis *H2*. The coefficient of advertising for the unbalanced panel is lower than that for the balanced panel, consistent with the results for the association between advertising expenditures and future earnings. The remainder of the estimated equations coefficient estimates are broadly consistent with prior results in the UK literature on empirical models of market value (e.g., Rees, 1997; Akbar and Stark, 2003; Shah *et al.*, 2009; Akbar *et al.*, 2011).

Additional Analysis - Traditional versus Digital Advertising

There has been a recent trend of firms shifting their advertising outlays from traditional to digital advertising. There is little evidence, however, whether this change in focus is bringing any positive benefits for firms. Batra and Keller (2016) carry out a useful review of issues surrounding how traditional and new media interact to influence consumer decision making. They argue that the power of traditional advertising media may still prevail even in today's media environment and point out that social media may not be as useful as traditional modes of communication in attracting

new customers and building brand equity. We therefore explore the contentious issue of whether traditional advertising activities are still effective in influencing firms' market performance.

While internet advertising has the advantage of providing more flexibility to adapt to consumer responses and being a relatively cost effective means of targeting consumers, it has an opportunity cost in terms of sacrificing the benefits accruing from reaching a wider audience through multiple outlets (Ma and Du, 2018). We therefore posit that both internet and traditional advertising media expenditures are likely to have positive association with firms' market values. In order to capture the individual impact of internet versus traditional advertising media expenditures (i.e., the sum of TV, press, radio, direct mail, outdoor), we include two separate advertising variables, *IntA* and *TradA*, respectively, in equation (7). Interestingly, we find that traditional advertising media expenditures have a significantly positive, while internet advertising expenditure has a significantly negative association with firms' market values (Table 8)[16]. We also employ an alternative proxy, *IntShareA* as the ratio of internet advertising expenditures to total advertising expenditures and re-estimated equation (7). Our results remain largely unaltered. These additional analyses further strengthen arguments that traditional advertising still plays a dominant role in positively influencing firms' market performance.

[INSERT TABLE 8 HERE]

DISCUSSION AND CONCLUSIONS

Advertising can not only act as a means of increasing revenues but can also be effective in creating consumer awareness and knowledge by influencing both short and long-term consumer preferences. This study therefore investigates whether media advertising expenditures are

associated with firms' future earnings and market values. Focusing on a sample of persistent UK advertisers, we find that advertising expenditures are useful in predicting future earnings and can help explain variations in market values over time and across firms. Our robustness checks on the unbalanced panel support these conclusions. At an intuitive level, this might suggest that making advertising expenditure information more widely available to market participants is sensible.

Our results have a number of important implications. First, our study contributes to the debates surrounding whether to view advertising as a current period expense or as an investment in intangible assets. Results in the study provide strong support for the value creation potential of advertising expenditures, given that advertising has a positive association not only with firms' future earnings but also with firms' market values, even after controlling for other variables that are known and theorised to affect these values.

Second, from a financial reporting perspective, we highlight the potential importance of the disclosure of advertising expenditures for managers, corporate law authorities and accounting bodies. This is because from the agency theory perspective, the lack of accounting information on expenditures like advertising can be costly for investors as it may provide opportunities for managers to act opportunistically by, for example, cutting advertising budgets when earnings are under pressure (Cohen *et al.,* 2010; Currim *et al.,* 2018). Similarly, from the signalling theory perspective, we argue that advertising expenditures serve as a signal to investors about firms' future performance. As a result, disclosure of advertising expenditures may help improve transparency and alleviate information asymmetries, potentially reducing the cost of capital for the firm (Grullon *et al.,* 2004, Lambert, Leuz, and Verrecchia, 2007), and facilitate financial market participants' valuation of firms.

Third, researchers in marketing can also gain further understanding of the nature of advertising from this study, especially in the light of the increasing pressure put on marketing managers to justify their advertising budgets. Our findings suggest that the benefits of advertising extend beyond the current period at least for some sectors. Similarly, our results could imply that disclosure of other similar items (such as brands, training and development costs) would be beneficial for firms in communicating their long term strengths to investors. Moreover, our additional analysis contributes to the emerging literature on the effectiveness of traditional versus digital advertising by presenting evidence suggesting that traditional advertising media still produce value for firms in this changing business environment of increasing focus on digital advertising.

In terms of providing relevant evidence that can help inform accounting policy regarding the disclosure of advertising expenditures by firms, the following *caveats* need to be added. First, we only examine major media advertising expenditures. Therefore, our analyses may not capture the full extent of other advertising activities (e.g., advertising production costs). Consequently, our estimates of the implied profitability of advertising expenditures should be considered with caution as they may not fully reflect the costs of all advertising activities. Second, accounting standard setters would need to deliberate on a common description of what constitutes advertising costs, and also consider whether it might be useful to break advertising costs down into different elements (e.g., media advertising expenditures, production costs).

Nonetheless, we argue that the results from our study provide a useful starting point for any deliberations that UK or international accounting policy-makers might make over the issue of the disclosure of information on advertising activities. Our results are consistent with the assertion that information on advertising expenditures for some firms can be useful to users in forecasting future

earnings and that market participants seem to be using information correlated with major media advertising spending in setting market prices. As a result, a potential user demand for information on advertising activities seems to exist, at least in the UK, one element in building a case for disclosure. While acknowledging the challenges in arguing for the consideration of advertising as a form of investment in intangible assets for all firms, we posit that expanded disclosure of advertising and other marketing-related activities may be a viable first step towards improving financial reporting of these activities (Shah *et al.,* 2009; Gu and Li, 2010; Mizik and Nissim, 2011).

Using a questionnaire or interview research design, it would be interesting for future researchers to explore why, unlike firms in the US that are relatively more inclined to disclose advertising expenditures, firms in the UK are reluctant to voluntarily disclose such information, resulting in the absence of reliable advertising data. Similarly, other avenues of research could include carrying out econometric analyses of any differences in the value relevance of advertising across different media and across firms voluntarily disclosing versus non-disclosing firms. Finally, our study opens up new vistas of research at the interfaces of marketing-finance, marketing-accounting and marketing-economics.

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Figure 1

Direct and Indirect Impact of Advertising Expenditures on Market Value
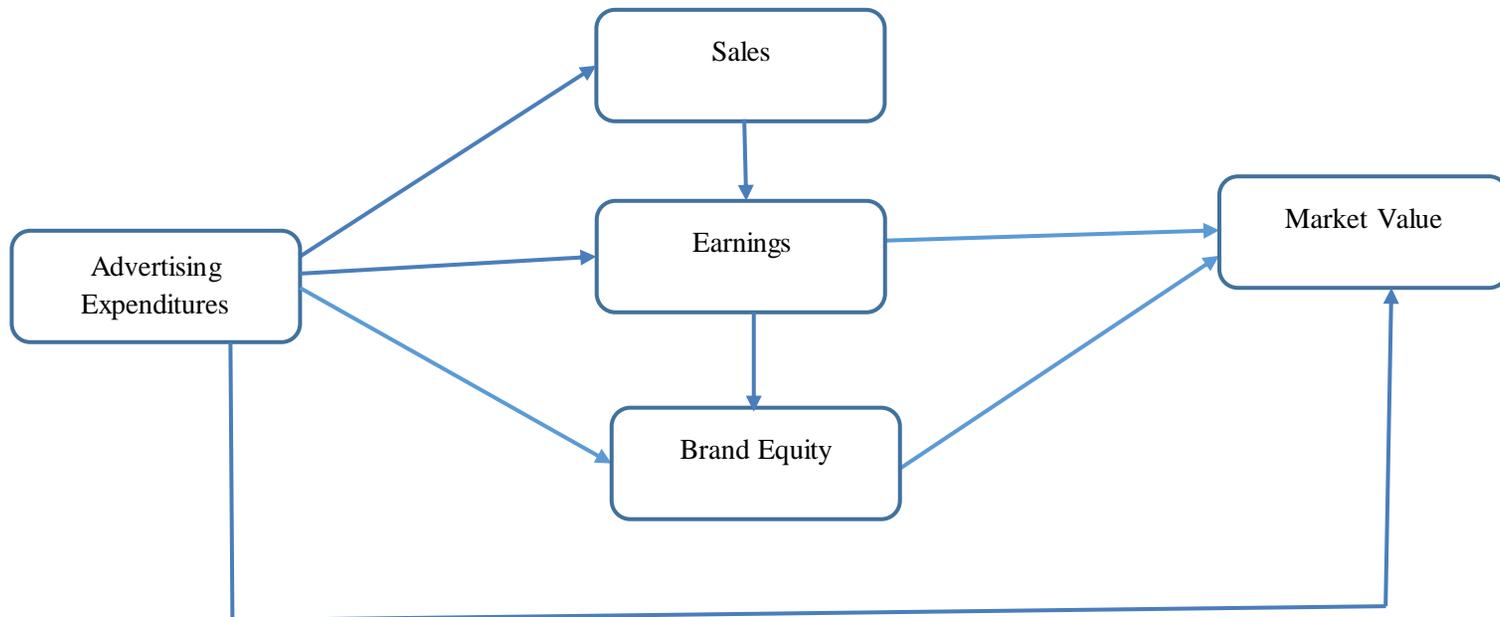
Table 1

Summary of studies on advertising relationship with firm profits and market value

Author(s)	Data Period	Advertising Data Source	Sample	Performance Metric Used	Main Findings
Bublitz and Ettredge (1989)	1974-1983	Compustat	1325 firm years	Stock return	Advertising classified as an expense
Chauvin and Hirschey (1993)	1988-1990	Compustat	average 1500 firms per year	Market value	Advertising viewed as long-lived intangible asset
Sougiannis (1994)	1975-1985	Compustat	573 firms	Profit Market value	Advertising positively associated with profit but no significant association with market value
Paton and Williams (1999)	1991-1993	Survey data	272 firm years	Profit	Advertising correlated with profitability for firms in consumer goods industries
Graham and Frankenberger (2000)	1985-1994	Compustat	1504 firm years	Profit Market Value	Advertising expenditures positively associated with earnings and market value in some sectors
Core et al. (2003)	1975-1999	Compustat	108493 firm years	Market value	Advertising has no effect on market value
Lu and Beamish (2004)	1986-1997	Nikkei NEEDS	1489 firms	Profit Tobin's Q	Advertising has a significant negative impact
Han and Manry (2004)	1988-1998	Korea Investors Service Database	3191 firm years	Stock Price	Advertising negatively associated with stock price
Eng and Keh (2007)	1992-1996	Adweek	562 firm years 455 firms years	Profit Stock returns	Advertising has positive effect on firms' profit but no significant effect on stock returns
Shah et al. (2009)	1990-1998	MEAL	1055 firm years	Market value	Advertising has positive association with market value of large firms in the non-manufacturing sector
Srinivasan et al. (2009)	1996-2002	TNS Media Intelligence	53 brands in six major automobile product categories	Stock returns	Stock return impact of new product introductions is greater when they are backed by advertising investment
Gu and Li (2010)	1995-2004	Compustat	4966 firms, with 776 firms having advertising data	Market value Stock returns	Advertising expenditures of pharmaceutical firms are positively associated with firms' stock prices and returns
Joshi and Hanssens (2010)	1991-2005 1995-2004	TNS Media Intelligence	Monthly data for five PC firms and	Stock returns	Advertising has both direct and indirect influence on firms' market values

			four sports goods firms		Advertising has a positive relationship with market values of firms.
Luo and de Jong (2012)	1987-2006	Compustat	1052 firms	Stock returns	Analysts activities partially mediates the impact of advertising on stock returns
Servaes and Tamayo (2013)	1991-2005	Compustat	between 400 to 2000 observations per year	Profit Tobin's Q	Corporate social responsibility activities can enhance firm value for firms with high advertising intensity
McAlister *et al.* (2016)	1990-1993 1996-2009	Compustat	4471 firm years 3670 firm years	Sales Tobin's Q	Advertising is related to sales of all firms but more strongly related to firm value for differentiators than for cost leaders
Tackx *et al.* (2017)	2008-2015	Thompson Reuters	511 firm years	Profit	Advertising expenditure has no significant impact on profit
Ma and Du (2018)	2001-2012	Kantar Media Intelligence	1538 firms	Tobin's Q	Ratio of digital to traditional advertising has an inverted U-shaped relationship with firm value

Table 2

Sector-wise Distribution of Sample Firm Years for Equations (3), (4) and (6)

	Balanced Panel	Unbalanced Panel **Positive Advertising Firm Years Sample**
ICBIC		
Oil & Gas	-	57
Basic Materials	-	175
Industrials	90	1130
Consumer Goods	180	738
Health Care	15	130
Consumer Services	360	1644
Telecommunications	30	91
Customer Services	15	111
Technology	30	441
Total firm-years	720	4517

Table 3

Summary Descriptive Statistics

Variables	Balanced Panel		Unbalanced Panel	
	Mean	St. Dev	Mean	St. Dev
Earnings	0.190	0.244	0.105	0.287
Advertising	0.014	0.026	0.004	0.014
RD	0.018	0.057	0.034	0.097
Dividends	0.081	0.088	0.055	0.072
Capital contributions	-0.023	0.103	-0.068	0.245

Notes: Earnings represent profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, Advertising represents major media advertising expenditures, RD is research and development expenditure, Dividends represents dividends declared, and Capital contributions are equity raised for cash and for acquisitions. All variables are deflated by opening book value.

Table 4

Results of Estimating Equations (3), (4) and (6)

| Variables | Balanced Panel | | | Unbalanced Panel | | |
| | | | | Positive Advertising Firm Years Sample | | |
	Equation (3)	Equation (4)	Equation (6)	Equation (3)	Equation (4)	Equation (6)
E_{it-1}	0.365***	0.368***	0.231***	0.258***	0.256***	0.224***
	(0.0743)	(0.0745)	(0.0493)	(0.0254)	(0.0255)	(0.0245)
A_{it}	2.797***			1.844***		
	(0.621)			(0.381)		
A_{it-1}		2.893***	1.331**		1.964***	1.448***
		(0.759)	(0.597)		(0.436)	(0.345)
BV_{it-1}	0.0491***	0.0434**	0.0285***	0.0476***	0.0479***	0.00319
	(0.0170)	(0.0171)	(0.00875)	(0.00697)	(0.00709)	(0.00802)
BV_{it-2}	0.0315**	0.0368***		0.00587***	0.00569***	
	(0.0142)	(0.0133)		(0.00197)	(0.00198)	
RD_{it-1}	2.054***	2.001***	1.102***	0.901***	0.884***	0.714***
	(0.221)	(0.222)	(0.203)	(0.158)	(0.156)	(0.0999)
RD_{it-2}	-0.839***	-0.769***		-0.173	-0.155	
	(0.201)	(0.193)		(0.109)	(0.109)	
D_{it-1}			1.166***			0.973***
			(0.127)			(0.102)
CC_{it-1}			0.0684			0.0302
			(0.194)			(0.0387)
R-Squared	0.475	0.471	0.572	0.281	0.279	0.353

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Notes:
(i) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
(ii) Equation (3) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1 A_{it} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}$$

Equation (4) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^* A_{it-1} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}^*$$

and Equation (6) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^{**} A_{it-1} + \beta_{21} BV_{it-1} + \beta_{31} RD_{it-1} + \beta_4 D_{it-1} + \beta_5 CC_{it-1} + \mu_{it}^{**}$$

where E is profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, A is major media advertising expenditures, BV is book value (shareholders' equity), RD is research and development expenditures, D is dividends declared and CC is equity raised for cash and for acquisitions. The equations are estimated after deflation by BV_{it-1}.

Table 5

Size-based Analyses

Estimating Equations (3), (4), and (6): Positive Advertising Firm Years Sample

Variables	Large Firms			Small Firms		
	Equation (3)	Equation (4)	Equation (6)	Equation (3)	Equation (4)	Equation (6)
E_{it-1}	0.248***	0.246***	0.220***	0.322***	0.317***	0.268***
	(0.0413)	(0.0416)	(0.0408)	(0.0373)	(0.0373)	(0.0356)
A_{it}	2.901***			1.405***		
	(0.568)			(0.472)		
A_{it-1}		3.020***	1.616***		1.578**	1.698***
		(0.619)	(0.470)		(0.661)	(0.572)
BV_{it-1}	0.0409***	0.0420***	0.00515	0.0332***	0.0330**	-0.0160
	(0.0131)	(0.0130)	(0.0128)	(0.0125)	(0.0129)	(0.0151)
BV_{t-2}	0.00681***	0.00678***		0.00375	0.00352	
	(0.00239)	(0.00241)		(0.00246)	(0.00247)	
RD_{it-1}	1.460***	1.430***	0.931***	0.802***	0.789***	0.745***
	(0.221)	(0.219)	(0.153)	(0.201)	(0.199)	(0.126)
RD_{it-2}	-0.323**	-0.279**		-0.132	-0.121	
	(0.137)	(0.136)		(0.147)	(0.146)	
D_{it-1}			0.922***			1.285***
			(0.147)			(0.190)
CC_{it-1}			0.0550			0.107*
			(0.0490)			(0.0614)
R-squared	0.281	0.280	0.375	0.310	0.309	0.375

Notes:
(i) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
(ii) Equation (3) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1 A_{it} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}$$

Equation (4) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^* A_{it-1} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}^*$$

and Equation (6) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^{**} A_{it-1} + \beta_{21} BV_{it-1} + \beta_{31} RD_{it-1} + \beta_4 D_{it-1} + \beta_5 CC_{it-1} + \mu_{it}^{**}$$

where E is profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, A is major media advertising expenditures, BV is book value (shareholders' equity), RD is research and development expenditures, D is dividends declared and CC is equity raised for cash and for acquisitions. The equations are estimated after deflation by BV_{it-1}.

Table 6
Sector-based Analysis
Estimating Equation (3), (4), and (6): Positive Advertising Firm Years Sample

Variables	Equation 3				Equation 4				Equation 6			
	CG	CS	INDUS	TECH	CG	CS	INDUS	TECH	CG	CS	INDUS	TECH
E_{it-1}	0.378***	0.256***	0.218***	0.314***	0.376***	0.250***	0.217***	0.317***	0.342***	0.219***	0.172***	0.309***
	(0.0530)	(0.0362)	(0.0727)	(0.0438)	(0.0532)	(0.0366)	(0.0728)	(0.0406)	(0.0517)	(0.0352)	(0.0624)	(0.0418)
A_{it}	0.833*	2.503***	0.744	2.790								
	(0.462)	(0.507)	(1.523)	(2.201)								
A_{it-1}					1.040**	2.319***	1.195	5.428	0.731*	1.632***	0.308	5.456
					(0.462)	(0.557)	(1.792)	(3.900)	(0.398)	(0.419)	(1.234)	(3.365)
BV_{it-1}	0.0679***	0.0308***	0.0833***	-0.0121	0.0679***	0.0338***	0.0831***	-0.0189	0.0413**	0.000572	0.0111	0.0170
	(0.0135)	(0.0110)	(0.0140)	(0.0238)	(0.0134)	(0.0114)	(0.0139)	(0.0245)	(0.0171)	(0.0108)	(0.0150)	(0.0279)
BV_{it-2}	0.000224	0.00935***	0.00185	0.00865	6.11e-05	0.00876**	0.00183	0.00823				
	(0.00345)	(0.00350)	(0.00244)	(0.00545)	(0.00345)	(0.00354)	(0.00243)	(0.00537)				
RD_{it-1}	1.024***	0.809	0.770**	0.492*	1.000***	0.858	0.775**	0.487*	0.857***	0.670	0.653**	0.592***
	(0.215)	(0.856)	(0.354)	(0.271)	(0.215)	(0.791)	(0.354)	(0.269)	(0.191)	(0.826)	(0.277)	(0.144)
RD_{it-2}	-0.206	-0.656***	0.128	0.146	-0.180	-0.583**	0.127	0.125				
	(0.137)	(0.253)	(0.143)	(0.199)	(0.136)	(0.260)	(0.143)	(0.192)				
D_{it-1}									0.411**	0.952***	1.087***	0.536
									(0.202)	(0.168)	(0.173)	(0.696)
CC_{it-1}									-0.162*	0.0852	-0.0184	0.441***
									(0.0964)	(0.0630)	(0.0849)	(0.108)
R-squared	0.413	0.251	0.235	0.345	0.413	0.241	0.235	0.335	0.432	0.309	0.325	0.383

Notes:
(i) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
(ii) Equation (3) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1 A_{it} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}$$

Equation (4) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^* A_{it-1} + \beta_{21} BV_{it-1} + \beta_{22} BV_{it-2} + \beta_{31} RD_{it-1} + \beta_{32} RD_{it-2} + \mu_{it}^*$$

and Equation (6) is:

$$E_{it} = \beta_t + \lambda E_{it-1} + \beta_1^{**} A_{it-1} + \beta_{21} BV_{it-1} + \beta_{31} RD_{it-1} + \beta_4 D_{it-1} + \beta_5 CC_{it-1} + \mu_{it}^{**}$$

where E is profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, A is major media advertising expenditures, BV is book value (shareholders' equity), RD is research and development expenditures, D is dividends declared and CC is equity raised for cash and for acquisitions. The equations are estimated after deflation by BV_{it-1}.

(iii) Consumer Goods (CG), Consumer Services (CS), Industrials (INDUS), Technology (TECH).

Table 7

Results of Estimating Equation (7) – Dependent Variable is Market Value

Variable	Balanced Panel Equation (7)	Unbalanced Panel Positive Advertising Firm Years Sample Equation (7)
E_{it}^*	1.395***	0.672***
	(0.503)	(0.104)
A_{it}	14.03**	8.049***
	(7.035)	(2.290)
BV_{it}	1.570***	1.779***
	(0.276)	(0.088)
RD_{it}	10.614***	2.724***
	(3.832)	(0.699)
D_{it}	5.924***	6.067***
	(2.505)	(1.228)
CC_{it}	-1.030	-1.089***
	(1.028)	(0.196)
R-Squared	0.416	0.257

Notes:
(i) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
(ii) Equation (7) is:

$$MV_{it} = \delta_t + \phi_1 E_{it}^* + \phi_2 A_{it} + \phi_3 BV_{it} + \phi_4 RD_{it} + \phi_5 D_{it} + \phi_6 CC_{it} + \omega_{it}$$

where *MV* is market value of the firm measured 4 months after the balance sheet date, *E** is profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, *A* is major media advertising expenditures, *BV* is book value (shareholders' equity), *RD* is research and development expenditures, *D* is dividends declared and CC is equity raised for cash and for acquisitions. The equations are estimated after deflation by BV_{it}.

Table 8

Traditional versus Internet Advertising
Results of Estimating Equation (7) – Dependent Variable is Market Value

Variables	Traditional versus Internet advertising	Ratio of Internet advertising to Total advertising
$E_{it}*$	0.413***	0.448***
	(0.0947)	(0.0973)
$IntA_{it}$	-2.768***	
	(0.977)	
$TradA_{it}$	8.569***	
	(3.032)	
$IntShareA_{it}$		-0.280*
		(0.148)
BV_{it}	1.687***	1.748***
	(0.100)	(0.103)
RD_{it}	2.524***	2.514***
	(0.741)	(0.748)
D_{it}	6.034***	6.005***
	(1.512)	(1.520)
CC_{it}	-0.892***	-0.889***
	(0.315)	(0.314)
R-Squared	0.257	0.245

Notes:
(i) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
(ii) Equation (7) is:

$$MV_{it} = \delta_t + \phi_1 E_{it}^* + \phi_2 IntA_{it} + \phi_3 TradA_{it} + \phi_4 BV_{it} + \phi_5 RD_{it} + \phi_6 D_{it} + \phi_6 CC_{it} + \omega_{it}$$

(ii) where *MV* is market value of the firm measured 4 months after the balance sheet date, *E** is profits earned for ordinary shareholders plus research and development expenditures plus major media advertising expenditures, *IntA* is internet advertising expenditure, *TradA* is traditional media advertising expenditure (i.e., the sum of TV, press, radio, direct mail, and outdoor advertising expenditures), and *IntShareA* is the ratio of internet advertising to total advertising expenditures, *BV* is book value (shareholders' equity), *RD* is research and development expenditures, *D* is dividends declared and CC is equity raised for cash and for acquisitions. The equations are estimated after deflation by BV_{it}.

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[1] The world's top advertisers, such as Proctor and Gamble, Unilever, GSK and Apple spend billions of dollars on advertising in building and promoting their brands and products. Procter and Gamble, for instance, reports their advertising costs to include '…*worldwide television, print, radio, internet and in-store advertising expenses and was $7.1 billion in 2018, $7.1 billion in 2017 and $7.2 billion in 2016.*' (Annual report, 2018, p. 42). The world's top most valuable brands (e.g., Apple, $154.1 billion; Google $82.5 billion; and Microsoft $75.2 billion; and Facebook $52.6

billion) generate huge brand revenues (e.g., Apple $233.7 billion; Google $68.5 billion; Microsoft $87.6 billion; and Facebook $17.4 billion) for these firms (Forbes 2016 World' most valuable brands ranking).

[2] In this study, we classify a firm as *persistent advertiser* for which we have positive advertising data for all the sample years from 1997-2013. Our advertising data are based on aggregating monthly major media advertising expenditure (press, TV, radio, cinema, outdoor, direct mail, and internet) of all brands that belong to a particular firm. These data include advertising media spending at brand level and have the advantage that they are based on observation of advertising activities, thus enabling us to directly examine managerial actions that have immediate financial statement consequences (Cohen, Mashruwala, and Zach, 2010).

[3] Chan, Lakonishok and Sougiannis (2001), indicate that even if the market on average incorporates the future benefits from R&D (and advertising), the lack of accounting information on such an important intangible asset may impose real costs on investors through increased volatility.

[4] Prior to the rule change in 1994, the Securities Exchange Commission (SEC) required US firms to disclose advertising expense on Schedule X of the annual Form 10-K if it exceeded 1% of sales. Subsequently, citing high cost of compliance, the SEC discontinued several disclosure requirements in Financial Reporting Release, FRR 44. After the rule change in FRR 44, US GAAP requires firms to disclose advertising, but only if managers determine the information to be material, with the materiality assessment left to managers' discretion (Lagoria, 2005; Heitzman *et al.,* 2010). Materiality is context specific and based on the relevance of a piece of information to investors (Financial Accounting Standards Board, Staff Accounting Bulletin (SAB) 99, Heitzman *et al.,* 2010).

[5] Reporting about their advertising costs in their 2015 annual report (p.46), Apple Inc., for instance, indicates that '…*advertising costs are expensed as incurred and included in selling, general and administrative expenses. Advertising expense was $1.8 billion, $1.2 billion and $1.1 billion for 2015, 2014 and 2013, respectively…*' Surprisingly, however, Apple had suddenly stopped disclosing their advertising costs since 2016, despite reporting a 50% increase to $1.8 billion in their 2015 annual report.

[6] Frost and Pownall (1994) reveal that both mandatory and voluntary accounting disclosures are substantially more frequent in the US than in the UK. Similarly, Gray, Radebaugh, and Roberts (1990) report that UK financial executives are significantly worried about the net costs of providing information on the amount of advertising expenditure. See also Ball, Kothari and Ashok (2000).

[7] The underlying motivation for our study has some similarities to Barth *et al.* (1998) in the accounting literature who consider brand values estimates based upon a methodology developed by Interbrand Ltd., and more recently to Shah *et al.* (2009) and Cohen *et al.* (2010) who also employ advertising data not derived from financial statements but produced by a proprietary data source constructed by a media-tracking firm.

[8] See Leeflang and Wittink (2000), for a useful review of model building in marketing; Shah and Akbar (2008) for a comprehensive review of studies that relate advertising to profits or sales of firms or industry, and market values of firms; and Hughes *et al.* (2018) for a useful summary of empirical studies of marketing activities on financial outcomes.

[9] McAlister *et al.* (2016) classify a firm as a *differentiator* if it discloses its advertising expenditures every year it is in Compustat between 1990-1993 and between 1996-2009. On the other hand, they classify a firm as a *cost leader* that discloses its advertising expenditures between 1990-1993, but does not disclose advertising in at least one year between 1996-2009. Nonetheless, there can be other firms pursuing a *hybrid* strategy (see e.g., Pertusa-Ortega *et al.,* 2009) that emphasises both low costs and differentiation (e.g., firms adopting quality management practices focus not only on higher quality (i.e., differentiation) but also low cost and increased productivity).

[10] In this regard, Beattie (2005) emphasises that studies undertaken in other capital market settings are of interest because of differences in both the formal and informal financial reporting environment, the pattern of share ownership and the economic background. In particular, studies in different settings are essential as they permit independent tests of the value of fundamental analysis.

[11] Note that, because we are only concerned with whether advertising expenditures are disclosed, as opposed to considering their potential for being recognised as assets, contracting cost issues of the type analysed by Mather and Peasnell (1991), Muller (1999) and Kallapur and Kwan (2004) with respect to brand valuations seem less likely to arise (see also Cleaver and Ormrod, 1994). Nonetheless, disclosure might change firm behaviour in ways that harm shareholders – we are unable to comment upon such a potentiality. Our arguments do, however, rely upon our proxy for advertising expenditures being reasonably reliable.

[12] We use a geometric distributed lag model (see, e.g., Telser, 1962; Lambin, 1969) because of high levels of correlation between advertising expenditures of different lags (even when deflated) that render small the likelihood of

reliable inferences being drawn from individual coefficient estimates if current and lagged advertising expenditures are included in the same equation.

[13] See Akbar and Stark (2003) and Shah and Akbar (2010) for a discussion and analysis of the choice of deflators. The overall conclusion from these studies is that the choice of deflators does not seem to influence their value relevance results in the UK context.

[14] Finding that major media advertising expenditures have predictive ability for a component of earnings that excludes such expenditures is not sufficient to guarantee value relevance. Stark (1997), in a linear information dynamics framework, suggests conditions under which two components of earnings would be separately valuation relevant. These conditions do not imply that either component is irrelevant in the prediction of the other.

[15] Rees (2005) illustrates some of the dangers of estimating cross-sectional valuation models on UK data without deflation.

[16] Our results remain largely similar when we estimate an earnings model.