

## **Evaluating the effect of recession on retail firms' strategy using DuPont method: 2006-2009**

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### **ABSTRACT**

The purpose of this paper is to compare the financial performance of retail firms with fiscal years ending on or around December 31, 2008 and 2009 (the recession years) with retail firms with fiscal years ending on or around December 31, 2006 and 2007 (the non-recession years). As with Little, Little, and Coffee (2008), the modified Du Pont model of financial ratio analysis is used to identify the drivers of financial success under alternative business strategies. Firms in the retail industry are categorized according to their high/low relative net operating income to sales and operating asset turnover ratios. Firms with high relative net operating income to sales and low relative operating asset turnover are assumed to be pursuing a differentiation strategy and those with high relative operating asset turnover and low relative net operating income to sales are assumed to be pursuing a cost leadership strategy. The performance variable used is return on net operating assets.

One stream of prior research suggests that a firm could, in theory, perform well following either strategy. Little, Little, and Coffee (2008) suggest that retail firms using a differentiator strategy outperform (based on return on net operating assets) those using a cost leader strategy. However, the findings of this research suggest that retail firms pursuing a differentiation strategy are not more likely to achieve a higher return on net operating assets than those firms pursuing a cost leadership strategy in a recessionary period.

Keywords: retail strategy, recession, differentiation, cost leadership, DuPont method

## Introduction

A study by Little, Little, and Coffee (2008) examined financial performance of retail firms through the use of a modified Du Pont model of financial ratio analysis in order to identify the drivers of financial success using the alternative business strategies of cost leadership and differentiation. Their data were from retail firms with fiscal year ends on or around December 31, 2007. Their findings suggest that retail firms pursuing a differentiation strategy are more likely to achieve a higher return on net operating assets than those firms pursuing a cost leadership strategy. Since the time period of their study, the economy has been faced with one of the worst recessions in the history of the United States. The retail industry as a whole has been hit hard by this recession. Data gathered from the Compustat database of retail firms with fiscal year ends on or around December 31, 2006-2009 reveal that comparable store sales increases (decreases) averaged 3.6% in 2006, 2.8% in 2007, 0.050% in 2008 and (4.2%) in 2009. Given that retail customers with less ready cash to spend may not be as willing to buy high end differentiated products versus lower priced cost leadership products, it seems logical that cost leadership retail firms may outperform differentiator firms in a recessionary economy.

Accordingly, the purpose of this paper is to examine the financial performance of retail firms with fiscal years ending on or around December 31, 2008 and 2009 with retail firms with fiscal years ending on or around December 31, 2006 and 2007. As with Little, Little, and Coffee (2008), the modified Du Pont model of financial ratio analysis is used to identify the drivers of financial success under alternative business strategies. Firms in the retail industry are categorized according to their high/low relative net operating income to sales and operating asset turnover ratios. Firms with high relative net operating income to sales and low relative operating asset turnover are assumed to be pursuing a differentiation strategy and those with high relative operating asset turnover and low relative net operating income to sales are assumed to be pursuing a cost leadership strategy. The performance variable used is return on net operating assets.

## Business Strategy

A widely recognized model for characterizing business-level strategies is Porter's (1998) generic competitive strategies. He identifies three strategies, cost leadership, differentiation and focus. For our purposes, these can be narrowed to two, because a focus (niche market) strategy is either cost leadership or differentiation-based (Price & Newson, 2003).

Cost leadership strategy attempts to achieve organizational goals by delivering a product or service comparable to competitors' at a lower cost to the customer. Firms pursuing this strategy maintain tight controls on costs and often look for economies of scale and sales volume. Palepu and Healy (2008) suggest that a firm pursuing cost leadership strategy may generate a relatively low profit margin but balance that against a relatively high asset turnover. Soliman (2008), in his analysis of the components of the Du Pont method, while not using the cost leadership/differentiation terminology explicitly, clearly suggests their existence. He states that asset turnover measures "asset utilization and efficiency, efficient inventory processes and working capital management" (p. 824). He offers Dell Computers as example of this business model.

A differentiation strategy, alternatively, attempts to deliver to consumers some characteristic of product or service that will command a premium price. Examples of such characteristics include brand name, quality, service, design, delivery method and variety. Companies pursuing a differentiation strategy must balance expenditures for marketing and R&D with ability to price their product/service competitively against others in the same market (Palepu & Healy, 2008). Firms pursuing this strategy may be successful by generating a relatively high profit margin and a relatively low asset turnover. Soliman (2008) states that profit margin is derived from “pricing power, such as product innovation, product positioning, brand name recognition, first-mover advantage and market niches.” (p. 824). Abercrombie and Fitch is cited as an example of such a business model.

Retailers pursuing a differentiation strategy focus on the dimension of the product/service that commands a premium price, while not ignoring operating expenses. Likewise, cost leaders cannot ignore product characteristics desired by customers (Palepu & Healy, 2008).

Gooderham (1998) states that “no one right way to develop and implement strategy exists... The key is to get the right fit between the chosen tools and techniques, the organization’s culture, capabilities and business environment, and the desired outcome.” (p. 2). In addition, the theoretical underpinnings of the Du Pont model illustrate that a firm can be successful with either a cost leadership strategy through generating asset turnover or a differentiation strategy generating profit margins. This study provides empirical evidence testing this theory.

### **The Modified Du Pont Model**

The original Du Pont method of financial ratio analysis was developed in 1918 by an engineer at Du Pont who was charged with understanding the finances of a company that Du Pont was acquiring. He noticed that the product of two often-computed ratios, net profit margin and total asset turnover, equals return on assets (ROA). The elegance of ROA being affected by a profitability measure and an efficiency measure led to the Du Pont method becoming a widely-used tool of financial analysis (Liesz, 2002). In the 1970’s, emphasis in financial analysis shifted from ROA to return on equity (ROE), and the Du Pont model was modified to include the ratio of total assets to equity.

In order to more effectively evaluate operational managers, Nissim & Penman (2001) suggest using a modified version of the traditional Du Pont model in order to eliminate the effects of financial leverage and other factors not under the control of those managers. Using operating income to sales and asset turnover based on operating assets limits the performance measure of management to those factors over which management has the most control. The modified Du Pont model has become widely recognized in the financial analysis literature. See, for example, Pratt & Hirst (2009), Palepu & Healy (2008), and Soliman (2008). In addition, Soliman (2004) found that industry-specific Du Pont multiplicative components provide more useful valuation than do economy-wide components, suggesting that industry-specific ratios have increased validity.

The modified model is as follows:

$$\text{RONOA} = \text{OPM} \times \text{AT}$$

WHERE:

RONOA	=	Return on Net Operating Assets
OPM	=	Operating Profit Margin (Operating Income / Sales)
AT	=	Asset Turnover (Sales / Net Operating Assets)
Operating Income	=	Sales - Cost of Sales - Operating Expenses
Net Operating Assets	=	Accounts Receivable + Inventory + Net Property, Plant, and Equipment

Either strategy could generate a relatively high RONOA when successful or low RONOA when not successful. In a homogeneous industry such as retail firms one could expect to see both successful and unsuccessful (as measured by RONOA) firms pursuing profit margin strategies (differentiation) or asset turnover strategies (cost leadership).

The data presented below depict the set of combinations of relative operating profit margin (OPM) and relative asset turnover (AT) performance paired with the overall performance measure, return on net operating assets (RONOA).

Category	Relative OPM	Relative AT	Relative RONOA
1.	HIGH	LOW	HIGH
2.	HIGH	LOW	LOW
3.	HIGH	LOW	MID
4.	LOW	HIGH	HIGH
5.	LOW	HIGH	LOW
6.	LOW	HIGH	MID

The central question of this research is whether there is a significant difference in performance, as measured by RONOA, between retail firms that employ an OPM/differentiation strategy (Categories 1-3) or those that pursue an AT/cost leadership strategy (Categories 4-6) and if the state of the economy (recession versus non-recession) affects the outcome.

### Research Method

The Compustat database (2009) was used to select a total of 111 companies (after eliminating companies with missing data) from the retail industry with fiscal years ending on or around December 31 for the years 2006, 2007, 2008 and 2009. These companies are in the following retail industry categories:

Building Supply	3
Department Stores	19
Grocery Stores	8
Automotive	5

Apparel	38
Electronics	6
Restaurants	12
Pharmacies	2
Other	18

The companies remaining in the sample were then sorted by the 40 highest and 40 lowest relative values for the variables OPM (2006 year) and AT (2006 year) leaving 31 companies in the middle category (neither relatively high nor relatively low). A total of 28 companies were identified in the differentiation category and 28 companies in the cost leadership category.

The next step in the research process was to run ANOVA statistics on those 28 retail firms in the relative high OPM and low AT category (differentiation strategy) and those 28 retail firms in the relative high AT and low OPM category (cost leadership strategy) to test if there was a statistically significant difference in the RONOA performance of the two different categories for each year from 2006-2009.

### Research Results

The data reported below show sample statistics for the variables used in the one way ANOVAs models for each of the strategy categories:

#### Differentiation Strategy Category

Variable	Firms	Mean	Std. Dev.	Max.	Min.
RONOA09	28	0.166	0.120	0.383	-0.089
RONOA08	28	0.205	0.118	0.535	0.025
RONOA07	28	0.239	0.096	0.508	0.112
RONOA06	28	0.251	0.102	0.554	0.106

#### Cost Leader Strategy Category

Variable	Firms	Mean	Std. Dev.	Max.	Min.
RONOA09	28	0.165	0.145	0.512	-0.202
RONOA08	28	0.166	0.098	0.349	-0.045
RONOA07	28	0.178	0.098	0.360	-0.190
RONOA06	28	0.169	0.077	0.323	-0.032

During the years 2006 and 2007, the mean RONOA for the differentiation strategy companies of about 25 percent for 2006 and 24 percent for 2007 was substantially higher than the mean RONOA for the cost leader strategy companies of about 17 percent in 2006 and 18 percent in 2007. In 2008 the mean RONOA of about 21 percent for the differentiation strategy companies was still higher but not by as great a margin than for the cost leader strategy companies of about 17 percent. However, in 2009 the mean RONOA was about 17 percent for both the differentiation strategy companies and the cost leader strategy companies. In addition, the mean RONOA for the

cost leader strategy companies remained roughly the same over the four year period while the differentiation strategy companies declined from about 25 percent in 2006 to about 17 percent in 2009.

An ANOVA procedure was run using a categorical variable for the independent variable representing the strategy categories as the high OPM and low AT differentiation strategy and the high AT and low OPM cost leadership strategy. The dependent variable is RONO. The results of the ANOVA shown below indicate that there was no statistically significant difference in the mean values for RONO for 2008 and 2009 (recession years) in the two strategy categories. On the other hand, there are statistically significant differences in RONO for the two strategy categories for 2007 and 2006 (non-recession years).

Variables	Pr > F
Dependent: RONO09 Independent: Strategy Categories	<0.978 $R^2 = 0.00$
Dependent: RONO08 Independent: Strategy Categories	<0.177 $R^2 = 0.04$
Dependent: RONO07 Independent: Strategy Categories	<0.022 $R^2 = 0.09$
Dependent: RONO06 Independent: Strategy Categories	<0.001 $R^2 = 0.18$

### Conclusions

The results of this study suggest that retail firms that pursue a differentiation strategy (high OPM and low AT) outperform those retail firms that use a cost leadership strategy (high AT and low OPM) as measured by the performance variable RONO for the two non-recession years 2006 and 2007. However, the results of this study do not suggest that retail firms that pursue a differentiation strategy (high OPM and low AT) do not outperform those retail firms that use a cost leadership strategy (high AT and low OPM) as measured by the performance variable RONO for the recession years 2008 and 2009.

The mean values for RONO in the years 2006 and 2007 for the 28 firms in the differentiation strategy category are considerably higher than the values for the 28 firms in the cost leadership category and the differences are statistically significant. In contrast, the mean values for RONO in the years 2008 and 2009 for the 28 firms in the differentiation strategy category are not considerably higher than the values for the 28 firms in the cost leadership category and the differences are not statistically significant.

These results indicate that the premise that the state of the economy can influence which strategy can be successful is true for this sample of retail firms. Also, these results confirm the findings of Little, Little, and Coffee (2008) that retail firms using a differentiation strategy outperform retail firms using a cost leader strategy in a non-

recessionary period. The level of statistical significance and the R Square for 2007 was considerably higher in the Little, Little, and Coffee results. One explanation could be that the retail companies used in this study included restaurants, grocery stores, and drug stores whereas the Little, Little, and Coffee (2008) study did not. The justification for including these categories of retail firms is that they are included in the retail SIC category.

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