

## **Rx for Success: Creation of Firm Value through Detailing**

*By Rebecca Dingus*

Value can be created in a variety of ways and considered with regard to many different outcomes. This paper focuses on how pharmaceutical sales representatives create value for their firms through their personal selling efforts with office physicians. While much of the pharmaceutical sales literature has focused on choice outcomes, this paper focuses on firm valuation—specifically, how pharmaceutical sales representatives can increase firm value through detailing. Firm valuation is modeled with respect to both stock returns and Tobin's Q, finding that the growth rate of detailing does have a positive, significant impact on firm valuation. These findings are important and timely to consider, given the increasing costs of personal selling, the ever-decreasing number of independent physicians available for traditional office visits, and the relatively recent increase in direct-to-consumer advertising. While it may seem easy, or even logical, to push detailing's focus to the side, pharmaceutical companies should recognize the value they receive directly from the time when their sales representatives are engaged in personal selling efforts.

### **INTRODUCTION**

Value creation of sales activities is an interesting and important area of research for marketers. This paper examines the value created by personal selling activities in the prescription drug market of the pharmaceutical industry. While organizations agree that their most important asset is the customer, minimal control exists over these relationships because they are managed by the sales force (Acuff and Champion 2006). For years, sales and marketing divisions have been asked by top executives to justify the expenditures associated in these areas. Recent publications on value creation (Agnihotri, Kothandaraman, Kashyap, and Singh 2012; Ahearne, Jelinek, and Jones 2007) have attempted to assign value to sales activities. Value in these research efforts is oftentimes derived from an increase in customer satisfaction, more favorable attitude toward a product, or a positive change in purchase intention and a stronger tie between the seller and buyer. More tangible illustrations of value creation include an increase in the number of referrals and a customer's participation in the co-creation of products and services.

Another stream of value-related research that has been emphasized in the marketing literature is that of the financial quantification of value at the firm level. Marketing executives are increasingly under pressure

to account for marketing and sales expenditures in financial terms. To guarantee marketing expenditure in the firm's overall budget, marketing executives must literally translate their marketing expenditure into the firm's net profit or into stockholder value for board members. Failure to do so in financial terms increases the likelihood of removal of an activity from the firm's overall budget (Lehmann, Keller, and Farley 2008).

A third related stream of research is the development of valuation models. Not only are executives interested in the financial metrics such as changes in stock prices and profitability, but they are also eager to understand how a firm's value is determined by the relevant marketing or sales activities. A good understanding of the sources of a firm's value allows the top executive to make wise resource allocation decisions, such as whether to invest in new product development, promotion, or personal selling; as well as how much to invest in each of these areas.

This paper is at the crossroads of these three important research tracks. It focuses on the value creation of detailing activities in the prescription drug market

---

**Rebecca Dingus** (Ph.D., Kent State University), Assistant Professor of Marketing, Department of Marketing and Hospitality Services Administration, Central Michigan University, Mt. Pleasant, MI, [dingus1r@cmich.edu](mailto:dingus1r@cmich.edu).

---

I wish to thank Mary Schramm, Assistant Professor of Marketing at Quinnipiac University, for her guidance and assistance in this project, as well as her access to the Encuity Research, LLC database. Additionally, I am grateful to Dandan Liu, Associate Professor of Economics at Kent State University, for her assistance in data analysis. The author received support from Kent State University's University Fellowship while part of this research project was conducted and also wishes to acknowledge her dissertation advisor, Michael Y. Hu, for his valuable input and support.

of the top six pharmaceutical firms in the U.S. The financial metrics employed to capture a firm's value are the stock returns and the Tobin's Q values. The Ohlson valuation model is introduced in order to identify the value contribution of detailing to a firm.

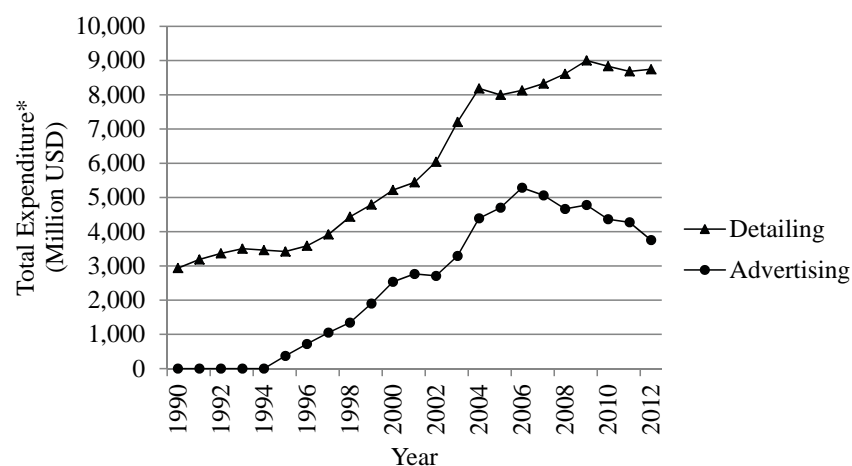
## PHARMACEUTICAL MARKETING OVERVIEW

Marketing strategies for pharmaceutical firms can take on a variety of manners. Two broad categories of drugs are prevalent in the industry, prescription and non-prescription drugs. Health care products such as diapers, infant formula are combined with the non-prescription, over-the-counter category. The marketing activities are distinctly different between these two categories. Prescription drugs are marketed primarily through drug stores and pharmacies. Supermarkets, discount and other mass merchandising outlets are the typical distribution channels for non-prescription drugs. Price levels in drug stores are typically higher than those in supermarkets. Pricing of a non-prescription product such as Listerine is higher when marketed through a drug store than through a supermarket, due to the more exclusive nature of the drug store channel. Promotion of prescription drugs is performed through detailing activities where pharmaceutical salespeople routinely visit a physician's office, making him or her aware of

new drug introductions and convincing the physician that the drug being marketed is indeed the appropriate choice for his or her patients. Major pharmaceutical companies rely on prescription drugs as a revenue booster when new drugs are introduced and also as the dominant source of revenue and profits, as the profit margins are substantially higher in this category than drugs that are sold over-the-counter.

With respect to promoting pharmaceutical drugs, efforts have been made in recent years to limit exploitation in detailing. In 2009, new voluntary guidelines on marketing to physicians were placed in the pharmaceutical industry for self-regulation of detailing efforts (Grande 2009). In some states, "sunshine laws" require pharmaceutical companies to disclose gifts and payments to physicians (Brennan and Mello 2007). A recent study found that these disclosures have sometimes contained incomplete or inaccessible data, and that the gifts or payments are sometimes categorized as "trade secrets" and, thus, not reported (Ross et al., 2007). To better address implementing regulation into the area of sales, Riggs, Widmier, and Plank (2013) has suggested a taxonomy of sales regulations that incorporates six clusters of regulations, finding that some regulations can have a positive impact on sales.

Figure 1. Total Industry Expenditure on Direct-to-Consumer Advertising and Detailing



Note: Data attained from promotional audits and personal selling audits of Encuity Research, LLC. Encuity's data on promotional audit began in 1995. There may be a minimal amount of advertising occurring prior to 1995, which is not reflected in this Figure.

Such efforts to engage and study regulations are made because, while detailing is a commonly-contested aspect of pharmaceutical marketing, it is a valuable resource for physicians to become informed of and learn about pharmaceutical products. Pharmaceutical sales representatives generally do not compete for customers but, instead, disseminate information to physicians in their own prescribed territory. In this context, sales representatives spend multiple rounds of presentations informing and educating physicians (Ko and Dennis 2004).

Figure 1 shows the millions of dollars spent on detailing and advertising for the pharmaceutical industry from 1995 to 2012. A highly regulated form of direct-to-consumer-advertising (DTCA) was initiated in 1995 and, since 1997, pharmaceutical companies have been allowed more leniencies in advertising (Bala and Bhardwaj 2010). Now, while still very regulated, pharmaceuticals may be advertised to consumers without the advertisement providing a “brief summary” of drug effectiveness, side effects, or contraindications. With these changes, DTCA increased from \$800 million in 1996 to its peak in 2011 at \$4.2 billion and receded to \$3.8 billion in 2012. On the other hand, pharmaceutical companies have long relied on detailing as the primary form of promotion for their prescription drugs. As seen in Figure 1, investments in detailing have far exceeded those of DTCA. In 1996 the industry spent \$3.5 billion on detailing, which peaked in 2009 at \$9.0 billion and at \$8.7 billion in 2012. As is visible in Figure 1, both detailing and DTCA have experienced substantial increases in expenditure over the years; however, detailing expenditures have continued to outpace DTCA by a wide margin.

## **VALUE CREATION VIA DETAILING**

The preponderance of research on value creation has historically been focused on a physical product (Eggert and Ulaga 2002; Ulaga and Eggert 2005). Vargo and Lusch (2004) argues that services, resources and experiences are also embedded in the creation of value. The emphasis is primarily shifted away from the product to that of the process of value creation. This shift largely broadens the scope and perspective of how value can be created. In the sales literature, Agnihotri, Kothandaraman, Kashyap, and Singh (2012) operationalizes value creation from

the customer-salesperson relational perspective. The congruency of customer perceived value and salesperson perceived value is the primary outcome of the relational value creation process. Thus, it is the sustained joint effort on the part of both buyers and sellers that yields value. Examples of this value include positive word of mouth, referrals, and working jointly with the seller to co-create products and services that provide greater satisfaction and reward to the parties involved.

As value creation is studied, attention is given to the creation of economic value (as opposed to social value) of a firm. Economic value results from financially profitable operations, and this generation of wealth generally drives firms. Accordingly, for-profit ventures must not only create but also appropriate value. Value creation involves “innovating, producing and delivering products to the market” (Mizik and Jacobson 2003, p. 63), while value appropriation continues with extracting profits. Pharmaceutical firms must rely on their sales force to aid in both value creation and appropriation throughout their interactions with physicians.

In the pharmaceutical industry, detailing occurs when sales representatives directly inform physicians about their products (Gönül, Carter, Petrova, and Srinivasan 2001). Traditionally, these pharmaceutical sales reps have been referred to as “detail men,” and they have been available to discuss their drugs as a way of intervening the medical community’s mass communication process through interpersonal relations to facilitate communication and opinion formation (Rehder 1965). In the 1940s and 1950s, detailing took a leap to become much more focused on professional selling, and the etiquette of the physician-sales representative relationship increased greatly such that drug salesmanship came to be considered a “professional service” (Greene 2004). Since then, detailing has played an important, valued role in the marketing of pharmaceuticals.

Much academic work in this area has focused on the detailing efforts of different brands of antihistamines such as Claritin, Zyrtec, and Allegra (Iizuka and Jin 2007; Narayanan, Desiraju, and Chintagunta 2004). Many times, these studies consider the choice or sale as their outcome variable. Choice is considered by surveying the brand that consumers will buy or the

brand that a physician will suggest or prescribe. Other research takes the approach of a product-level study. Finally, Narayanan, Desiraju, and Chintagunta (2004) has investigated the return on investment (ROI) linked to promotional expenditures. The present study is quite unique because the dependent variable is neither choice, sales, nor ROI. The dependent variable in this case is valuation—the value of a firm attributable to detailing. The primary objective of this paper is to examine the contribution of detailing to the overall value of the firm.

The value that detailing provides to a pharmaceutical firm is examined through the use of the SDI database and ROI measures. Examining detailing at the firm level is a unique approach and, to the best of the author's knowledge, no research has explored the value contributed to the firm from the detailing by pharmaceutical sales representatives. A general hypothesis emerges, that detailing will have a positive influence on the overall value of a pharmaceutical firm.

## FINANCIAL METRICS OF A FIRM'S VALUE

Two commonly used valuation measures of a firm include stock return and Tobin's Q. The key component that goes into the calculation of each of these two indices is the stock price of a firm. With a basis of the efficient market hypothesis, the stock return measure assumes that stock prices reflect all relevant information that is known about the firm's potential future earning (Fama and French 1992). The calculations for stock return and Tobin's Q are provided before the overall firm valuation model (Ohlson Model) is explained.

### Stock Return

The stock return measure is based on the assumption that investors utilize new information about a firm as a signal for change in the future, such as the firm's future discounted cash flow. Investors' expectations of future cash flow change as the signaling changes with new information. As a result, changes in the expectations of investors leads to fluctuations in stock price. Accordingly, the following formula calculates stock return:

$$\text{Stock Return} = \frac{(\text{Shares Outstanding}_{it} \times \text{Price}_{it} + \text{Dividends}_{it} - \text{Shares Outstanding}_{it-1} \times \text{Price}_{it-1})}{\text{Shares Outstanding}_{it-1} \times \text{Price}_{it-1}}$$

where  $i$  refers to firm  $i$  at time  $t$ .

Stock return corresponds to the change (increase or decrease) in the total value of a firm between any two consecutive time periods  $t$  and  $t-1$ . A firm's value at time  $t$  is computed as the total number of shares outstanding times the year-end closing stock price. Constantly moving over time, the measure of stock return examines market reactions to these changes (Mizik and Jacobson 2003). Other examples studying dynamic changes in marketing include Aaker and Jacobson (2001), Luo and Bhattacharya (2009), Morgan and Rego (2006), and Srinivasan and Hanssens (2009). In this particular study, stock returns capture the change in future cash flow.

### Tobin's Q

Within the marketing literature, the Tobin's Q ratio is a popular measure of firm value. Tobin's Q is the ratio of the market value of the firm over the replacement cost of the firm's tangible assets such as property, plant, and equipment (Tobin 1969, 1978). Because the Tobin's Q ratio can identify a firm's financial performance while also being a good indicator of shareholder value, it has been widely accepted in the literature (Anderson, Fornell, and Mazvancheryl 2004; Morgan and Rego 2006). The formula for Tobin's Q is as follows:

$$\text{Tobin's Q} = \frac{\text{Market Value of the Firm}}{\text{Replacement Cost of the Firm's Assets}},$$

where Market Value of the Firm = Common Stock Price x Number of Shares Outstanding.

A forward-looking measure, the Tobin's Q ratio offers a market-based view of the firm's future profit potential (Chauvin and Hirschey 1993; Lee and Grewal 2004; Rao, Agarwal, and Dahlhoff 2004). Tobin's Q has been used by Day and Fahey (1988) and Srinivasan and Hanssens (2009) to identify the impact of marketing activities on a firm's value. In the present study, a slight variation of the Tobin's Q measure (that of McNichols and Stubben 2008) will be proposed as firm value. This measure is represented as follows:

$$\text{Tobin's Q} = \frac{(\text{Market Value of Equity} + \text{Total Assets} - \text{Book Value of Common Equity})}{\text{Total Assets}}$$

These measures are readily available from Compustat.

## OHLSON VALUATION MODEL

To focus on the value of pharmaceutical firms, the Ohlson valuation model (1995) is adopted for this study. The model prescribes that a firm's value depends on the level and growth rate associated with the key fundamentals of how a firm operates. Assets, cash flow, return on assets (ROA), and return on investment (ROI) are commonly considered to be the key fundamentals for the Ohlson valuation model, which has high explanatory power. In this study, since detailing is a form of investment employed by the pharmaceutical firms to stimulate sales of their products, ROI is used as the key driver of the overall firm value. ROI is computed using the following formula:

$$\text{ROI} = \text{Net Income Before Extraordinary Item} / \text{Total Invested Capital}$$

where total invested capital = Total Long-Term Debt + Preferred Stock + Minority Interest + Total Common Equity.

### Baseline Model

The baseline Ohlson valuation model is expressed for stock return as the following:

$$\text{STK}_{it} = \alpha_0 + \alpha_1 \Delta \text{ROI}_{it} + \alpha_2 \Delta \text{ROI}_{it-1} + \varepsilon_{it}$$

For Tobin's Q, the baseline Ohlson valuation model is shown below:

$$Q_{it} = \alpha_0 + \alpha_1 \Delta \text{ROI}_{it} + \alpha_2 \Delta \text{ROI}_{it-1} + \varepsilon_{it}$$

where  $it$  refers to firm  $i$  at time  $t$ . The term  $\Delta \text{ROI}_{it}$  represents the difference in ROI between two consecutive time periods, and  $\Delta \text{ROI}_{it-1}$  is the lag of the difference.

With the two baseline models, detailing is injected into these models to estimate the marginal effect of detailing on the value of the firm. Detailing is operationalized as the actual dollar amount spent by each firm on detailing activities. Detailing expenditures are measured in million dollar units and are rescaled by applying the natural logarithm,  $\text{DETAIL\_LN}$ . The growth rate of detailing is measured as the natural logarithm of (detailing at time  $t$  / detailing at time  $t-1$ ) =  $\text{LN}(\text{detailing at time } t) - \text{LN}(\text{detailing at time } t-1)$  and is defined as  $\text{DDETAIL\_LN}$ . This defined growth rate of detailing is

expressed as a fraction rather than a percentage. Thus, the model employed in this study is a specific form of what is commonly referred to as the growth model.

## RESEARCH METHODOLOGY

The data on the dependent side—value measures of ROI, excess stock return, and Tobin's Q—are all annual, year-end data from the Compustat database. The data on the independent side, that of pharmaceutical firms and their marketing activities, come from a pharmaceutical marketing research database purchased and accessed from Encuity Research, LLC to provide data from promotional audits and personal selling audits. Using annual data, this dataset covers the period from 1990 to 2012. The data contains information on expenditures for personal selling visits to hospital physicians, office physicians, nurse practitioners and physicians assistants, as well as consumer advertising, samples, and eAnswers for online marketing. Detailing, the focus of this study, refers to expenditures accrued from personal selling to office physicians. The cost associated with sampling (dispensing sample drugs to physicians) is not included in the study.

From this data source, six pharmaceutical firms have been selected to use in this study: Abbott, Bristol-Myers-Squibb, Eli Lilly, Johnson & Johnson, Merck, and Pfizer. These particular firms have been chosen because they have been in operation from 1990 to 2012 and have consistently appeared within the top 10 positions in Fortune magazine's Fortune 500 Industry Rankings. Cumulatively, these firms have consistently accounted for over 50 to 60 percent of the brand name sector's sales revenue. Because of their leadership position, these firms are representative of the brand name sector of the pharmaceutical industry for the purpose of this study.

Two approaches are used to identify the effects of detailing on the value of a pharmaceutical firm in this study: first, an aggregation approach, and then a firm level approach. The two methods (aggregation approach and firm level approach) are described in the next two paragraphs and are then used in the analyses that follow. The aggregation approach is representative of the broad pharmaceutical industry, while the firm level approach pools the six firms together for the purpose



of data analysis. Within both approaches, two models are estimated—Model 1, which includes the Detail\_LN variable, and Model 2, which includes the DDetail\_LN variable (change in detailing growth rate).

### Aggregation Approach

In the aggregation approach, the six firms used in this study are aggregated to the industry level. To do so, all variables for the six firms are averaged to represent the entire pharmaceutical industry. A time series analysis is conducted to estimate the effect of the coefficient associated with the variables in the two baseline models. In the aggregation approach, 23 time periods correspond to the number of observations in the time series.

### Firm Level Approach

In the firm level approach, the six firms' time series are pooled to form a single, comprehensive dataset. Pooled time series data allows for a methodology that increases the number of observations. Accordingly, a total of 138 (six firms x 23 time periods) observations are available. If the variations among the six time series are small, pooled time series will yield more statistically significant results (Sayrs 1989). On the other hand, if substantial differences exist among the time series, this approach may actually lead to less significant findings.

## RESULTS

### Aggregation Approach

In the aggregation approach, firm value is measured in terms of the average stock return and Tobin's Q over these six firms. For the predictor variables, DROI is the change in ROI and corresponds to the average of DROI across the six firms. The detailing expenditures are first totaled and then rescaled by taking the logarithmic transformation.

Aggregation results with stock returns and Tobin's Q are shown in Tables 1 and 2. In Table 1, for stock return (dependent variable = STK), DROI(-1) is found to be a significant predictor of the dependent variable. This confirms the explanatory power of the valuation model used in this study. Detail\_LN takes on a negative sign (-0.10) but is not statistically ( $p$ -value = 0.16) related to stock return. The growth rate of detailing, DDetailing\_LN is found to have a positive (1.26) and significant

impact ( $p$ -value = 0.01) on stock return. As noted in the results, the level of detailing is not related to stock return. This could be due in part to the difference in units between these two variables. Stock return is expressed as the difference in market capitalization of a firm between two consecutive years, while detailing is a static, level measure. This difference in these units may have suppressed the significance of the relationship between these two variables. The overall  $R$ -square statistics in both models are quite reasonable, 0.30 with Detail\_LN and 0.44 with DDetail\_LN in the model. With DDetail\_LN, an increase of 0.14 in the  $R$ -square value was noted.

Table 1. Aggregated Approach, Stock Return at Industry Level

Aggregation: Stock Return		
Year: 1990-2012		
	Model 1	Model 2
Intercept	2.21 (0.29)	0.07 (0.29)
DROI	0.73 (0.65)	1.56 (0.28)
DROI(-1)	3.35 (0.05)	4.09 (0.01)
Detail_LN	-0.10 (0.16)	
DDetail_LN		1.26 (0.01)
$R^2$	0.30	0.44
Adjusted $R^2$	0.19	0.35
$F$ -Statistic	2.62 (0.08)	4.72 (0.01)

Note: All  $p$ -values are in parentheses.

Similar results are captured with Tobin's Q as a measure of value of detailing, and these findings are displayed in Table 2. The coefficient for Detail\_LN takes on a negative sign (-0.97), yet it is not significant at the 0.05 level. The coefficient for DDetail\_LN again takes on a positive sign and has a value of 0.83. Further, DDetail\_LN is statistically significant ( $p$ -value = 0.00), with  $R$ -square being 0.50.

Table 2. Aggregated Approach, Tobin's Q at Industry Level

Aggregation: Tobin's Q		
Year: 1990-2012		
	Model 1	Model 2
Intercept	24.00 (0.09)	2.93 (0.00)
DROI	8.41 (0.44)	16.07 (0.08)
DROI(-1)	13.15 (0.22)	20.19 (0.02)
Detail_LN	-0.97 (0.07)	
DDetail_LN		0.83 (0.00)
$R^2$	0.25	0.50
Adjusted $R^2$	0.13	0.39
F-Statistic	2.03 (0.15)	5.50 (0.01)

Note: All  $p$ -values are in parentheses.

As indicated in Tables 1 and 2, the valuation model with ROI is successful in modeling the value of a firm at the industry level. The level of detailing expenditure, Detail\_LN is not found to be useful in explaining the value of a firm. The growth rate or the change in detailing expenditure, DDetail\_LN, is consistently found to have a positive and significant impact on the value of a firm. The results provide clear evidence in support of the central hypothesis that detailing does contribute positively to the overall value of a pharmaceutical firm.

### Firm Level Approach

Pooled time series results are presented in Tables 3 and 4. In pooled time series, the number of observations increases while the approach allows variation in time series among the firms to be included. The results for stock returns, shown in Table 3, are not as significant as those reported in Table 1 for the aggregate approach. Even though ROI is found to be useful in explaining stock return, the coefficients associated with ROI are not as significant as those in Table 1. Again, Detail\_LN takes on a negative sign (and is not statistically significant). The coefficient of the growth rate of detailing, DDetail\_LN, is positive (0.17) and is significant at the 0.04 level. As for Tobin's Q in Table 4, the level of detailing is positive (0.38) and is significant at the 0.03 level. The

growth rate of detailing is not statistically related to the value of the firm. Again, the study's central hypothesis is supported.

Table 3. Time Series, Stock Return at Firm Level

Pooled Time-Series: Stock Return		
Year: 1990-2012		
	Model 1	Model 2
Intercept	1.10 (0.17)	0.12 (0.00)
DROI	-0.01 (0.01)	-0.00 (0.88)
DROI(-1)	0.00 (0.49)	0.01 (0.0901)
Detail_LN	-0.05 (0.12)	
DDetail_LN		0.17 (0.04)
$R^2$	0.71	0.71
Adjusted $R^2$	0.63	0.63
F-Statistic	8.80 (0.00)	8.66 (0.00)

Note: All  $p$ -values are in parentheses.

Table 4. Time Series, Tobin's Q at Firm Level

Pooled Time-Series: Tobin's Q		
Year: 1990-2012		
	Model 1	Model 2
Intercept	-3.41 (0.31)	3.59 (0.00)
DROI	0.02 (0.0387)	0.02 (0.09)
DROI(-1)	0.02 (0.08)	0.02 (0.10)
Detail_LN	0.38 (0.03)	
DDetail_LN		0.28 (0.09)
$R^2$	0.81	0.80
Adjusted $R^2$	0.76	0.75
F-Statistic	14.52 (0.00)	14.52 (0.00)

Note: All  $p$ -values are in parentheses.

## DISCUSSION

This paper establishes support for the contribution made to pharmaceutical firms when sales representatives visit office physicians to promote pharmaceutical drugs, an activity commonly referred to as “detailing.” This study provides an interesting view into the role that detailing provides in contributing specifically to firm value. Detailing has long been a primary component of the pharmaceutical industry but, given the ever-increasing costs of personal selling and sales calls (Christie 2013), it is essential to consider the impact that these visits to physicians have on the firm. In addition, with more and more governmental restrictions imposed on detailing activities, detailing expenditures are scrutinized. This paper attempts to answer the question: Do detailing activities create value and contribute to the overall value of a firm?

Value creation in sales is often reflected by either the customer’s or salesperson’s perception (Eggart and Ulaga 2002; Georges 2006). Research to date has examined the impact of detailing on consumer choice or physician recommendation at the brand and product levels. This is the first study in the sales literature that explores how detailing contributes to the overall value of a pharmaceutical firm in financial terms. Utilizing a firm valuation model, with respect to stock return and Tobin’s Q, data from 1990 to 2012 was analyzed to identify the value that pharmaceutical salespeople were directly providing to their firms through detailing (office visits to physicians). Value is “the fundamental basis for all marketing activity” (Holbrook 1994, p. 22), and top executives of pharmaceutical firms can easily relate to the measure of firm value. The Ohlson’s model presumably captures the portion of a firm’s value attributable to the basic fundamentals of the firm. In this study, ROI is used. Results reported in this study largely substantiate this presumption.

Data was analyzed at the industry level by aggregating data for six of the large pharmaceutical firms, which are consistently ranked in the top 10 (Abbott, Bristol-Myers-Squibb, Eli Lilly, Johnson & Johnson, Merck, and Pfizer). With respect to the valuation variables, the growth rate of detailing in the pharmaceutical industry did have a positive, significant impact on stock return

and Tobin’s Q and, thus, overall firm value. Specifically, results can be interpreted to quantify the value added to a firm through detailing efforts. As shown in Table 1, at the industry level, a firm’s stock return increase is \$1.26 million for every one-unit (0.01) change in the growth rate of detailing expenditures. Equivalently, a one percent change in the growth rate will lead to a \$126 million increase in stock return. Similarly, the firm value when represented by Tobin’s Q directly increased by .83 units for every one-unit (0.01) of detailing expenditure growth, or would increase by 83 units if detailing expenditures were doubled.

These findings are indicative of the important role that detailing continues to contribute to the pharmaceutical industry. Connecting detailing expenditures to the firm’s value through financial valuation provides a more concrete substantiation of the worth of the firm’s sales force when the sales representatives are engaged in detailing activities. A pharmaceutical firm can utilize the figures from this study’s model to estimate the benefits to be derived from an increase in the detailing expenditure as a way of justifying this expense item in the overall budget of the firm. The model predicts that the values of firms will increase with detailing, even though other—often less costly—marketing options exist for firms to utilize. While the increasing costs of detailing were mentioned earlier, the value that comes from such personal selling efforts must be emphasized in this discussion, especially given the high intensity of competition in the pharmaceutical industry.

## Future Research

This study also invites a deeper look into the influence that marketing mix elements have in determining and directly impacting a firm’s value. This particular study relies on a linearized form of a growth model to identify the effects of detailing. Growth models have caught the attention of researchers in sales in recent years (for example, see Ahearne, Lam, Mathieu, and Bolander 2010 or Boichuk et al. 2014), and this study of detailing can easily be extended to incorporate other nonlinear growth patterns. Further refinement of this and other growth models would help identify the effect that detailing has on valuation trajectories or how enduring detailing is over time.



On additional avenue for future research may test whether pharmaceutical detailing, while clearly an indicator of value, may be losing its traditionally strong foothold. Traditional pharmaceutical detailing is being “disrupted” because of physicians’ increased affiliations with hospitals and large group practices, as the number of independent physicians in 2000, 60 percent, has decreased to a mere 30 percent in 2013 (Mahoney 2013). A comparison of DTCA and detailing is a fruitful venue for future research. In the presence of less stringent regulations for direct-to-consumer advertising, and more stringent regulations for detailing as well as the increased availability of information to consumers due to increased technology and an abundance of resources on the Internet, a comparison of detailing and DTCA would provide additional contribution to the marketing literature.

## REFERENCES

- Aaker, David A. and Robert Jacobson (2001), “The Value Relevance of Brand Attitude in High-Technology Markets,” *Journal of Marketing Research*, 38 (4), 485-493.
- Acuff, Jerry and Lori Champion (2006), “Relationships: The 21st Century Asset,” *Journal of Selling and Major Account Management*, 6 (1), 57-63.
- Agnihotri, Raj, Prabakar Kothandaraman, Rajiv Kashyap and Ramendra Singh (2012), “Bringing ‘Social’ into Sales: The Impact of Salespeople’s Social Media Use on Service Behaviors and Value Creation,” *Journal of Personal Selling and Sales Management*, 32 (3), 333-348.
- Ahearne, Michael, Ronald Jelinek, and Eli Jones (2007), “Examining the Effect of Salesperson Service Behavior in a Competitive Context,” *Journal of the Academy of Marketing Science*, 35, 603-616.
- Ahearne, Michael, Son K. Lam, John E. Mathieu, and Willy Bolander (2010), “Why are Some Salespeople Better at Adapting to Organizational Change?” *Journal of Marketing*, 74 (3), 65-79.
- Anderson, Eugene W., Claes Fornell, and Sanal K. Mazvancheryl (2004), “Customer Satisfaction and Shareholder Value,” *Journal of Marketing*, 68 (4), 172-185.
- Bala, Ram and Pradeep Bhardwaj (2010), “Detailing vs. Direct-to-Consumer Advertising in the Prescription Pharmaceutical Industry,” *Management Science*, 56 (1), 148-160.
- Boichuk, Jeffrey P., Willy Bolander, Zachary R. Hall, Michael Ahearne, William J. Zahn and Melissa Nieves (2014), “Learned Helplessness Among Newly Hired Salespeople and the Influence of Leadership,” *Journal of Marketing*, 78 (1), 95-111.
- Brennan, Troyen A. and Michelle M. Mello (2007), “Sunshine Laws and the Pharmaceutical Industry,” *Journal of the American Medical Association*, 297, 1255-1257.
- Chauvin, Keith W. and Mark Hirschey (1993), “Advertising, R&D Expenditures and the Market Value of the Firm,” *Financial Management*, 22 (4), 128-40.
- Christie, Mark (2013), “Calculating the Cost of a Sales Call,” *Sales Management*, Sales Force Training and Consulting, March 5, 2013 at <http://www.salesforcetraining.com/sales-training-blog/sales-management-training/calculating-the-cost-of-a-sales-call/>.
- Day, George, and Liam Fahey (1988), “Valuing Market Strategies,” *Journal of Marketing*, 52 (3), 45-57.
- Eggart, Andreas and Wolfgang Ulaga (2002), “Customer Perceived Value: A Substitute for Satisfaction in Business Markets?” *Journal of Business and Industrial Marketing*, 17 (2/3), 107-118.
- Fama, Eugene F. and Kenneth R. French (1992), “The Cross-Section of Expected Stock Return,” *Journal of Finance*, 47 (2), 42-65.
- Georges, Laurent (2006), “Delivering Integration, Value, and Satisfaction through Key Account Manager’s Communication,” *Journal of Selling and Major Account Management*, 6 (1), 6-21.
- Gönül, Füsun F., Franklin Carter, Elina Petrova, and Kannan Srinivasan (2001), “Promotion of Prescription Drugs and Its Impact on Physicians’ Choice Behavior,” *Journal of Marketing*, 65 (3), 79-90.
- Grande, David (2009), “Limiting the Influence of Pharmaceutical Industry Gifts on Physicians: Self-Regulation or Government Intervention?” *Journal of General Internal Medicine*, 25 (1), 79-83.
- Greene, Jeremy A. (2004), “Attention to ‘Details’: Etiquette and the Pharmaceutical Salesman in Postwar America,” *Social Studies of Science*, 34 (2), 271-292.
- Holbrook, Morris B. (1994), “The Nature of Customer Value,” *Service Quality: New Directions in Theory and Practice*, Thousand Oaks, CA: Sage, 21-71.

- Iizuka, Toshiaki and Ginger Zhe Jin (2007), "Direct to Consumer Advertising and Prescription Choice," *The Journal of Industrial Economics*, 55 (4), 771-777.
- Ko, Dong-Gil and Alan R. Dennis (2004), "Sales Force Automation and Sales Performance: Do Experience and Expertise Matter?" *Journal of Personal Selling and Sales Management*, 24 (4), 311-322.
- Lee, Ruby P. and Rajdeep Grewal (2004), "Strategic Responses to New Technologies and Their Impact on Firm Performance," *Journal of Marketing*, 68 (4), 157-171.
- Lehmann, Donald R., Kevin Lane Keller, and John U. Farley (2008), "The Structure of Survey-Based Brand Metrics," *Journal of International Marketing*, 16 (4), 29-56.
- Luo, Xueming and C.B. Bhattacharya (2009), "The Debate over Doing Good: Corporate Social Performance, Strategic Marketing Levers, and Firm-Idiosyncratic Risk," *Journal of Marketing*, 73 (6), 198-213.
- Mahoney, Linda (2013), "The Devils in the Detailing? Not Anymore. The Focus Now for Pharma Sales is Account Management," *Chief Sales Digest*, Alexander Group. Posted June 11, 2013. Accessible at <<http://www.alexandergroup.com/blog/pharmaceutical/the-devils-in-the-detailing-not-anymore-the-focus-now-for-pharma-sales-is-account-management/>>.
- McNichols, Maureen F. and Stephen R. Stubben (2008), "Does Earnings Management Affect Firms' Investment Decisions?" *The Accounting Review*, 83 (6), 1571-1603.
- Mizik, Natalie and Robert Jacobson (2003), "Trading off between Value Creation and Value Appropriation: The Financial Implications of Shifts in Strategic Emphasis," *Journal of Marketing*, 67 (1), 63-76.
- Morgan, Neil A. and Lopo Leotte Rego (2006), "The Value of Different Customer Satisfaction and Loyalty Metrics in Predicting Business Performance," *Marketing Science*, 25 (5), 426-439.
- Narayanan, Sridhar, Ramarao Desiraju, and Pradeep K. Chintagunta (2004), "Return on Investment Implications for Pharmaceutical Promotional Expenditures: The Role of Marketing-Mix Interactions," *Journal of Marketing*, 68 (4), 90-105.
- Ohlson, Jerry A. (1995), "Earnings, Book Values and Dividends in Equity Valuation," *Contemporary Accounting Research*, 11 (2), 661-687.
- Rao, Vithala R., Manoj K. Agarwal, and Denise Dahlhoff (2004), "How is Manifest Branding Strategy related to the Intangible Value of a Corporation?" *Journal of Marketing*, 68 (4), 126-141.
- Rehder, Robert R. (1965), "Communication and Opinion Formation in a Medical Community: The Significance of the Detail Man," *The Academy of Management Journal*, 8 (4), 282-291.
- Riggs, John F., Scott Widmier, and Richard Plank (2013), "The Impact of Pharmaceutical Industry Regulations on Sales Behaviors: A Taxonomy with Managerial Insights," *National Conference in Sales Management Proceedings*, 30-32.
- Ross, Joseph S., Josh E. Lackner, Peter Lurie, Cary P. Gross, Sidney Wolfe, and Harlan M. Krumholz (2007), "Pharmaceutical Company Payments to Physicians: Early Experiences with Disclosure Laws in Vermont and Minnesota," *Journal of the American Medical Association*, 297, 1216-1223.
- Says, Lois W. (1989), *Pooled Time Series Analysis*, Newbury Park, CA: Sage.
- Srinivasan, Shuba and Dominique M. Hanssens (2009), "Marketing and Firm Value: Metrics, Methods, Findings, and Future Directions," *Journal of Marketing Research*, 46 (3), 293-312.
- Tobin, James (1969), "A General Equilibrium Approach to Monetary Theory," *Journal of Money, Credit and Banking*, 1 (1), 15-29.
- Tobin, James (1978), "Monetary Policies and the Economy: The Transmission Mechanism," *Southern Economic Journal*, 44 (3), 421-431.
- Uлага, Wolfgang and Andreas Eggert (2005), "Relationship Value in Business Markets: The Construct and Its Dimensions," *Journal of Business-to-Business Marketing*, 12 (1), 73-99.
- Vargo, Stephen L. and Robert F. Lusch (2004), "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68 (1), 1-17.