Measuring Intangibles:
The Asset Value of Advertising

Amanda D.H. Smith¹
Duke University
Durham, NC
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¹ Amanda D.H. Smith graduated Magna Cum Laude with a Bachelor of Science in Economics from Duke University in 2002. She now resides in New York City and is employed by UBS Warburg’s Investment Banking Division.
Acknowledgement

Dedicated to Tamra Smith and Shirley Benfield, the value of whose love and support could never be measured.

I would especially like to thank my advisor, Connel Fullenkamp, whose words of wisdom, guidance, and humor got me to the finish line.
1. Introduction

1.1 The "new economy."

Though disastrously cliché, the emergence of "new economy" has forced policy makers, businessmen, and economists to rethink the way they make decisions, manage investments, and value companies. Though what exactly is "new" about the new economy is debatable, one important feature about the early twenty-first century seems clear: intangible factors are playing an increasingly dominant role in wealth creation (Lev, 2001).

"A growing share of economic activity today consists of exchanges of ideas, information, expertise, and services. Corporate profitability is often driven more by organizational capabilities than by control over physical resources, and even the value of physical goods is often due to such intangibles as technical innovations embodied in the products, brand appeal, creative presentation, or artistic content." – Baruch Lev (2001, p. 1).

Intangibles were not born with the dawn of the "new economy", but are in fact centuries old. Whenever a person employed an idea in the field or organized household daily activities, an intangible asset (human capital) was used. Lev argues that the recent surge in intangibles is due to the unique combination of two related economic forces: intensified business competition, brought on by the globalization of trade, and deregulation in key economic sectors and the advent of information technologies, most recently exemplified by the Internet. These two fundamental developments have dramatically changed the structure of corporations and, "in today's 'new economy' have catapulted intangibles into the role of the major value driver of business (2001, p. 9)."

A recent Wall Street Journal article reported that intangibles have grown not only in value and share-of-total-assets in the past decade, but also have caused increased volatility in share prices (Ip, 2002). Perhaps the market valuations of companies whose value heavily depends on intangible assets have risen in accordance to this increased "intangible risk," a sort of risk premium for investors. Lev and Sougiannis support this claim by illustrating a significant intertemporal association between firms' intangible asset levels and subsequent stock returns (1996). Either a systematic mispricing has occurred (which is plausible considering the vast confusion about intangibles) or investors are being compensated for an extra market risk, by inflated market values.

In fact, since the early 1980's, the gap between market value and book value has steadily increased; companies are not increasing tangible capital stocks as quickly as their Market Value...
is rising. By March 2001, only $1 of every $6 of market value was represented on company balance sheets; while the remaining $5 represented what some argue to be intangible assets (Lev, 2001; Klock and Megna, 2000). Granted, a portion of this difference must be attributed to the appreciation of assets from their historical cost (how they appear on the books), but even when \( q \) ratios\(^2\) are computed, this ratio surpasses 3 (Hall, 2000). In fact, McKinsey & Co. recently analyzed consumer companies in the Fortune 250 and found roughly half of their market value to be tied to intangible asset values, like brands (Court and Loch, 1999).

But intangible assets, despite their increased importance, are poorly measured, if at all. The Federal Accounting Securities Board (FASB) realizes the need to better understand these "ungraspable contributors to future wealth" and has made attempts to better valuation techniques and regulations. For instance, FAS 141 requires that some intangible assets, such as specific business models or brand names being purchased, be separated from goodwill and valued independently (Sneider, 2001). Pooling of accounting during a merger or acquisition deal has also been eliminated, and companies must test acquired goodwill for impairment on a yearly basis. Perhaps this increased disclosure and occurrence of assessment will eventually provide meaningful data on intangibles, but as of now, much confusion persists. The body of research on their valuation remains narrow (it does not cover all of the different types of intangibles) and relatively diminutive (when compared to the research on say, market risk). The majority of work studies the intangible asset related to Research and Development (R&D) (Cockburn and Griliches, 1988; Hall et al, 2001; Ottoo, Richard, 1998; Bosworth and Rogers, 2001; Hall 1993; Szewczyk et al, 1996; Bharadqaj et al, 1999; Kim and Lyn, 1986; Garner at al, 2002; Lev and Sougiannis, 1996) and reports general empirical results over all industries (Kathari, 2002; Graham and Frankenberger, 2000). Industry-specific studies that do exist focus are innovation-dependent\(^3\) industries such as semiconductors and pharmaceuticals. Few authors have attempted to empirically explain other intangibles such as information technology (Brynjolfsson, 2000), human capital, and advertising (Chauvin and Hirschey, 1993; Balasubramanian and Kumar, 1990; Graham and Frankenberger).

\[ Q = \frac{MV}{K} \]

\(^2\) By "innovation-dependent", I mean dependent on innovation for profitability.

\(^3\) Q = MV/K, where MV is market value and K is capital stock, of which only tangible capital is observable.
1.2 What is an intangible asset?

Intangible assets are claims to future benefits (e.g. cost savings, increased revenues) that do not have a physical (e.g. a factory) or financial (e.g. a stock or a bond) embodiment. For example, a brand name is an intangible asset because it meets the following criteria (Donaldson, 1992):

1. It generates, or plays a key part in generating, actual and expected earnings. In anything except the short run, they must be cash earnings, not merely accrual.

2. It is saleable at a predictable price, or is subject to systematic valuation.

3. It is something which a company would spend money to acquire if it did not have them, or to replace or maintain if it did have them.

However, it cannot be kept in a warehouse or traded in a liquid market.

The value of a brand, *brand equity*, stems from brand loyalty, brand awareness, perceived quality, and brand associations (Aaker, 1991). Building and maintaining these aspects of brand equity is done, in most part, by *advertising*. By affecting a customer's loyalty, awareness, and perceptions, advertising determines what a customer will buy, how often they will buy it, and how easily they would substitute an alternative. These variables have direct implications for company sales, and therefore, future cash flows.

The value, power and expense of establishing brands are evidenced in what firms are willing to pay for them. For example, Kraft was purchased for $13 billion, more than 600% above its book value. Sunkist, in 1998, received $10.3 million in royalties for licensing its name for use on hundreds of different products (Aaker, 1991).

1.3 How should intangibles be valued?

In order to understand any economic issue, we must concede the fact that data is limited. Intangible information available on large scale exists in market data and company financials. Company income statements and balance sheets offer earnings, historically priced tangible capital, and expenditure patterns for R&D and Advertising. The market offers real-time "investor consensus" fair values of a company's assets. This limited amount of data related to intangibles leads to, besides a fear of trying to value them, valuation methods based on unrealistic assumptions and circular reasoning.
Some researchers argue for the **capitalization** of intangible expenditures, like that of current tangible assets. However, it has been proven that past expenditure of cash is *not reflected* in present market valuations (Donaldson, 1992, p.64). Where assets are measured by *actual value*, the value of the asset created by the spending stems from its *earning power*. A well-designed building may allow more profitable operation, and thus a higher market value; but the value will come from the actual or potential earnings the design allows, rather than from the amount of money spent on obtaining it (Donaldson, 1992).

Others suggest intangible valuation be based on the **market value** of a firm (Simon and Sullivan, 1993), but this notion is based on circular logic. This circularity arises from the general presumption that market prices are determined by reported financial variables, and therefore such prices cannot be logically used to determine the values of financial variables (Lev and Sougiannis, 1996).

To avoid circularity and better represent the true value of intangibles, I argue that the **expenditure asset value** method is the most realistic. This technique directly relates the value of an asset to the future cash flows it generates. For example, the "asset value of advertising" would be an estimation of future cash flows attributable to current advertising expenditures. This estimation would be based on past contribution rates, therefore, the asset value would arise from and reflect its earning power. Evidence for the asset value of advertising expenditures is mixed. While some studies support the notion of advertising having an asset value (e.g. Chavin and Hirschey, 1993; Lev and Sougiannis, 1996; Graham and Frankenberger, 2000), others do not (Erickson and Jacobson, 1992; Aaker and Jacobson, 1994). The relationship between *assets* and market value is well defined, and a connection *should* exist between expenditures *generating* asset value – in this case advertising – and market value.

Hirschey (1985), Jose, Nichols, and Stevens (1986), Lustgarten and Thornadakis (1987), Morck, Shleifer, and Vishny (1988), and Morck and Yeung (1991) report positive market value effects of advertising expenditures, consistent with the forward-looking perspective of stock market investors. Lev and Souigiannis report statistically significant and economically meaningful relationships between capitalized R&D and both earnings and market value (1996). Based on the preceding two conclusions, the relationship between capitalized advertising and market value seems plausible. Graham and Frankenberger (2000) relate advertising expenditures to financial performance by measuring the contribution made by year-to-year differences in
advertising expenditures to the asset values and subsequent market values of publicly traded firms. Building on these studies and the Efficient Market Hypothesis (Miller and Modigliani, 1961), I investigate the valuation of advertising-related intangible capital and its ability to explain the gap between market and book values.

2. This Study

The objective of this research is to investigate the valuation of advertising-related intangible capital in the food processing industry. Several previous studies have demonstrated that there is merit in investigating intangible capital in industry studies (Trajtenberg, 1990; Megna and Mueller, 1991; Megna and Klock, 1993; Shane and Klock, 1997; Garner et. al., 2002; Ottoo, 1998). Due to the lack of research on the intangible asset related to advertising, I have chosen to isolate an industry whose revenues and market capitalization are greatly dependent on brand names and advertising – the food processing industry. My research supplements work by Graham and Frankenberger (2000) investigating the impact of advertising on firm value through the computation of a dynamic "advertising asset" but adds unique contributions to this work and others.

2.1 Unique Contributions.

This study makes 5 contributions to the literature on the asset value of intangible expenditures. First, it analyzes cross-sectional time series data (CS/TS). As opposed to the "snap shot" approach of most studies, by pooling the time series of various firms, I am able to capture intertemporal effects and allow for the underlying relationship between any independent and dependent variable to be different for different firms. Since the modeled earnings and advertising expenditures change over time for any given firm, this is a better fit. The CS/TS approach also increases the degrees of freedom, offering $m \times t$ observations as opposed to $m$ from the CS approach, and decreases the level of multicolinearity that is often present in time series data (Brobst and Gates, 1977; Dielman, 1989). Second, drawn from the first, I estimate asset value from its direct benefits. By estimating directly from future earnings rather than inferring values from the size of single-period coefficients relating advertising to market value, I

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4 Of all two-digit SIC industries, the food processing industry has the highest level of advertising expenditures per year and the highest per-firm advertising expenditure (Chauvin and Hirschey, 1993).
am able to avoid the "notorious circularity" discussed earlier. Third, I **focus on the food-processing industry**. This allows me to get a more accurate view of the impact advertising has on future earnings by isolating an industry that gives significantly more priority to building brand equity than other intangible assets, such as R&D (Aaker and Biel, 1993). Fourth, I expand the advertising asset framework offered by Graham and Frankenberger by **including the interaction effect of advertising intensity and advertising expenditure**, representing the idea that an optimal level of advertising exists, and once reached, further increases in advertising have a negative impact on earnings. Finally, my study expands the research done by Graham and Frankenberger (2000) and Lev and Sougiannis (1996) by offering an **up-to-date and longer historical series of data**. This allows me to capture possible increases in earnings happening farther into the future attributable to advertising. Graham and Frankenberger, for example, use a 10-year time series resulting in only 5 years of lagged firm expenditures. This precludes them from capturing any longer term effect (above 5 years) due to the longer-lived aspects of brand equity. Marketing specialists and financiers alike have noted the long-term aspects of brand equity (Donaldson, 1992, p. 39) and warned of the dangers of short-term measures (Aaker, 1991, p. 13).

3. **Data**

The sample consists of 89 food-processing firms as those defined as such by Yahoo\(^5\) and Hoover's\(^6\). Financial and performance data was extracted from COMPUSTAT for listed firms whose earnings were non-negative (50) for the 20-year time series ending in 2000. Firm years with less than 10 years of lagged advertising expenditure were eliminated, and the resulting data sample included 144 firm years for 18 food-processing firms. All data was adjusted for inflation, transforming all values to 1990 prices. Figure 1, below, offers a list of companies and their performance averages during the sample years.

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\(^5\) http://finance.yahoo.com

\(^6\) This is available at the Ford Business Library at the Fuqua School of Business.
4. Advertising-Earnings Model

Following Lev and Sougiannis (1996) and Graham and Frankenberger (2000), my estimation of advertising capital is derived from the fundamental relationship between the value of assets and the earnings generated by them. Since the intangible asset built by advertising dollars cannot be measured exactly, the contributions to earnings serve as a nice proxy. I define the earnings of firm $i$ in year $t$, $E_{it}$, as a function of tangible, $TA_{it}$, and intangible, $IA_{it}$, assets [Eq. (1)]:

$$ E_{it} = h(TA_{it}, IA_{it}) $$

While the values of earnings and tangible capital (e.g. plants, property, equipment, equity method investments, etc.) are reported (at historical cost) in financial statements, the intangible capital is not reported and therefore has to be estimated.

Since the intangible expenditure data is available for Advertising, I single it out of the intangible asset umbrella and define its value [Eq. (2)]:

$$ ADA_{it} = \sum \eta_{t-k} * AD_{i,t-k} $$
Where $\eta_{t-k}$ equals the contribution of a dollar of advertising expenditure in period $t-k$ ($k=0,\ldots,n$) to earnings in period $t$, and $AD_{i,t-k}$ equals advertising expenditure in period $t-k$ ($k=0,\ldots,n$).

Therefore, the asset value of advertising is the sum of the contributions of each year's advertising expenditure to earnings. Substituting the asset equation into expression 2 results in [Eq. (3)]:

$$E_{it} = h(TA_{it}, \sum \eta_{t-k} * AD_{t,k})$$

4.1 The Earnings Regression.

I operationalize Equation (3) with the following regression model [Eq. (4)]:

$$Earnings_{it} = \alpha_0 + \alpha_1 PhysA_{i,t} + \alpha_2 Adchg_{t-1 \to t} + \alpha_3 Adchg_{t-2 \to t-1} + \alpha_4 Adchg_{t-3 \to t-2} + \alpha_5 Adchg_{t-4 \to t-3} + \alpha_6 Adchg_{t-5 \to t-4} + \alpha_7 Adchg_{t-6 \to t-5} + \alpha_8 Adchg_{t-7 \to t-6} + \alpha_9 Adchg_{t-8 \to t-7} + \alpha_{10} Adchg_{t-9 \to t-8} + \alpha_{11} Adchg_{t-10 \to t-9} + e^7$$

Following Graham and Frankenberger (2000), earnings are measured as operating income before depreciation and advertising. Operating income (sales less cost of sales) is used as the measure of the earnings produced by tangible and intangible assets. Depreciation and advertising are added back to operating income because they represent, to some extent, "discretionary write-offs of recorded and unrecorded assets (Graham and Frankenberger, 2000)."

PhysA$_{i,t}$ includes the accounting values for plant, equipment, and inventories.

To measure changes in advertising, I use year-to-year differences in advertising expenditures. I use the amount of advertising change rather than the total amount of advertising because of the high correlation among year-to-year advertising expenditures. Inflation adjusted changes in advertising are likely to be much less correlated with following years' advertising changes.

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7 Graham and Frankenberger (2000) include year specific effects in their empirical specification, however, inclusion of year-dummies in my regressions provided qualitatively similar results so I left them out.

8 Graham and Frankenberger (2000) also add back R&D spending here since their analysis was over all industries. In my sample, only 5 of the 14 firms report R&D and those amounts are insignificant, so I leave R&D out of operational income here.
4.2 Earnings Regression Results.

Figure 2, Panel A presents the final earnings regression results. First, a comprehensive regression on changes in advertising was conducted to determine the lag relationship between changes in advertising expenditure and earnings. Then, random variables with statistically insignificant ($\alpha > .05$) coefficients were eliminated and other summation effects and interaction variables were introduced. Decisions for the eventual advertising asset equation were made based on t statistics and Adjusted $R^2$. The final advertising-earnings model seems to illustrate two types of effects – a short term bump in earnings associated with current year expenditure changes and a long term steady increase in earnings associated with fifth to tenth year lags of expenditure changes. These effects are illustrated in [Eq. (5)]:

$$\text{Earnings}_{it} = \alpha_0 + \alpha_1 \text{PhysA}_{it} + \alpha_2 \text{Adchg}_{t-1 \text{to} t} + \alpha_3 \text{Adchg}_{t-2 \text{to} t-1} + \alpha_4 \text{Adchg}_{t-3 \text{to} t-2} + \alpha_5 \text{Adchg}_{t-4 \text{to} t-3} + \alpha_6 \text{Adchg}_{t-1 \text{to} t} \cdot \text{Inchg}_{t-5 \text{to} t-1} + e$$  (5)

4.2.1 Short Term Effect.

Advertising has the greatest contribution in the year of the expenditure and then declines over the following few years. The short run bump in earnings likely reflects brand awareness. Any company, no matter how good their product is, at onset of a new campaign, can expect an increase in sales due to advertising's creation of consumer awareness. If you see an add for a new kind of frozen pizza, you are more likely to either look for or pick that brand from its competitors the next time you visit the grocery store.

The next three periods of expenditures contribute insignificantly to earnings. This likely reflects the type of advertising used by the firms at different points in time – the "cycle" of advertising. According to Ryan Fleming, an account manager at BBDO in Chicago, Illinois, food-processing firms typically "start a new campaign with something like a television spot every three years or so." In between those campaign launches, advertising usually assumes an "upkeep" role with things like promotions and sponsorships. If advertising is more effective (i.e. influences more consumer behavior) at times of campaign launches, this would make the advertising expenditures in those years more productive and therefore result in a higher and more significant contribution to earnings. If the type of advertising done in other years were less

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9 Graham and Frankenberger (2000) standardize all variables by sales as a precaution against heteroskedasticity, but because they find similar results with undeflated variables, I do not perform this standardization.
productive, those years of expenditures would contribute insignificantly or possibly negatively. Back to the pizza example: the first year of advertising will cause people to try out the product, but whether or not those advertising expenditures will contribute to following years depends on among other factors, quality\textsuperscript{10}.

Take General Mill's "Bowl Appetit" instant pasta dish for example. At product launch, they spent millions of dollars on the popular television commercial depicting the cute boy and girl "taking care of mom" by making her a "Bowl Appetit" dinner. While this commercial, combined with previous knowledge and trust in "Betty Crocker" brands\textsuperscript{11}, led to an initial bump in sales from "trial" purchases, it was followed by negative contributions to earnings because the product tasted horrible. General Mills went back to the drawing boards to figure out new flavors and formulas, meanwhile their initial advertising expenditure was \textit{not} contributing to earnings\textsuperscript{12}.

4.2.2 \textit{Long Term Effect.} \\

The significant coefficient on the long-term variable offers validity for including a longer time series of data and evidence for interesting, unprecedented insights. This provides general evidence of advertising asset values in that advertising expenditures contribute to earnings for more than one period, but it also supports the notion that building brand names and consumer loyalty through advertising is beneficial far into the future.

Advertising assets have a longer-term life than those presented by current research. Graham and Frankenberger (2000) claim that, in general, consumer product companies' advertising expenditures have a 3-year life, but when food-processing companies are isolated from this group and the time series is expanded, this life extends to at least 10 years. Graham and Frankenberger (2000) were not able to capture this relationship because they only lagged expenditures back to 5 years prior.

The long-term effects of advertising expenditure likely represent consumer loyalty, brand affinity, and other lasting factors of brand names. Coca-Cola, for example, after years of advertising, is the number one global brand (Sheppard, 2001). Coca-Cola did not become \textbf{10} Interesting future research would include an interaction term for quality and changes in advertising, since poor quality likely leads to negative contributions of advertising dollars (waste of money).

\textbf{11} The "trust in Betty Crocker" is a version of the long-term effect that will be discussed later.

\textbf{12} All information about General Mill's "Bowl Appetit" brand was taken from time spent working with an MBA class at the Fuqua School of Business on a new marketing strategy for "Bowl Appetit." All relevant information on
number one overnight (i.e. by single "bumps"). Years of shaping their brand and convincing the public that soda was a part of everyday life made them number one, and they have advertising, at least in part, to thank for their bulging wallet. Another feature of the long-term contribution of advertising is its ability to develop loyalty in customers. Loyalty decreases the likelihood of product substitution and decreases price elasticity (Porter, 2001). In light of these observations, it is not surprising that those long-past advertising dollars are still contributing, by increasing purchase frequency and sustaining purchasing patterns through price hikes, positively to earnings today.

4.2.3. Decreasing Returns to Advertising.

I included the interaction term "Adchg_{t-1 to t} * Inchg_{t-5 to t}", which measures the interaction between current change in advertising and intensity momentum, in order to capture the notion of an optimal advertising level. Intensity is defined as [Eq. (6)]:

\[ \text{Intensity}_{i,t} = \frac{\text{Advertising Expenditure}_{i,t}}{\text{Sales}_{i,t}} \]  

Initially, as management increases levels of intensity, the payoff to those increases in advertising expenditure is positive. They are building their brand awareness and loyalty; all else equal, future benefits will ensue. As they speed up their intensity rates (increase intensity by larger amounts), increases in advertising are not as productive. The cash generated by sales could be better allocated, and increases in the numeric values of advertising expenditure would overwhelm the potential future benefits. Earnings would be negatively affected. This relationship is represented by the current spending-intensity interaction term [Eq. (7)]:

\[ "\text{Adchg}_{t-1 to t} * \text{Inchg}_{t-5 to t}" = (\text{Intensity}_{i,t} - \text{Intensity}_{i,t-5}) \times \text{Adchg}_{t-1 to t} \]  

The coefficient on this variable turns out to be significant and negative, providing evidence that firms who have been increasing intensity (increasing advertising expenditures without comparable increases in sales) for at least 5 years have passed the optimal advertising level and are no longer contributing to earnings.

this topic can be found (password available upon request) on a website I created for the course at http://faculty.fuqua.duke.edu/courses/mba/2001-2002/term2/marketing468/GeneralMills/.
Figure 2. Earnings and Market Value Regressions.

<table>
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<tr>
<th>Panel A: The Advertising-Earnings Relation</th>
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<tbody>
<tr>
<td>Earnings(<em>{it}) = (\alpha_0 + \alpha_1)Phys(</em>{At}) + (\alpha_2)Adchg(<em>{t-1}) to (</em>{t} + \alpha_3)Adchg(<em>{t-2}) to (</em>{t-1}) + (\alpha_4)Adchg(<em>{t-3}) to (</em>{t-2}) + (\alpha_5)Adchg(<em>{t-4}) to (</em>{t-3}) + (\alpha_6)Adchg(<em>{t-1}) to (</em>{t-5})Incchg(<em>{t-1}) to (</em>{t-1}) + (\epsilon)</td>
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<th>Panel B: The Advertising-Market Value Relation</th>
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<tr>
<td>Market Value(<em>{it}) = (\gamma_0 + \gamma_1)NetAssets(</em>{it}) + (\gamma_2)AdAsset(_{it}) + (\epsilon)</td>
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<td>Adasset(_{it})</td>
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* \(\alpha\) significance at the \(\alpha = .05\) level is achieved by a t-stat > 1.6

For the advertising earnings regression in panel A, earnings equal operating earnings before depreciation plus advertising expenditures, intensity equals advertising expenditures as a percent of sales.

For the market value regression in panel B, market value equals end-of-calendar-year share price multiplied by common shares outstanding and NetAsset is a firm's total reported assets minus liabilities. ADA equals the asset value of advertising expenditure changes derived from the regression results shown in panel A (in bold).

5. The Advertising-Firm Value Relation

To test the economic significance of the advertising asset, I use a valuation method based on the theoretical work of Tobin (1978). The Tobin method describes the equality of a firm's market value and the market value of its net assets. The value of a firm in the Tobin context is expressed as [Eq. (8)]:

\[
MV_{it} = q(A_{it} - L_{it})
\]

where \(q\) is the ratio of the market’s valuation of the financial claims on a firm to the cost of replacing that firm’s assets (hypothetically equaling one) and \((A_{it} - L_{it})\) are a firm's net assets.

But the market value of a firm rarely equals its book value.

Due to the current accounting rule "expense as incurred," the only recorded impact of advertising is its short-term effect – decreasing earnings. If the notion that advertising results in future benefits as well is correct and market efficiency holds (Miller and Modigliani, 1961)\(^\text{13}\), the

\(^{13}\text{Definition of EMH}\)
market value of a firm should encompass the present value of these expected future increases in cash flow; the future benefits of advertising should be represented in the difference between market and book values. For this reason, I include the advertising asset to the above equation, resulting in [Eq. (9)]:

\[
MV_{it} = q_1 (A_{it} - L_{it}) + q_2 ADA_{it}^{14}
\]

where \(MV_{it}\) equals the market value of firm I at time t, \(q\) is a multiplier (hypothetically equaling one), \((A_{it} - L_{it})\) equals the firm’s net assets, and \(ADA_{it}\) is the advertising asset (as in Graham and Frankenberger, 2000).

### 5.1 Valuation Regression.

I operationalize Equation (9) with the following form [Eq. (10)]:

\[
\text{Market Value}_{i,t} = \gamma_0 + \gamma_1 \text{NetAssets}_{i,t} + \gamma_2 \text{AdAsset}_{t,1} + e
\]

Where Market Value\(_{it}\) equals the product of closing stock price (at calendar year end) and common shares outstanding. NetAssets\(_{i,t}\) equal a firm’s reported total assets minus total liabilities and AdAsset\(_{t,1}\) is the sum of contributions to future earnings that the current year’s advertising expenditure is expected to make. The contribution rate for each year is derived from my earnings regression. It also stipulates that current year increases in advertising by firms who have been allocating a larger percentage of their sales dollars to advertising in recent years will detract from this contribution.

The average food-processing advertising asset therefore is calculated as [Eq. (11)]:

\[
\text{AdAsset}_{i,t} = \text{Adchg}_{t-1 \text{ to } t} \times (1.123 + .203) + \text{Adchg}_{t-10 \text{ to } t-5} \times (.203) + (\text{Intensity}_{i,t} - \text{Intensity}_{i,t-5}) \times \text{Adchg}_{t-1 \text{ to } t} \times (-32.14)
\]

It should also be noted that AdAsset\(_{i,t}\) does not steadily increase with time. Because it is calculated with first differences instead of levels, the advertising asset of a firm oscillates around a mean. This reduces the chance that my regression results will pick up an upward trend in market and asset values.
5.2 Valuation Regression Results.

Table 2, Panel B presents the results of the market value regressions. As expected, and consistent with EMH research, the coefficients relating net assets to market value are significant. Also as expected, and consistent with Graham and Frankenberger (2000), the coefficient for the advertising asset is positive and significant. What is not consistent with Graham and Frankenberger's model is the size of the coefficient and the degree to which the advertising asset explains the variation in market value.

Graham and Frankenberger's short run model of the advertising asset resulted in a lower $\gamma_2$ coefficient ($2.025$) on $\text{AdAsset}_{i,t}$, than my longer run model ($6.060$). This suggests a greater importance of advertising in a food-processing firm than in the average consumer products company (those measured by Graham and Frankenberger). In addition, the longer-term asset is more significant ($t=12.198$ vs. $t=8.67$). The Adjusted $R^2$ in the model with the short run asset is .686. Adding the long term effects of advertising increases the Adjusted $R^2$ to .766, which means that longer run version of the advertising asset explains more of the variation in market value.

6. Concluding Remarks

Taken together, results from the earnings and valuation regressions provide further evidence for the asset value of advertising. Important features of the relationship between advertising expenditure and market value are uncovered. By extending the time series of previous literature and including provisions for decreasing returns to advertising, I found that the asset value of advertising for food-processing firms has at least a 10-year life and is associated with market value. The juxtaposition of both short and long-term effects encapsulated in this asset value have important implications for managers and investors and the results presented here warrant further research.

Because I was extending Graham and Frankenberger's model of the advertising asset, I tried to stay as closely inline with their specifications as possible. In future research, I would express the advertising asset in a “time value of money” context. The asset would be calculated as a present value of future contributions to earnings, discounted by the appropriate rate of return. I would also explore the possibility of breaking the two effects apart into a declining
perpetuity (the short term effect) and an annuity (the long term effect). The possibilities for future research are vast, which implicates the developmental stage of the research on intangibles. This study represents the research community’s current approach to the subject; we remain uncertain of the best way to value intangibles, but try to use rational logic within the constraints of available data to uncover new ideas or support old ones.


Fleming, Ryan (2002), *telephone conversation with on April 1, 2002*. Ryan is an account manager who frequently works with food and beverage companies at BBDO in Chicago, Illinois.


