Grocery-Anchored Shopping Centers: A Better Retail Investment?

by

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Submitted to the Program in Real Estate Development in Conjunction with the Center for Real Estate in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

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ABSTRACT

A very popular hypothesis of late is that grocery-anchored shopping centers perform better and are less risky than other retail investments. This hypothesis is primarily based on three notions: 1) grocery stores are unique in their ability to attract shoppers on a regular basis, often two to three times a week. This provides a grocery-anchored shopping center with consistent traffic that benefits the in-line tenants; 2) Grocery stores represent a non-cyclical business. People need to eat whether the economy is strong or weak, therefore, grocery-anchored shopping centers can rely on a minimum level of traffic regardless of economic conditions; 3) Many retailers have experienced significant sales leakage to the Internet. This has recently led to the concept of replacing large stores with small showrooms. However, the Internet has not impacted the grocery store business as significantly. Although some grocers have attempted to implement online stores, the model has been difficult to implement and unsuccessful. Therefore, many investors view grocery-anchored shopping centers as a hedge to the threat of online shopping faced by other retailers. These three characteristics have led many core investors to allocate capital to grocery-anchored shopping centers since they are viewed as stable and low-risk investments relative to other real estate alternatives.

The purpose of this Thesis is to evaluate the performance of grocery-anchored shopping centers relative to other real estate investments, primarily in terms of asset prices and capitalization rates. This Thesis will attempt to determine whether investors pay more for grocery-anchored shopping centers and whether a potential price premium is warranted based on actual performance. This Thesis will also measure the volatility of grocery-anchored shopping center prices compared to other retail and non-retail investments to help determine the relative risk of these investments.

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TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1: INTRODUCTION

Grocery stores represent a unique tenant with certain characteristics that can benefit a shopping center. These characteristics and conventional wisdom have led many investors to favor grocery-anchored shopping centers over other retail and non-retail real estate investments. However, little research has been done to date on the actual performance of grocery-anchored shopping centers relative to other retail investments. What specific benefits does a grocery store provide as an anchor and are these benefits reflected in the prices investors are willing to pay for grocery-anchored shopping centers? Furthermore, is a potential price premium warranted and realized based on the actual performance of grocery-anchored shopping centers? This paper will aim to answer these questions, but first, it is important to identify the common perceived benefits that a grocery store can provide a shopping center.

1.1 Grocery Stores and Retail Traffic

Grocery stores attract customers on a regular basis. According to the Food Marketing Institute ("FMI") Grocery Shoppers Trends 2010, the average number of trips per week consumers made to supermarkets in 2010 was 2.06. Obviously, this will be higher or lower depending on transportation costs and the spatial distribution and supply of grocery stores in each specific trade area. However, the consistent flow of consumer traffic generated by a grocery store can be a significant benefit to the in-line tenants at a shopping center. Some tenants may only lease space at a shopping center with a grocery store as a primary anchor because of the traffic it provides, therefore providing the landlord of a grocery-anchored center with the opportunity to charge higher rents. Although this is a common hypothesis, it is difficult to measure the correlation between the performance of the grocery store anchoring the shopping

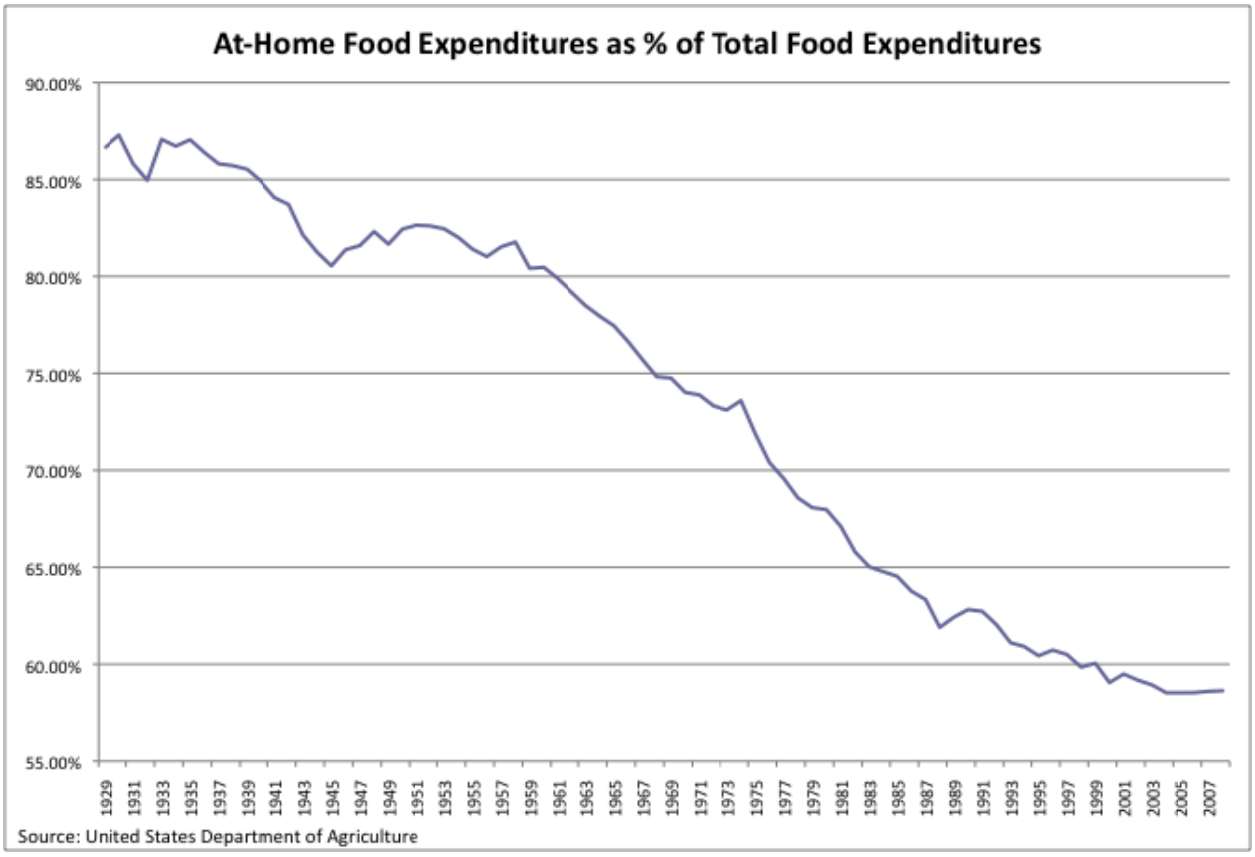
center and the sales produced by the in-line tenants. Do the grocery store customers actually visit the other stores and do they do so out of convenience, that is the ability to visit the salon, bank, drug store, and grocery store all at one destination. If a correlation does exist, meaning that the higher the grocery store sales the better the in-line tenants perform, perhaps because grocery store patrons appreciate the convenience of service retailers adjacent to their primary grocery store, then this relationship should create a price premium for grocery-anchored shopping centers compared to similar properties without a grocery store as the anchor.

1.2 Grocery Stores and the Economy

Grocery stores represent a non-cyclical business. People need to eat regardless of economic conditions and actually tend to eat more at home than at restaurants during challenging economic times, thus placing upward pressure on grocery store sales during recessionary periods. Consumers certainly adjusted purchasing patterns during the "Great Recession" beginning in 2007 and ate out less, impacting family chain restaurants such as Applebee's, TGIF, and Red Lobster, however, fast food restaurants like McDonald's, Taco Bell, and Pizza Hut were less affected. According to the Food Marketing Institute ("FMI") Grocery Shoppers Trends 2010, 68% of consumers said they were eating out less in 2010 than a year ago. Although this translated to increased grocery store purchases, there was certainly a dichotomy between the grocery stores that benefited. Club stores (e.g., Costco, Sam's Club, BJ's), low-end discounters (e.g., Wal-Mart), and price competitive supermarkets (e.g., Super Valu, Kroger, Safeway) benefited from the shift in spending from restaurants while high-end grocery retailers (e.g., Whole Foods) did not so much (Shea, 2008, 1). The following charts help to demonstrate these

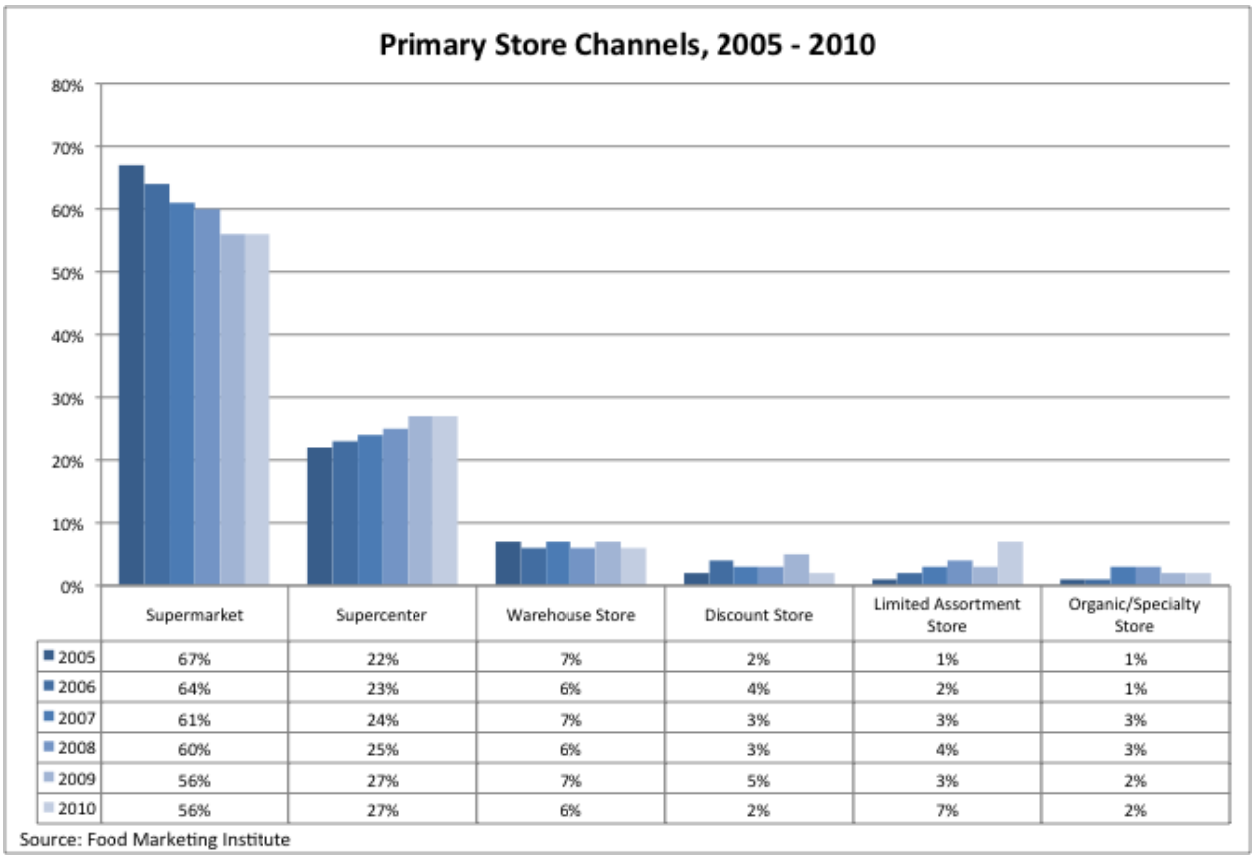
two important trends during recessionary periods – the shift from eating out to eating in and the change in the types of grocery stores consumers frequent.

Figure 1.1: At-Home Food Expenditures as % of Total Food Expenditures



Overall, the above chart shows a decline in the amount of total disposable income that is spent on food at home compared to food expenditures away from home. However, five of the most identifiable increases in the percentage of food expenditures at home (1945 – 1948, 1956 – 1958, 1973 – 1974, 1988 – 1990, 2000 – 2001) either immediately followed or led a recessionary period. Despite what appears to be a strong change in actual eating habits (eating at home vs. eating out), between 1935 and 2008, people tend to revert back to eating at home during challenging economic times.

Figure 1.2: Primary Store Channels, 2005 - 2010

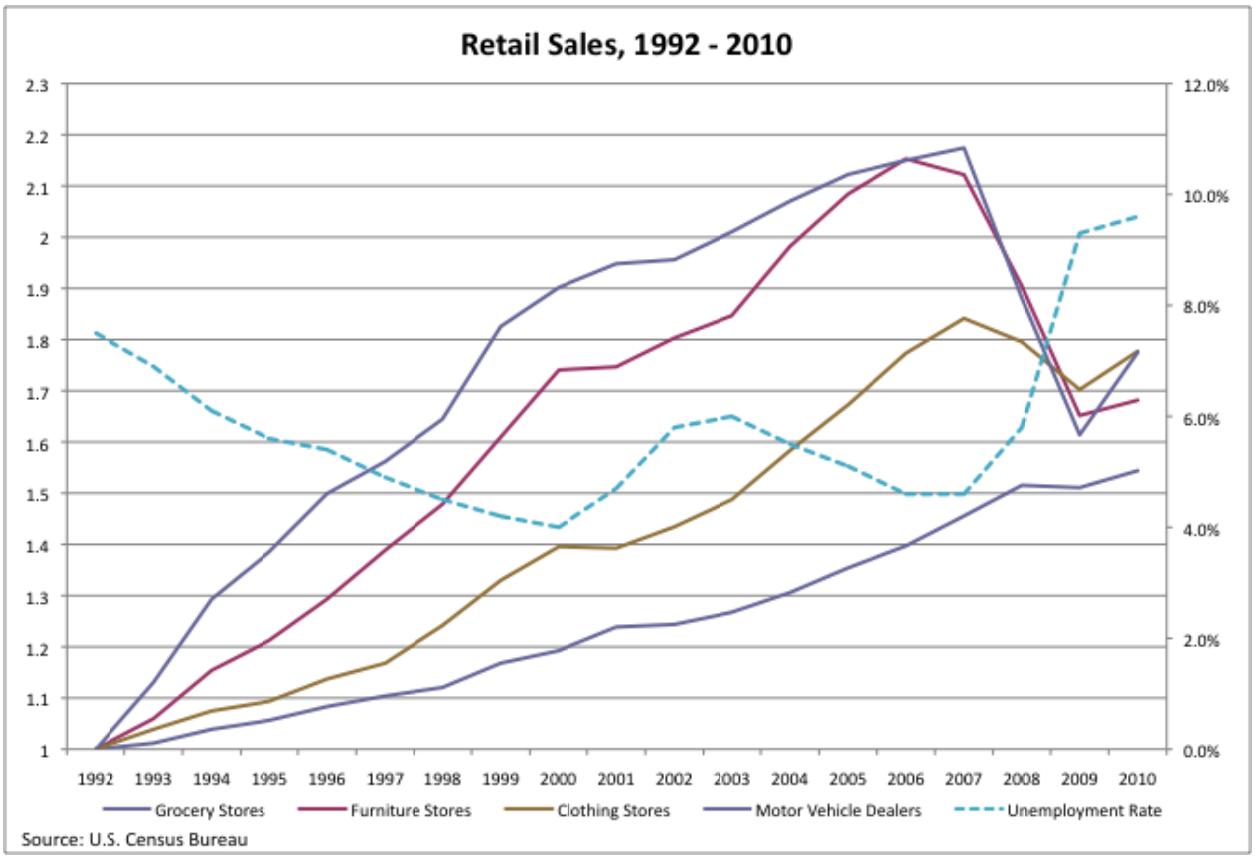


	Supermarket	Supercenter	Warehouse Store	Discount Store	Limited Assortment Store	Organic/Specialty Store
2005	67%	22%	7%	2%	1%	1%
2006	64%	23%	6%	4%	2%	1%
2007	61%	24%	7%	3%	3%	3%
2008	60%	25%	6%	3%	4%	3%
2009	56%	27%	7%	5%	3%	2%
2010	56%	27%	6%	2%	7%	2%

Source: Food Marketing Institute

The above chart illustrates the breakdown in the type of grocery stores that consumers visited between 2005 and 2010. As you can see, supermarkets have lost market share to supercenters, although this appeared to stabilize in 2010. Furthermore, limited assortment stores like Trader Joes continue to gain market share. Interestingly, you can see that between 2006 and 2007 organic/specialty stores gained market share, but then lost market share between 2008 and 2009 as the economic downturn took hold and consumers became more price sensitive. Between 2008 and 2009 also represents the most significant one-year decline in market share for supermarkets and increase for supercenters, further pointing to the shift in consumer patterns taking place during recessionary periods.

Figure 1.3: Retail Sales, 1992 - 2010



The above chart plots the change in consumer spending, indexed to 1992, at grocery stores compared to other more discretionary retailers, in this case, furniture stores, clothing stores, and motor vehicle dealers. The chart also plots the national unemployment rate – one indicator of the overall health of the economy. As expected, during economic downturns people continue to spend at grocery stores while scaling back on other expenditures. Between 2007 and 2010, the unemployment rate increased by approximately 500 basis points. Over this same period, grocery stores sales increased by 6.1% while sales at furniture stores, clothing stores, and motor vehicle dealers declined by 20.8%, 3.5%, and 18.4%, respectively.

1.3 Grocery Stores and Online Shopping

Another perceived benefit of grocery-anchored shopping centers is that grocery stores are less susceptible to losing sales to the Internet. Retail stores have lost significant market share to ecommerce and of course many retailers have implemented online shopping platforms, thus driving sales away from shopping centers to the Internet. However, online shopping has not had as significant of an impact on grocery stores because online grocery shopping models have proven difficult to implement for a variety of reasons. Although consumers identify the benefits of online grocery shopping in terms of convenience, price, and product range, the disadvantages have been difficult to overcome. These mental barriers for consumers include the risk of receiving inferior groceries and the loss of the recreational aspect of grocery shopping in that many people actually enjoy the experience (Ramus & Niels, 2005). Webvan probably represents the most famous failed online grocery retailer, having collapsed in 2001 largely due to a combination of the design of its logistics system, a misunderstanding of information technology capabilities, and ineffective marketing (Lunce & Kawai & Maniam, 2006). Following Webvan's failure, other grocers were reluctant to enter the online grocery space. However, there has been a recent resurgence in this space that may create a different landscape for grocers going forward.

Although online grocery shopping has not been very successful to date, this certainly does not mean the same challenges will continue, and some shifts are actually now taking place in this retail space, creating a potential threat to grocery-anchored shopping centers going forward. According to a report completed by Forrester Research in 2011, ecommerce within the grocery industry accounts for 8% of total retail sales, however, they estimate this could increase to 11% if not for the little penetration into the online grocery shopping market (Lindeman, 2011). Walmart, for example, launched a test service in 2011 called Walmart To Go, which allows

customers in San Jose, California to order produce, meat, seafood, and bread for an average delivery fee of $5 to $10. This service is similar to Amazon's service in Seattle, Washington called AmazonFresh as well as other online grocery retailers like Fresh Direct and Peapod, which have been expanding their services in the United States. However, according to the National Grocers Association, online grocery sales make up only 1% to 2% of total grocery sales (Jopson & Rappeport, 2011). Although ecommerce within the grocery industry has not had a significant impact on grocery stores yet, future impacts are yet to be determined and this represents a meaningful risk that long-term investors in grocery-anchored shopping centers should consider.

1.4 Thesis Intent and Hypothesis

Based on the previous discussions in this chapter, one would expect grocery-anchored shopping centers to perform better than similar properties without a grocery store, or at least drive a positive relationship between the existence of a grocery store and the performance of the shopping center. One key measure of performance is price and the movement in prices (i.e., appreciation) over time. If a grocery store does in fact provide unique benefits to a shopping center as previously discussed then such centers should be more expensive, on a per square foot basis, in terms of what investors are willing to pay. Furthermore, one would expect grocery-anchored properties to demonstrate stronger price appreciation over time relative to properties without a grocery store.

Risk is another important component of real estate investment performance and one of the most common measures of risk is volatility. If grocery stores do in fact represent a non-cyclical business compared to other retailers, which is demonstrated clearly in Figure 1.3, then

grocery-anchored properties should be less cyclical than other retail investments. Therefore, grocery-anchored property prices should not react as drastically to difficult economic environments compared to properties that do not have a grocery store anchoring the center. Furthermore, the stability that a grocery store adds to a shopping center should be reflected in the overall fluctuation or volatility in asset prices over time.

Real estate investors also pay close attention to the relationship between the income generated by and the value of a property, which is referred to as the capitalization rate. This relationship demonstrates the price premium investors are willing to pay in response to the perceived growth and income risk of a property. That is, the lower the property income relative to value, the higher the premium being paid for the asset. This premium can be supported by higher income growth expectations or lower perceived income risk, and therefore can be justified by actual price performance and volatility. Given the characteristics that a grocery store brings to a retail property, one would expect grocery-anchored properties to trade at a premium, therefore a lower capitalization rate, relative to non-grocery-anchored properties.

The purpose of this thesis is to determine whether these expectations are accurate and if the common hypothesis applied to grocery-anchored retail investments holds true. This hypothesis will be tested through statistical analysis that focuses on asset prices, movement of asset prices, and the relationship between property income and values. A complete set of historic retail transactions will be thoroughly analyzed to determine how grocery-anchored properties have performed relative to other retail investments.

CHAPTER 2: TRANSACTION DATA

2.1 Data Source

Real Capital Analytics ("RCA") provided the data utilized for the majority of the statistical analysis in this thesis. RCA was founded in 2000, and at that time began tracking commercial real estate transactions in the United States. In 2007, RCA expanded its focus to include global markets; however, the data utilized in this thesis is limited to the United States. RCA's proprietary data is primarily concentrated on property and portfolio transactions of $2.5 million or greater in the United States and $10 million or greater in international markets.

RCA reports that, on average, each transaction is reviewed by at least two researchers and based on at least two sources. Each source is diligently cross-referenced by in-house researchers for each transaction. According to RCA's website, primary sources include press releases, news reports, SEC filings, public records, listing services, other licensed databases, and feedback from subscribers. The quality of the data is attributed to extensive collection methodologies and a focus on continuously updating historic data as additional sources become available.

2.2 Data Overview

RCA provided its entire proprietary database of retail transactions, dating back to when the company began gathering data in 2000. The retail transactions are divided into two primary subtypes, Strip Center and Mall & Other, which are defined on RCA's website as follows:

> Strip Center/Retail Park: Indicates a shopping center that is not enclosed and that its stores' entrances typically face the parking lot.

Mall & Other: "Mall" indicates that the shopping center is enclosed and the shop's entrances are predominantly facing the center's interior while "Other" indicates retail properties that are neither enclosed malls nor unenclosed strip centers/retail parks.

Each retail sale transaction is also classified by one of eight niche subtypes, including Unanchored, Mall, Lifestyle/Power Center, Grocery, Drug Store, Big Box, Single Tenant, and Other. The retail transaction data set provided by RCA, totaling approximately 29,000 transactions, is broken down by subtype and niche subtype as follows.

Figure 2.1: Transaction Data Classifications

Mall & Other	Other Retail	3688	30%	**Strip Center/Retail Park**	Other Retail	4229	25%
	Single Tenant	3875	32%		Single Tenant	96	1%
	Big Box	977	8%		Big Box	0	0%
	Drug Store	2424	20%		Drug Store	0	0%
	Grocery	153	1%		Grocery	5475	32%
	Lifestyle/Power Center	0	0%		Lifestyle/Power Center	1072	6%
	Mall	924	8%		Mall	0	0%
	Unanchored	69	1%		Unanchored	6056	36%
	Total	***12,110***	***100%***		***Total***	***16,928***	***100%***

Since this thesis is focused on grocery-anchored shopping centers, it is important to note that the majority of grocery-anchored properties fall under the Strip Center subtype. Furthermore, the 5,475 grocery-anchored properties make up 32% of the total Strip Center transactions and Strip Centers make up 58% of all the retail transactions in the data set.

Another important classification is geography, especially given that real estate prices vary greatly depending on where the property is located. RCA divides the retail transactions into seven primary regions: West, Southeast, Northeast, Midwest, Southwest, Mid-Atlantic, and Other. The following table illustrates the geographic breakdown of the retail transactions provided by RCA.

Figure 2.2: Transaction Data Geographic Breakdown

Mall & Other			Strip Center			Total		
West	2,890	24%	Southeast	4,832	29%	Southeast	7,401	25%
Southeast	2,569	21%	West	3,850	23%	West	6,740	23%
Northeast	2,057	17%	Southwest	3,108	18%	Southwest	4,703	16%
Midwest	1,994	16%	Midwest	2,363	14%	Midwest	4,357	15%
Southwest	1,595	13%	Northeast	1,452	9%	Northeast	3,509	12%
Mid-Atlantic	945	8%	Mid-Atlantic	1,307	8%	Mid-Atlantic	2,252	8%
Other	60	0%	Other	16	0%	Other	76	0%
	12,110	**100%**		**16,928**	**100%**		**29,038**	**100%**

The largest concentration of transactions is in the Southeast, followed by the West, Southwest, Midwest, Northeast, Mid-Atlantic, and Other. The approximately 29,000 retail transactions are relatively evenly distributed among geographic regions, which support the significance of the analysis in this thesis as it relates to location.

RCA records a significant amount of information on each transaction, including the transaction type, transaction date, property type, rentable area, land area, number of buildings, number of stories, year built, year renovated, buyer and seller profiles, brokers involved, lender and loan terms, property name, property location, price, capitalization rate, and more. However, the following table summarizes the primary variables that are utilized in forthcoming sections of this thesis while also illustrating the average (or mean), standard deviation, and range of these variables across the entire data set of approximately 29,000 transactions.

Figure 2.3: Transaction Data Summary Statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Sale Price	28,983	$14,300,000	$43,900,000	$0	$3,910,000,000
Sale Price PSF	28,727	$237	$348	$0	$27,300
Cap Rate	11,936	7.32%	1.33%	2.00%	13.46%
Sale Year	28,983	2006	2	2000	2011
Square Feet	28,727	98,600	184,851	440	12,100,000
Age	26,610	22.0	25.9	0.0	221.0
Vacancy Rate	19,572	10.12%	24.65%	0.00%	100.00%

The above table illustrates not only the key variables that will be utilized in this thesis but also the number of transactions in which the variable information is available. Although there are approximately 29,000 total retail transactions, as you can see, there are approximately 12,000 transactions where a capitalization rate was provided, for example. Furthermore, the above chart identifies some outliers in the data set that could potentially skew the statistical analysis and therefore serves as a guide to strengthen the comparative nature of the data set by removing extremes, which will be described in detail in subsequent chapters. This, combined with certain variables not being available across all transactions, is why the size of the transaction data set will fluctuate depending on the specific analysis being done and the variables involved in such analysis.

CHAPTER 3: USING REPEAT-SALES INDEXES TO ACERTAIN PRICE TRENDS

3.1 Repeat-Sales Index Methodology

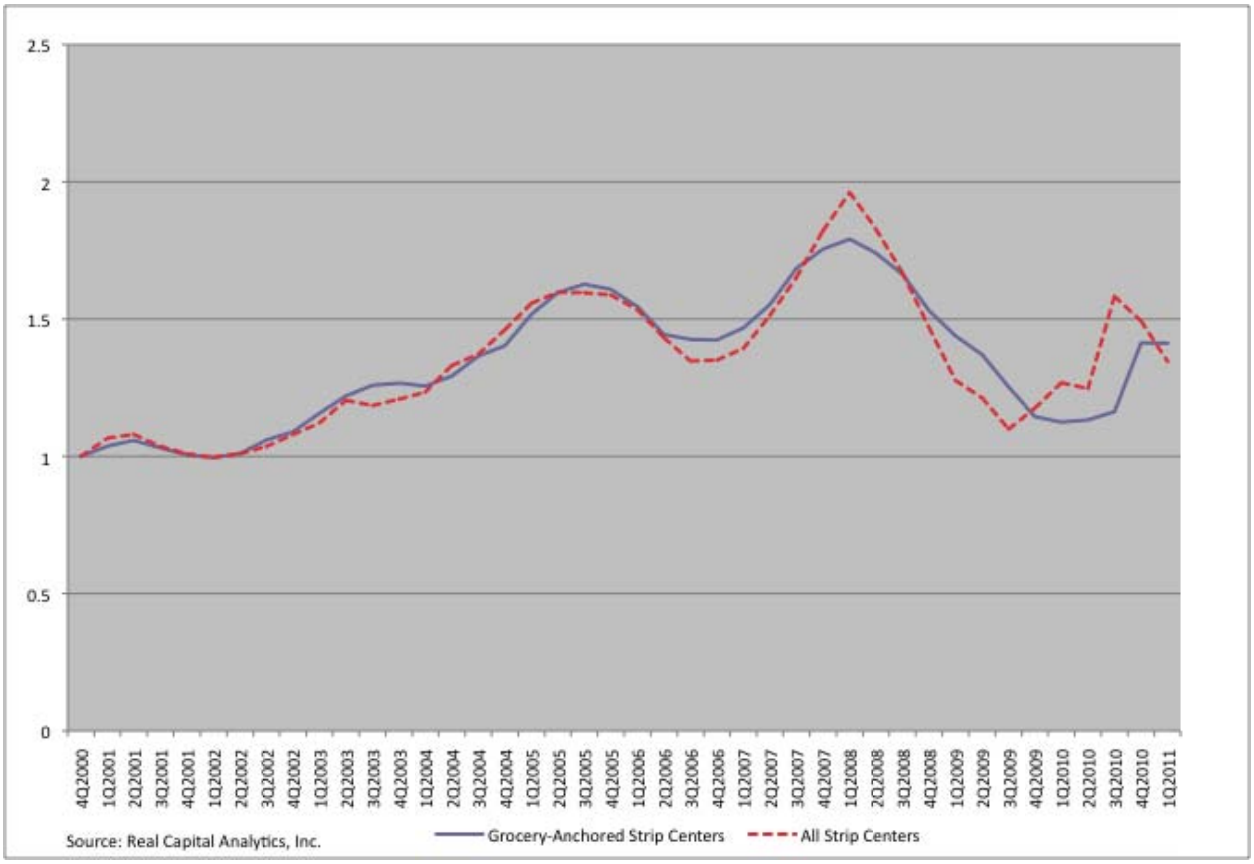
A repeat-sales price index looks at actual same-property round trip price changes over a given period of time and provides a strong indication of price trends. The MIT Center for Real Estate, in partnership with Real Capital Analytics, Inc. and Real Estate Analytics, LLC, developed the Moody's/REAL Commercial Property Index (CPPI), which was developed to accommodate derivatives trading. The Moody's/REAL Commercial Property Price Index is based on a repeat-sales regression methodology. This methodology uses regression analysis to take properties that have transacted at least twice over the given sample period to generate a price index that is based solely on real transactions rather than appraisals. This is the similar methodology behind the widely followed Case-Shiller-Weiss housing price indexes. The Moody's/REAL Commercial Property Index is designed to control for differences in the quality of properties that are traded over varying periods of time while also filtering out development projects and "flips". A detailed overview of the development of the Moody's/REAL Commercial Property Index is outlined in a white paper titled "A Set of Indexes for Trading Commercial Real Estate Based on the Real Capital Analytics Transaction Prices Databases" by David Geltner and Henry Pollakowski.

3.2 Repeat Sales Indexes: Grocery-Anchored vs. Total

The following indexes were created using the same methodology as the Moody's/Real Commercial Property Price Index in order to evaluate price trends of grocery-anchored shopping centers relative to other retail investments. These two indexes compare the price performance of

all grocery-anchored Strip Centers, as defined by Real Capital Analytics (See Chapter 2: Transaction Data), valued at $2.5 million or greater and 75,000 square feet or larger in size, to all Strip Centers with the same value and size constraints.

Figure 3.1: Grocery-Anchored Strip Centers vs. All Strip Centers



The above index, represented by the solid line, illustrates the change in price for all grocery-anchored Strip Centers (as defined by Real Capital Analytics), above $2.5 million and traded at least twice between approximately 2000 and the first quarter of 2011. The above chart compares this index to that of all Strip Centers, which is represented by the dashed line. For the most part, these two indexes move similarly over the sample period. However, to better evaluate the long-term trend it is important to account for cycle in historical data and observe the change

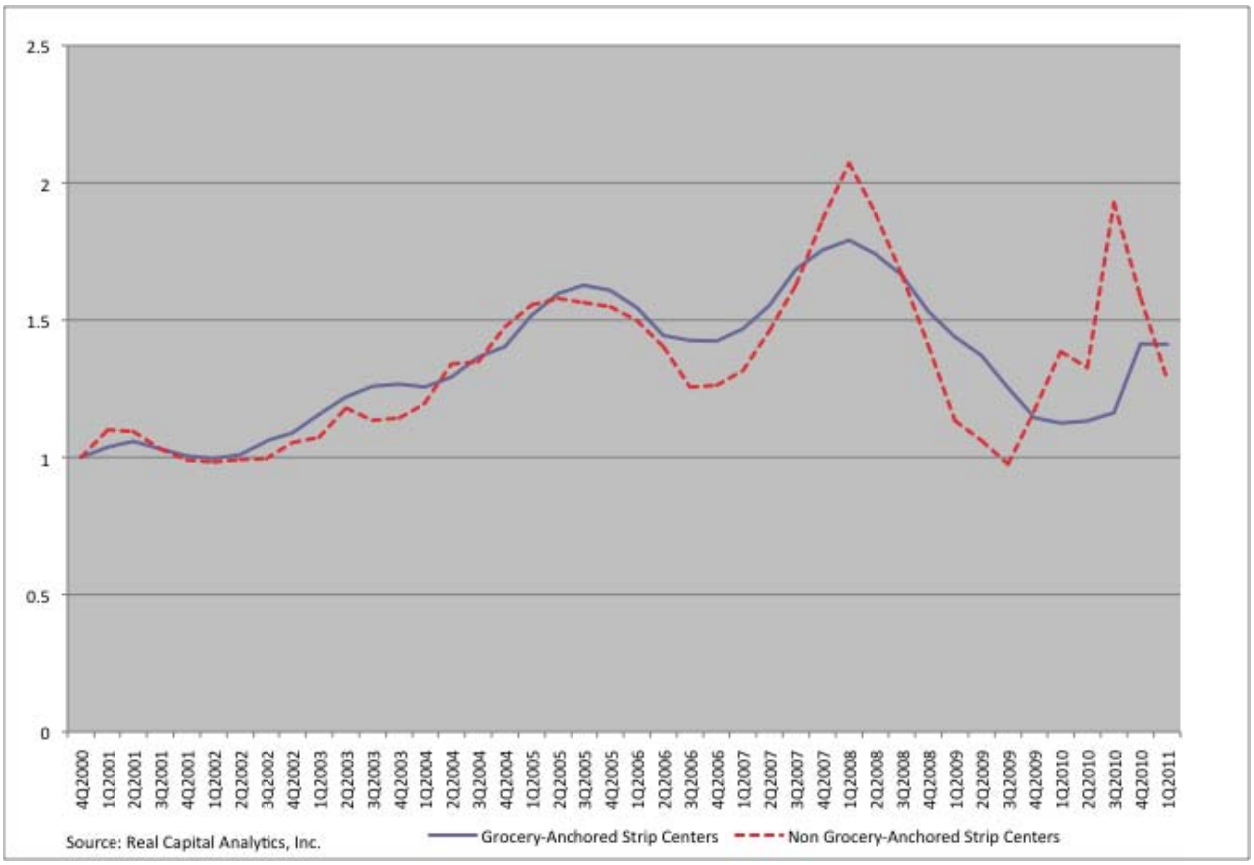
in price from the peak-to-peak and trough-to-trough, thus across cycles rather than within cycles. The change in price for grocery-anchored Strip Centers between the trough in the fourth quarter 2006 and the trough in the first quarter 2010 was negative 21% while for all Strip Centers the change in price between the trough in the third quarter 2006 and the subsequent trough in the third quarter 2009 was negative 18%. The change in price for grocery-anchored Strip Centers between the peak in the fourth quarter 2005 and the subsequent peak in the first quarter 2008 was 11% while for all Strip Centers the change in price between a peak in the third quarter 2006 and the subsequent peak in the third quarter 2009 was 23%. Therefore, grocery-anchored properties actually underperformed non-grocery-anchored properties in terms of price appreciation across the last two cycles. However, it is important to also consider the relationship between price appreciation and risk.

The average quarterly return, as derived by the repeat-sales index, for grocery-anchored Strip Centers between the fourth quarter 2000 and the first quarter 2011 was 0.96% with a standard deviation of 5.53%. Interestingly, the average quarterly return for all Strip Centers over the same time period was slightly higher at 0.98%, however, with a standard deviation of 7.49%. Therefore, in this specific data set, over the last ten years the average quarterly returns between the two indexes were about the same, however, the dispersion from the mean for grocery-anchored Strip Centers was significantly less than that of all Strip Centers over the sample period. This implies that prices tend to be less volatile within the grocery-anchored data set as compared to the total data set in this analysis.

3.3 Repeat Sales Indexes: Grocery-Anchored vs. Non-Grocery-Anchored

The following indexes were also created using the same methodology as the Moody's/Real Commercial Property Price Index. However, these two indexes now compare the price performance of all grocery-anchored Strip Centers, valued at $2.5 million or greater and 75,000 square feet or larger in size, to all non-grocery-anchored Strip Centers with the same value and size constraints.

Figure 3.2: Grocery-Anchored Strip Centers vs. Non Grocery-Anchored Strip Centers:



After removing the grocery-anchored Strip Centers from the comparative index, you can really begin to see the dampening of cyclical movement caused by having a grocery store anchor a retail property. The change in price for non grocery-anchored Strip Centers, represented in the

above chart by the dashed line, between the peak in the second quarter 2010 and the subsequent peak in the first quarter 2008 was 31% (compared to 11% for the grocery-anchored index) while the change in price between the trough in the third quarter 2006 and the subsequent trough in the fourth quarter 2009 was negative 7% (compared to negative 21% for the grocery-anchored index). Across the last two cycles, grocery-anchored properties seemed to underperform non-grocery-anchored properties as it relates to price trends. But once again, it is important to also consider the risk associated with the price appreciation.

The average quarterly return for the non-grocery-anchored index over the entire analysis period of fourth quarter 2000 to first quarter 2011 was 1.2%. This compares to the average quarterly return for the grocery-anchored index of 0.96%. However, the higher average return for non-grocery-anchored Strip Centers is combined with greater volatility. The standard deviation of the non-grocery-anchored quarterly returns was 12.0%, significantly higher than the standard deviation for the grocery-anchored average quarterly returns at 5.53%. Therefore, having a grocery store as an anchor at a retail center may not lead to better performance across cycles in terms of price, in fact, in the two cycles observed above grocery-anchored centers actually performed worse. However, grocery stores do seem to decrease the overall risk, measured in terms of price fluctuations within cycles, of retail properties.

3.4 Repeat-Sales Conclusion

The repeat-sales index illustrates two key components of real estate investment – asset prices and the fluctuation of these prices. Interestingly, over the last two cycles those properties without a grocery store actually outperformed grocery-anchored retail centers in terms of price. However, it is important to keep in mind that this price performance as measured by comparing

the trough-to-trough and peak-to-peak between two cycles represents the highest and lowest index values. But individual investors are rarely able to time the market perfectly in order to capture peak prices, and therefore, must also be cognizant of the volatility of asset prices or how quickly these prices may fall or rise within a cycle, representing an important measure of risk. Therefore, although the results of the repeat-sales analysis conclude that grocery-anchored centers underperformed other retail properties in terms of peak-to-peak and trough-to-trough price performance between the last two cycles, grocery-anchored centers do seem to be less volatile and therefore less risky investments.

CHAPTER 4: USING HEDONIC REGRESSIONS TO COMPARE PRICE LEVELS AND TRENDS

A series of multivariate regression equations were created to determine the relationship between various dependent and independent variables. The analysis was based on the following multivariate regression equation:

$$Y = \beta_0 + \beta_i X_i + \ldots + \beta_n X_n + e$$

In the above equation, an increase in each unit of the independent variable (X_i) results in an incremental increase in the dependent variable (Y) based on the corresponding coefficient (β_i) for each independent variable. The first set of regression equations in this chapter are designed to identify whether investors actually pay more for grocery-anchored retail centers compared to retail centers without grocery stores and how the price levels change over time while the subsequent regression equation begins to identify the relationship between the prices of grocery-anchored properties and the specific grocery store that anchors it.

4.1 Sales Price PSF

The following equation was created based on 6,858 transactions and illustrates the relationship between multiple independent variables and the endogenous variable, or in this case, the per square foot sales price ("Sale Price PSF") of the retail asset.

Regression Equation #1:

Sales Price PSF = β_0 + β_1(Square Feet) + β_2(Vacancy) + β_3(Age) + β_4(Subtype Dummy) + β_5(Grocery Dummy) + β_6(Sale Year 2001 Dummy) + … β_{16}(Sale Year 2011 Dummy + β_{17}(Midwest Dummy) + … β_{22}(West Dummy)

The above equation includes three independent variables, including the size of the property in terms of square feet, the vacancy at the property at the time of sale, and the age of the property at the time of sale. Furthermore, the regression equation includes three sets of dummy variables. The first dummy variable is intended to account for the property subtype (i.e., Strip Center and Mall & Other) as outlined in Chapter 2: Transaction Data. A "1" would be placed next to the β_4 if the property is classified as a Strip Center and "0" if not. The next set of dummy variables account for the year in which the property was sold. Eleven dummy variables were created to represent transaction years between 2001 and 2011. The data set includes transactions dating back to 2000; however, a dummy variable was not created for 2000 because this is the year that the other variables regress from. The third set of dummy variables account for the region where the property is located. Six dummy variables were created to represent the Midwest, Northeast, Southeast, Southwest, US-Other, and West. The Mid-Atlantic serves as the base region in the regression equation.

The original data set from RCA, outlined in Chapter 2: Transaction Data, was revised in two primary ways to increase the "apples to apples" nature of the analysis. First, all transactions of properties under 75,000 square feet were dropped from the analysis to eliminate small Strip Centers, which do not represent an appropriate comparison to grocery-anchored shopping centers. Most neighborhood and community centers will exceed 75,000 square feet. The second revision to the data set dropped any transactions where the Sales Price PSF exceeded $300 psf. This helped to refine the data set to not include lifestyle centers or luxury retail centers located in downtown districts, which also do not represent an appropriate comparison to grocery-anchored shopping centers, as well as mere pricing anomalies.

The full results of Regression Equation #1 can be found in Appendix A. As expected, there is a negative relationship between the Sales Price PSF and the vacancy rate and age of the property. All other variables aside, each incremental change in the vacancy rate and the age of the property results in approximately a $59 per square foot and $1 per square foot decline in the Sales Price PSF, respectively. As for the region, it appears that properties in the Midwest, Southeast, and Southwest tend to be less expensive than those in the Mid-Atlantic, while properties in the Northeast and West tend to be more expensive. And finally, based on the data set, retail properties that are anchored by a grocery store tend to be more expensive with a positive coefficient of $8.99 per square foot. This regression equation produced an R-Squared of 0.235, meaning that 23.5% of the change in the dependent variable, in this case the Sales Price PSF, can be explained by the independent variables in the equation.

The next two regression equations are identical to the first one except that Regression Equation #2 only includes properties anchored by a grocery store while Regression Equation #3 excludes all grocery-anchored properties. The actual equation for Regression Equation #2 and Regression Equation #3 is in fact identically; however, the data behind each is different as previously mentioned.

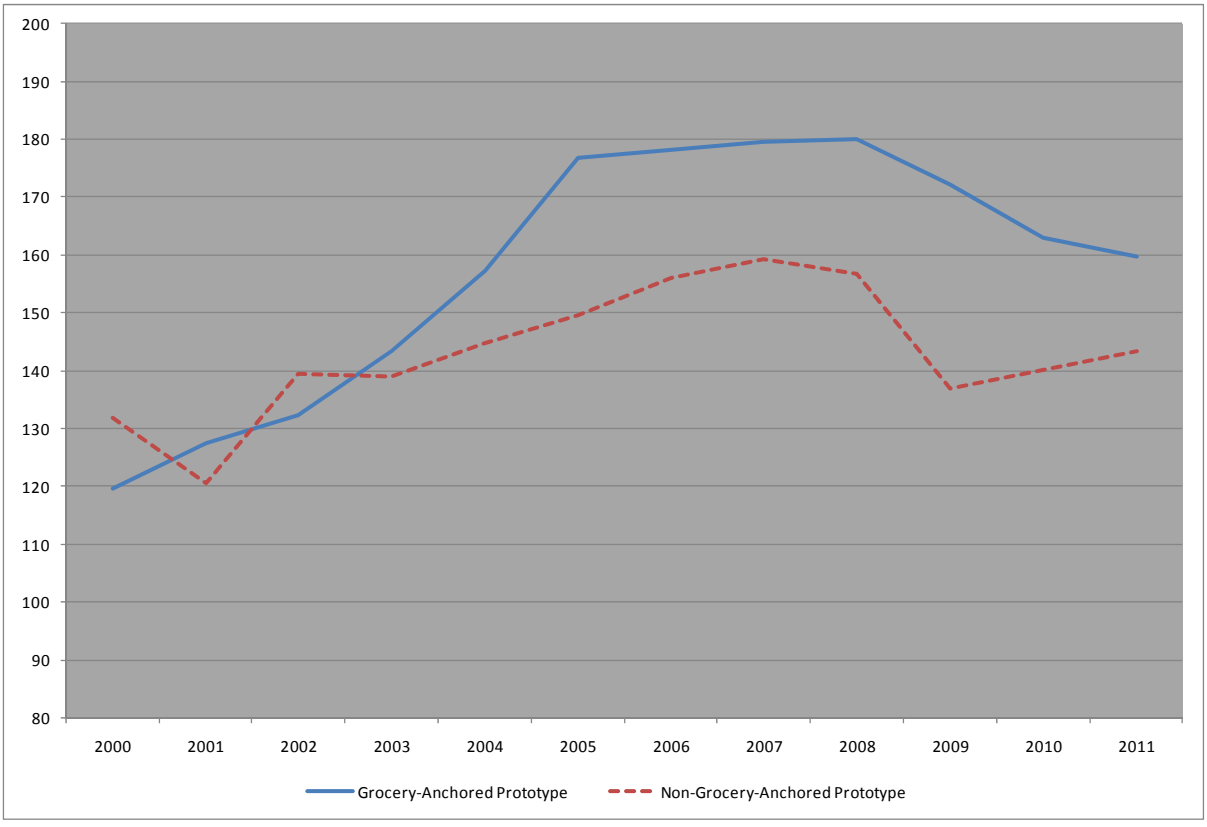
Regression Equation #2 and Regression Equation #3:

Sales Price PSF = β_0 + β_1(Square Feet) + β_2(Vacancy) + β_3(Age) + β_4(Subtype Dummy) + β_6(Sale Year 2001 Dummy) + … β_{16}(Sale Year 2011 Dummy + β_{17}(Midwest Dummy) + … β_{22}(West Dummy)

The results of Regression Equation #2 and Regression Equation #3 can also be found in Appendix A. Interestingly, the prices of grocery-anchored properties tend to be more sensitive to

vacancy and age. Through separating the grocery-anchored properties from the non-grocery-anchored properties, we can evaluate the time trend for each and determine the growth in Sale Price PSF between 2000 and 2011 based on the year in which the property sold. In order to isolate the impact of the sale year, two prototypical shopping centers were created, one grocery-anchored and the other non-grocery anchored, yet with the same characteristics. The prototypes were assumed to be 20 years old, 150,000 square feet in size, 10% vacant, located in the West region, and classified as a Strip Center per RCA's classifications. The grocery-anchored and non-grocery-anchored prototypes were entered into Regression Equation #2 and Regression Equation #3, respectively, in order to calculate the Sale Price PSF for each year (see Appendix B for full calculation). The results were plotted on the following chart.

Figure 4.1: Sale Year Time Trend – Sales Price PSF



The above hedonic price indexes illustrate the difference in price trends between grocery-anchored and non-grocery-anchored properties. Between 2000 and 2011, the grocery-anchored prototype was more expensive than the non-grocery-anchored prototype except in 2000 and 2001. As expected, the grocery-anchored prototype seemed to be less sensitive to economic fluctuations. For example, when the price of the non-grocery-anchored property declined between 2002 and 2003, the price for the grocery-anchored property continued to rise. Furthermore, when the price of the non-grocery-anchored property began to decline in 2007-2008, the price of the grocery-anchored property remained stable and did not begin to decline until 2008-2009. The average annual return between 2000 and 2010 was 2.8% for the grocery-anchored prototype and 1.0% for the non-grocery-anchored prototype. Based on the two hypothetical assets, the hedonic pricing index concludes superior price trends for grocery-anchored properties as compared to non-grocery-anchored properties.

4.2 Grocery Store Chains – Impact on Sales Price PSF

The next set of regression equations intends to illustrate the relationship between the actual grocery store anchoring a center and the Sale Price PSF. Previous regression equations demonstrated that investors are willing to pay more, on a per square foot basis, for grocery-anchored centers. This section now focuses on the actual grocery store and how the size of the grocery company, in terms of number of stores and total annual sales of the chain, may impact the price investors are willing to pay for a shopping center.

In order to differentiate the grocery store sizes, a dummy variable was included in the following regression equation to identify the relationship between the dependent variables (i.e., Sales Price PSF) and whether the grocery store is affiliated with one of the top 20 food retailers

based on the number of stores and annual sales of the grocery store company as defined in Appendix C.

Regression Equation #4:

Sale Price PSF = β_0 + β_1(Square Feet) + β_2(Vacancy) + β_3(Age) + β_4(Top 20 Grocer Dummy) + β_6(Sale Year 2001 Dummy) + … β_{16}(Sale Year 2011 Dummy + β_{17}(Midwest Dummy) + … β_{22}(West Dummy)

The results of Regression Equation #4 can be found in Appendix A. The equation is based on 2,411 grocery-anchored transactions. Across these transactions, it appears that investors were willing to pay more for a shopping center that is anchored by a larger grocery store chain compared to the prices associated with properties anchored by smaller grocery store chains. This is supported by the coefficient of 8.17 for the dummy variable for top 20 grocery stores. Therefore, in aggregate across the data set, investors were willing to pay $8.17 per square foot more for shopping centers that were anchored by a top 20 grocery store.

4.3 Regression Analysis – Price Levels and Trends Conclusion

The preceding regression analysis resulted in some important conclusions in terms of the relationship between grocery-anchored retail properties and asset prices. First, grocery-anchored properties tend to be more expensive than non-grocery-anchored properties. Second, between 2000 and 2011 grocery-anchored properties outperformed non-grocery-anchored properties based on the movement in prices. Third, the actual grocery store anchoring a property plays just as important of a role to asset prices as whether or not the property is merely grocery anchored. Investors seem to pay more for grocery-anchored properties in which the anchor represents a larger national chain. Although many of the regressions, as outlined in Appendix A, had

relatively low R-Squares, thus implying that there are many factors or variables that affect asset prices, there remains a meaningful relationship between the independent and dependent variables in this analysis.

CHAPTER 5: USING HEDONIC REGRESSIONS TO COMPARE CAPITALIZATION RATES

5.1 Capitalization Rate Overview

A capitalization rate represents the proportion of net operating income generated by a property to the value of the same property. This ratio is essentially the inverse of the common price to earnings ratio that many investors use to evaluate stock investments. A capitalization rate is a good indication of the premium real estate investors are willing to pay for an asset (i.e., lower net operating income relative to the price of the property). The capitalization rate is determined by the supply of investment capital and demand in the asset market, based on three primary factors – the opportunity cost of capital, growth expectations, and risk. The opportunity cost of capital represents the interest rates and returns for other form of investments in the capital markets, including stocks, bonds, and money market instruments. The price investors are willing to pay for real estate depends on the returns generated by other types of investments. For example, when returns on stocks are lower, investors will be willing to pay more for real estate relative to the income generated by the property, therefore lowering the capitalization rate. Growth expectations also significantly impact capitalization rates. When investors buy real estate, they will be focused on the future growth potential of the income stream generated by the property, which is largely dependent on the space market (i.e., the future supply of and demand for real estate). The greater the expected growth in future rent, the more investors will be willing to pay for a property, therefore lowering the capitalization rate. Lastly, real estate investors also focus on the likelihood that future income streams will actually be collected. If an investor is confident the future income of a property will be realized, this investor will be willing to pay

more for the property today. However, the greater the uncertainty in collecting future rents, the less the investor will be willing to pay for the property, which will lower the capitalization rate.

5.2 Capitalization Rates – Grocery-Anchored vs. Non-Grocery-Anchored

The next set of regression equations is similar to those in the Chapter 4; however, now focus on capitalization rates to identify whether there is a price premium for grocery-anchored centers. The following regression equation was created based on 3,435 transactions and illustrates the relationship between multiple independent variables, similar to the regression equations in Chapter 4, but now with the capitalization rate serving as the dependent variable

Regression Equation #5:

Capitalization Rate = β_0 + β_1(Square Feet) + β_2(Vacancy) + β_3(Age) + β_4(Subtype Dummy) + β_5(Grocery Dummy) + β_6(Sale Year 2001 Dummy) + … β_{16}(Sale Year 2011 Dummy + β_{17}(Midwest Dummy) + … β_{22}(West Dummy)

The results of Regression Equation #5 can be found in Appendix A. As expected, a relationship exists between the vacancy rate at the property and the capitalization rate in that as the vacancy rate increases the capitalization rate also increases. The coefficient of 0.0066 implies that for each incremental upward change in the vacancy rate, the cap rate increases by 66 basis points in aggregate across the 3,435 transactions. Similarly, as the age of the property increases so does that capitalization rate. For each incremental increase in the age of the property the capitalization rate increases by 2 basis points based on the coefficient of 0.0002, which makes sense given that real estate investors will pay less for older properties relative to the income these properties produce, therefore increasing the capitalization rate.

Capitalization rates also changed based on where the property is located. Regression Equation #5 found that in this specific data investors paid a premium (i.e., lower capitalization rate) for properties located in the Northeast and West as compared to those properties in the Mid-Atlantic while properties located in the Midwest and Southeast tend to trade at higher capitalization rates compared to the Mid-Atlantic. There were not enough transactions in the Southwest to make a conclusion based on the low P-Value attributed to this independent variable in the regression output.

As for the impact on the capitalization rate caused by a grocery store anchoring the property, Regression Equation #5 illustrates a positive relationship between the existence of a grocery store and the premium investors are willing to pay for the asset. The capitalization rates for grocery-anchored properties were 18 basis points lower than those without a grocery store, based on the coefficient of 0.0018 for the grocery dummy variable in the equation.

The next set of regression equations also look at capitalization rates, but separates the transactions into two categories – grocery-anchored (Regression Equation #6) and non-grocery-anchored (Regression Equation #7). Therefore, the grocery dummy variable in these regression equations is not longer required. The results of the following regression equations will illustrate the how the relationship between the independent variables differs between grocery-anchored shopping centers and non-grocery-anchored shopping centers.

Regression Equation #6 and Regression Equation #7:

Capitalization Rate = β_0 + β_1(Square Feet) + β_2(Vacancy) + β_3(Age) + β_4(Subtype Dummy) + β_6(Sale Year 2001 Dummy) + … β_{16}(Sale Year 2011 Dummy + β_{17}(Midwest Dummy) + … β_{22}(West Dummy)

The results can be found in Appendix A. Interestingly, the capitalization rates for grocery-anchored centers seem to be more sensitive to changes in vacancy compared to non-grocery-anchored centers, based on the coefficients in these equations of 0.0094 and 0.0054, respectively. However, the capitalization rates for grocery-anchored centers did not respond differently to age compared to the capitalization rates for non-grocery-anchored centers - both regression equations resulted in the same coefficient for the age independent variable.

Separating the grocery-anchored properties from the non-grocery-anchored properties illustrates the time trend for each asset type as to the corresponding change in capitalization rates between 2000 and 2011. The same prototypes used in Chapter 4 (20 years old, 150,000 square feet, 10% vacancy, Strip Center, West Region) were entered into Regression Equation #6 and Regression Equation #7 in order to isolate the impact of the sale year, or time, on the capitalization rate, thus deciphering capitalization rate trends over time between grocery-anchored and non-grocery-anchored properties. The actual calculation can be found in Appendix B and the results are plotted on the following chart.

Figure 5.1: Sale Year Time Trend – Capitalization Rates

As demonstrated in the above chart, the trend in capitalization rates is very similar between grocery-anchored and non-grocery-anchored properties. In seven out of the ten years in the sample period, the grocery-anchored prototype realized lower capitalization rates than the non-grocery-anchored prototype. However, these hedonic indexes also allow us to see the trend over time. Interestingly, the capitalization rate for the grocery-anchored prototype actually climbed faster during the recession beginning in 2007 than that of the non-grocery-anchored prototype, and was actually higher in 2008 and 2009. However, the capitalization rate for the grocery-anchored property fell quickly in 2009-2010 while the capitalization rate for the non-grocery-anchored property stabilized in 2009-2010. As capital began to flow back into commercial real estate markets after the "Great Recession", investors preferred core assets and this is supported

by the rapid fall in the capitalization rate for the grocery-anchored prototype in 2009-2010. During the peak of the last cycle (2006-2007), the spread was also significant and could be indicative of higher growth expectations investors had for grocery-anchored properties compared to non-grocery-anchored properties.

4.2 Grocery Store Chains - Impact on Capitalization Rates

The next regression equation intends to identify the relationship between capitalization rates and the type of grocery store anchoring the property. The following equation is based on 1,342 transactions and includes a dummy variable to account for whether the grocery store is one of the top 20 grocery stores based on the number of stores and annual sales.

Regression Equation #8:

$$\text{Capitalization Rate} = \beta_0 + \beta_1(\text{Square Feet}) + \beta_2(\text{Vacancy}) + \beta_3(\text{Age}) + \beta_4(\text{Top 20 Grocer Dummy}) + \beta_6(\text{Sale Year 2001 Dummy}) + \ldots \beta_{16}(\text{Sale Year 2011 Dummy} + \beta_{17}(\text{Midwest Dummy}) + \ldots \beta_{22}(\text{West Dummy})$$

The results of Regression Equation #8 can be found in Appendix A. As expected, properties that are anchored by a top 20 grocery store chain seemed to trade at lower capitalization rates based on a negative coefficient of 0.0023. This means that capitalization rates for grocery-anchored centers with a top 20 grocer, in aggregate across the data set, were approximately 23 basis points lower than the capitalization rates for grocery-anchored properties without a leading grocery store chain. Therefore, investors will pay a premium for grocery-anchored properties anchored by larger national chains, likely based on perceived higher income growth potential as well as lower income risk.

4.2 Capitalization Rates Conclusion

Capitalization rates are a good indicator of the income growth potential and income risk for a real estate investment as perceived by the investment market. Capitalization rates are also affected by the opportunity cost of capital or investment yields on alternative investments to real estate. The analysis in this chapter concludes that grocery-anchored properties typically trade at lower capitalization rates as compared to non-grocery-anchored properties, and furthermore, those grocery-anchored properties with a "stronger" grocery store generate even lower capitalization rates. This implies that investors view the income stream of a grocery-anchored property to be less risky and more likely to grow. However, the sale year time trend highlighted some interesting aspects of the movement of these capitalization rates over time and found that depending on the economic environment, the capitalization rates for non-grocery-anchored properties can actually be lower than those of non-grocery-anchored properties. Furthermore, the magnitude of a decline or rise in capitalization rates can vary significantly between grocery-anchored and non-grocery-anchored depending on the investors perception of the current economic environment and how the related to the perceived income growth and income risk of grocery-anchored and non-grocery-anchored properties.

CHAPTER 6: CONCLUSION

This thesis began by looking at the actual perceived benefits of grocery-anchored shopping centers compared to other retail investments, similar in nature, but without a grocery store as the primary anchor. Simple evidence supports three primary notions. First, grocery stores are unique among retailers in that they are able to attract shoppers on a regular basis, therefore consistently bringing people to grocery-anchored shopping centers. Second, the grocery store business is non-cyclical and therefore less impacted by economic downturns relative to the rest of the retail industry. Third, grocery stores have not been as impacted by the Internet compared to other retailers, although recent developments illustrate that this may not be the case going forward.

Through creating a repeat-sales index, I was able to evaluate the price performance between 2000 and 2011. Interestingly, non-grocery-anchored properties actually outperformed grocery-anchored centers in terms of the change in price not only between the peaks and troughs of the last two real estate cycles, but also based on the average quarterly return over the entire sample period. However, this performance came at the expense of greater volatility or movement of asset prices within each cycle, supporting the common relationship between risk and return.

Next, a set of hedonic regression equations were created to evaluate the price performance of grocery-anchored properties compared to non-grocery-anchored properties. Grocery-anchored properties tend to be more expensive in terms of the per square foot sale price of the asset; however, not by much ($8.99 per square foot). After separating the grocery-anchored properties from the non-grocery-anchored properties, each regression equations' sale year time trend was also evaluated. Grocery-anchored properties seem to perform better, in terms

of price appreciation since 2000, compared to non-grocery-anchored properties. The regression analysis concluded different price performance results compared to the repeat-sales approach. Therefore, it is clear that investors pay more on a per square foot basis for grocery-anchored properties, however, it remains unclear whether grocery-anchored properties benefited from superior price trends over the last ten years.

The next objective was to compare capitalization rates for grocery-anchored properties to those of non-grocery-anchored properties. A lower capitalization rate would imply that investors are willing to pay a premium for these assets due to the perceived income risk and income growth potential. The analysis completed in Chapter 5 supports the hypothesis that grocery-anchored properties tend to trade at lower capitalization rates. This can be justified by the lower risk associated with grocery-anchored properties, as demonstrated by less volatility in asset prices in the repeat-sales analysis. Furthermore, investors will accept lower income returns (i.e., lower capitalization rates) for grocery-anchored properties in which the grocery store represents a large national chain. Lower capitalization rates are more difficult to justify by higher growth potential. The repeat-sales price indexes actually demonstrated that grocery-anchored properties underperformed non-grocery-anchored properties in terms of price appreciation while the regression analysis in Chapter 4 and the corresponding sale year time trend concluded the opposite - all other variables constant, grocery-anchored properties appreciated faster than non-grocery-anchored properties between 2000 and 2011.

Overall, the analysis in this thesis supports the hypothesis that investors will tend to pay more for grocery-anchored properties in terms of the per square foot sale price. Grocery-anchored properties also tend to trade at lower capitalization rates, which can be attributed to the perceived income risk and income growth potential. Although grocery-anchored properties

clearly demonstrate less volatility, it remains unclear whether they are superior in terms of price appreciation. Although a clear relationship exists between grocery-anchored shopping centers and asset prices and capitalization rates, the magnitude of the relationships is modest, which may be partially explained by the many variables that affect prices and capitalization rates on a micro (e.g., specific property issues, etc.) and macro (e.g., capital markets, etc.) level. The intent of this thesis was to isolate the impact that a grocery-store has on the performance of a retail asset, and supported by the statistical tools utilized in this thesis, the unique characteristics that a grocery store brings to a shopping center clearly has an impact on asset prices and capitalization rates.

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Appendix A: Regression Outputs

Regression #1

Dependent Variable = Sales Price PSF			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	3.09E-05	3.70E-06	***
Vacancy	-49.82	2.913	***
Age	-0.99	0.0485	***
Subtype Dummy	23.13	1.76	***
Grocery Dummy	8.99	1.583	***
Sale Year 2001 Dummy	-4.47	5.66	
Sale Year 2002 Dummy	9.07	5.349	*
Sale Year 2003 Dummy	13.92	5.119	***
Sale Year 2004 Dummy	22.20	5.083	***
Sale Year 2005 Dummy	32.56	4.975	***
Sale Year 2006 Dummy	36.56	4.948	***
Sale Year 2007 Dummy	39.43	5.007	***
Sale Year 2008 Dummy	37.74	5.671	***
Sale Year 2009 Dummy	24.48	5.68	***
Sale Year 2010 Dummy	21.10	5.561	***
Sale Year 2011 Dummy	22.34	6.581	***
Midwest Dummy	-25.76	2.778	***
Northeast Dummy	7.87	3.299	**
Southeast Dummy	-21.06	2.581	***
Southwest Dummy	-11.64	2.758	***
US-Other Dummy	47.59	55.43	
West Dummy	22.63	2.719	***
Constant	98.51	5.517	***
R-Squared	0.235		
Observations	6,858		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #2

Dependent Variable = Sales Price PSF			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-2.69E-05	1.52E-05	*
Vacancy	-65.79	7.706	***
Age	-1.15	0.085	***
Subtype Dummy	-2.56	15.730	
Sale Year 2001 Dummy	7.77	8.477	
Sale Year 2002 Dummy	12.59	8.200	
Sale Year 2003 Dummy	23.77	7.998	***
Sale Year 2004 Dummy	37.43	7.907	***
Sale Year 2005 Dummy	57.10	7.695	***
Sale Year 2006 Dummy	58.40	7.724	***
Sale Year 2007 Dummy	59.84	7.851	***
Sale Year 2008 Dummy	60.35	9.006	***
Sale Year 2009 Dummy	52.45	8.545	***
Sale Year 2010 Dummy	43.30	8.622	***
Sale Year 2011 Dummy	40.06	11.050	***
Midwest Dummy	-30.83	4.512	***
Northeast Dummy	-0.16	5.014	
Southeast Dummy	-26.17	3.759	***
Southwest Dummy	-12.69	4.315	***
West Dummy	25.76	4.021	***
Constant	130.10	17.960	***
R-Squared	0.263		
Observations	2,411		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #3

Dependent Variable = Sales Price PSF			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	3.12E-05	3.92E-06	***
Vacancy	-48.11	3.210	***
Age	-0.92	0.059	***
Subtype Dummy	23.29	1.827	***
Sale Year 2001 Dummy	-11.19	7.476	
Sale Year 2002 Dummy	7.67	6.930	
Sale Year 2003 Dummy	7.13	6.555	
Sale Year 2004 Dummy	12.97	6.522	**
Sale Year 2005 Dummy	17.63	6.408	***
Sale Year 2006 Dummy	24.22	6.338	***
Sale Year 2007 Dummy	27.38	6.407	***
Sale Year 2008 Dummy	24.82	7.209	***
Sale Year 2009 Dummy	5.00	7.496	
Sale Year 2010 Dummy	8.18	7.145	
Sale Year 2011 Dummy	11.46	8.193	
Midwest Dummy	-23.07	3.561	***
Northeast Dummy	13.39	4.319	***
Southeast Dummy	-16.39	3.476	***
Southwest Dummy	-9.61	3.583	***
US-Other Dummy	47.38	56.860	
West Dummy	21.91	3.621	***
Constant	105.20	7.030	***
R-Squared	0.22		
Observations	4,447		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #4

Dependent Variable = Sales Price PSF			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-2.72E-05	1.52E-05	*
Vacancy	-64.65	7.691	***
Age	-1.15	0.085	***
Top 20 Grocer Dummy	8.17	2.353	***
Sale Year 2001 Dummy	6.89	8.459	
Sale Year 2002 Dummy	10.78	8.196	
Sale Year 2003 Dummy	22.24	7.990	***
Sale Year 2004 Dummy	36.24	7.894	***
Sale Year 2005 Dummy	55.95	7.683	***
Sale Year 2006 Dummy	57.19	7.713	***
Sale Year 2007 Dummy	58.87	7.836	***
Sale Year 2008 Dummy	59.05	8.990	***
Sale Year 2009 Dummy	50.73	8.535	***
Sale Year 2010 Dummy	41.96	8.606	***
Sale Year 2011 Dummy	38.96	11.000	***
Midwest Dummy	-28.56	4.540	***
Northeast Dummy	0.93	5.010	
Southeast Dummy	-27.19	3.760	***
Southwest Dummy	-11.51	4.317	***
West Dummy	28.84	4.105	***
Constant	124.60	8.380	***
R-Squared	0.27		
Observations	2,411		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #5

Dependent Variable = Cap Rate			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-7.21E-09	-1.13E-09	***
Vacancy	0.0066	-0.00178	***
Age	0.0002	-0.00001	***
Subtype Dummy	-0.0023	-0.00054	***
Grocery Dummy	-0.0018	-0.00044	***
Sale Year 2001 Dummy	-0.0038	-0.00198	*
Sale Year 2002 Dummy	-0.0108	-0.00190	***
Sale Year 2003 Dummy	-0.0171	-0.00185	***
Sale Year 2004 Dummy	-0.0230	-0.00184	***
Sale Year 2005 Dummy	-0.0280	-0.00182	***
Sale Year 2006 Dummy	-0.0318	-0.00180	***
Sale Year 2007 Dummy	-0.0347	-0.00181	***
Sale Year 2008 Dummy	-0.0296	-0.00200	***
Sale Year 2009 Dummy	-0.0154	-0.00197	***
Sale Year 2010 Dummy	-0.0187	-0.00200	***
Sale Year 2011 Dummy	-0.0211	-0.00253	***
Midwest Dummy	0.0032	-0.00085	***
Northeast Dummy	-0.0033	-0.00102	***
Southeast Dummy	0.0016	-0.00081	**
Southwest Dummy	0.0006	-0.00085	
West Dummy	-0.0039	-0.00083	***
Constant	0.1030	-0.00196	***
R-Squared	0.404		
Observations	3,435		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #6

Dependent Variable = Cap Rate			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-9.23E-09	-3.90E-09	**
Vacancy	0.0094	-0.00258	***
Age	0.0002	-0.00002	***
Subtype Dummy	0.0101	-0.00491	**
Sale Year 2001 Dummy	-0.0015	-0.00302	
Sale Year 2002 Dummy	-0.0092	-0.00300	***
Sale Year 2003 Dummy	-0.0163	-0.00295	***
Sale Year 2004 Dummy	-0.0216	-0.00293	***
Sale Year 2005 Dummy	-0.0258	-0.00290	***
Sale Year 2006 Dummy	-0.0307	-0.00289	***
Sale Year 2007 Dummy	-0.0344	-0.00290	***
Sale Year 2008 Dummy	-0.0238	-0.00322	***
Sale Year 2009 Dummy	-0.0117	-0.00301	***
Sale Year 2010 Dummy	-0.0171	-0.00306	***
Sale Year 2011 Dummy	-0.0193	-0.00409	***
Midwest Dummy	0.0018	-0.00122	
Northeast Dummy	-0.0043	-0.00140	***
Southeast Dummy	-0.0005	-0.00107	
Southwest Dummy	-0.0014	-0.00119	
West Dummy	-0.0054	-0.00112	***
Constant	0.0892	-0.00579	***
R-Squared	0.507		
Observations	1,342		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #7

Dependent Variable = Cap Rate			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-7.27E-09	-1.27E-09	***
Vacancy	0.0054	-0.00239	**
Age	0.0002	-1.97E-05	***
Subtype Dummy	-0.0024	-0.00059	***
Sale Year 2001 Dummy	-0.0048	-0.00267	*
Sale Year 2002 Dummy	-0.0111	-0.00247	***
Sale Year 2003 Dummy	-0.0169	-0.00238	***
Sale Year 2004 Dummy	-0.0232	-0.00237	***
Sale Year 2005 Dummy	-0.0290	-0.00233	***
Sale Year 2006 Dummy	-0.0320	-0.00229	***
Sale Year 2007 Dummy	-0.0345	-0.00231	***
Sale Year 2008 Dummy	-0.0316	-0.00255	***
Sale Year 2009 Dummy	-0.0189	-0.00269	***
Sale Year 2010 Dummy	-0.0191	-0.00265	***
Sale Year 2011 Dummy	-0.0219	-0.00321	***
Midwest Dummy	0.0046	-0.00117	***
Northeast Dummy	-0.0018	-0.00143	
Southeast Dummy	0.0038	-0.00116	***
Southwest Dummy	0.0024	-0.00118	**
West Dummy	-0.0024	-0.00118	**
Constant	0.1010	-0.00254	***
R-Squared	0.358		
Observations	2,093		
*** = P < .01, ** = P < .05, * = P < .10			

Regression #8

Dependent Variable = Cap Rate			
Variables	**Coeffcient**	**Standard Error**	**P Value**
Square Feet	-9.03E-09	3.88E-09	**
Vacancy	0.0091	0.00257	***
Age	0.0002	2.17E-05	***
Top 20 Grocer Dummy	-0.0023	0.000618	***
Sale Year 2001 Dummy	-0.0012	0.00302	
Sale Year 2002 Dummy	-0.0082	0.00300	***
Sale Year 2003 Dummy	-0.0154	0.00296	***
Sale Year 2004 Dummy	-0.0210	0.00292	***
Sale Year 2005 Dummy	-0.0251	0.00290	***
Sale Year 2006 Dummy	-0.0300	0.00289	***
Sale Year 2007 Dummy	-0.0338	0.00290	***
Sale Year 2008 Dummy	-0.0235	0.00321	***
Sale Year 2009 Dummy	-0.0111	0.00301	***
Sale Year 2010 Dummy	-0.0163	0.00306	***
Sale Year 2011 Dummy	-0.0184	0.00409	***
Midwest Dummy	0.0010	0.00123	
Northeast Dummy	-0.0049	0.00140	***
Southeast Dummy	-0.0004	0.00107	
Southwest Dummy	-0.0020	0.00119	*
West Dummy	-0.0065	0.00116	***
Constant	0.0998	0.00303	***
R-Squared	0.511		
Observations	1,342		
*** = P < .01, ** = P < .05, * = P < .10			

Appendix B: Sale Year Time Trends

Grocery-Anchored	Coefficient	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
		Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product
Constant	130.1		130.10		130.10		130.10		130.10		130.10		130.10		130.10		130.10		130.10		130.10		130.10		130.10
Square Feet	-2.69E-05	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04	150,000	-4.04
Vacancy	-65.79	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58	10%	-6.58
Age	-1.15	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00	20	-23.00
Subtype Dummy	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56	1	-2.56
SY 2001 Dummy	7.77	0	0.00	1	7.77	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2002 Dummy	12.59	0	0.00	0	0.00	1	12.59	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2003 Dummy	23.77	0	0.00	0	0.00	0	0.00	1	23.77	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2004 Dummy	37.43	0	0.00	0	0.00	0	0.00	0	0.00	1	37.43	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2005 Dummy	57.1	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	57.10	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2006 Dummy	58.4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	58.40	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2007 Dummy	59.84	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	59.84	0	0.00	0	0.00	0	0.00	0	0.00
SY 2008 Dummy	60.35	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	60.35	0	0.00	0	0.00	0	0.00
SY 2009 Dummy	52.45	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	52.45	0	0.00	0	0.00
SY 2010 Dummy	43.3	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	43.30	0	0.00
SY 2011 Dummy	40.06	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	40.06
Midwest Dummy	-30.83	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Northeast Dummy	-0.16	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Southeast Dummy	-26.17	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Southwest Dummy	-12.69	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
West Dummy	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76	1	25.76
Sale Price PSF			**119.69**		**127.46**		**132.28**		**143.46**		**157.12**		**176.79**		**178.09**		**179.53**		**180.04**		**172.14**		**162.99**		**159.75**

Non Grocery-Anchored	Coefficient	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
		Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product
Constant	105.2		105.20		105.20		105.20		105.20		105.20		105.20		105.20		105.20		105.20		105.20		105.20		105.20
Square Feet	3.12E-05	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68	150,000	4.68
Vacancy	-48.11	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81	10%	-4.81
Age	-0.92	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40	20	-18.40
Subtype Dummy	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29	1	23.29
SY 2001 Dummy	-11.19	0	0.00	1	-11.19	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2002 Dummy	7.67	0	0.00	0	0.00	1	7.67	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2003 Dummy	7.13	0	0.00	0	0.00	0	0.00	1	7.13	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2004 Dummy	12.97	0	0.00	0	0.00	0	0.00	0	0.00	1	12.97	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2005 Dummy	17.63	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	17.63	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2006 Dummy	24.22	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	24.22	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
SY 2007 Dummy	27.38	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	27.38	0	0.00	0	0.00	0	0.00	0	0.00
SY 2008 Dummy	24.82	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	24.82	0	0.00	0	0.00	0	0.00
SY 2009 Dummy	5	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00	0	0.00	0	0.00
SY 2010 Dummy	8.18	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	8.18	0	0.00
SY 2011 Dummy	11.46	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	11.46
Midwest Dummy	-23.07	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Northeast Dummy	13.39	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Southeast Dummy	-16.39	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Southwest Dummy	-9.61	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
US-Other Dummy	47.38	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
West Dummy	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91	1	21.91
Sale Price PSF			**131.87**		**120.68**		**139.54**		**139.00**		**144.84**		**149.50**		**156.09**		**159.25**		**156.69**		**136.87**		**140.05**		**143.33**

Grocery-Anchored	Coefficient	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
		Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product
Constant	0.0892		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%		8.92%
Square Feet	-9.23E-09	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%	150,000	-0.14%
Vacancy	0.0094	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%	10%	0.09%
Age	0.0002	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%
Subtype Dummy	0.0101	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%	1	1.01%
SY 2001 Dummy	-0.0015	0	0.00%	1	-0.15%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2002 Dummy	-0.0092	0	0.00%	0	0.00%	1	-0.92%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2003 Dummy	-0.0163	0	0.00%	0	0.00%	0	0.00%	1	-1.63%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2004 Dummy	-0.0216	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.16%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2005 Dummy	-0.0258	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.58%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2006 Dummy	-0.0307	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-3.07%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2007 Dummy	-0.0344	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-3.44%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2008 Dummy	-0.0238	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.38%	0	0.00%	0	0.00%	0	0.00%
SY 2009 Dummy	-0.0117	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-1.17%	0	0.00%	0	0.00%
SY 2010 Dummy	-0.0171	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-1.71%	0	0.00%
SY 2011 Dummy	-0.0193	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-1.93%
Midwest Dummy	0.0018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Northeast Dummy	-0.0043	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Southeast Dummy	-0.0005	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Southwest Dummy	-0.0014	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
West Dummy	-0.0054	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%	1	-0.54%
Capitalization Rate			**9.75%**		**9.60%**		**8.83%**		**8.12%**		**7.59%**		**7.17%**		**6.68%**		**6.31%**		**7.37%**		**8.58%**		**8.04%**		**7.82%**

Non Grocery-Anchored	Coefficient	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011	
		Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product	Variable	Product
Constant	0.101		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%		10.10%
Square Feet	-7.27E-09	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%	150,000	-0.11%
Vacancy	0.0054	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%	10%	0.05%
Age	0.0002	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%	20	0.40%
Subtype Dummy	-0.0024	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%
SY 2001 Dummy	-0.0048	0	0.00%	1	-0.48%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2002 Dummy	-0.0111	0	0.00%	0	0.00%	1	-1.11%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2003 Dummy	-0.0169	0	0.00%	0	0.00%	0	0.00%	1	-1.69%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2004 Dummy	-0.0232	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.32%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2005 Dummy	-0.029	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.90%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2006 Dummy	-0.032	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-3.20%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2007 Dummy	-0.0345	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-3.45%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
SY 2008 Dummy	-0.0316	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-3.16%	0	0.00%	0	0.00%	0	0.00%
SY 2009 Dummy	-0.0189	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-1.89%	0	0.00%	0	0.00%
SY 2010 Dummy	-0.0191	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-1.91%	0	0.00%
SY 2011 Dummy	-0.0219	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	-2.19%
Midwest Dummy	0.0046	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Northeast Dummy	-0.0018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Southeast Dummy	0.0038	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Southwest Dummy	0.0024	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
West Dummy	-0.0024	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%	1	-0.24%
Capitalization Rate			**9.96%**		**9.48%**		**8.85%**		**8.27%**		**7.64%**		**7.06%**		**6.76%**		**6.51%**		**6.80%**		**8.07%**		**8.05%**		**7.77%**

Appendix C: Top 20 Food Retailers

2011 North American FOOD RETAILERS

A=actual sales; E=estimated sales

RANK	COMPANY	TOP EXECUTIVE(S)	CORPORATE/ FRANCHISE STORES	SALES IN $ BILLIONS; DATE FISCAL YEAR ENDS
1	**Wal-Mart Stores** Bentonville, Ark.	Mike Duke president, CEO	4,721	311.0E 1/31/11
	Volume total represents combined sales of all Wal-Mart formats in the U.S. and Canada, which account for approximately 74% of total corporate sales. Wal-Mart operates 2,882 supercenters in the U.S. and 109 in Canada; 723 discount stores in the U.S. and 212 in Canada; and 608 Sam's Clubs, 181 Neighborhood Markets, four Marketside stores and two Supermercados in the U.S. Supercenters, discount stores, Neighborhood Markets and other U.S. formats accounted for an estimated $262 billion, or 62% of total sales; Sam's Club for $49 billion, or 12%; and international for $109 billion, or 26%.			
2	**Kroger Co.** Cincinnati	David B. Dillon chairman, CEO	3,624	81.1E 1/29/11
	Kroger's store base includes 2,468 supermarkets and multi-department stores, 784 convenience stores and 372 fine jewelry stores. Sales from convenience stores account for approximately 4% of total volume, and sales from fine jewelry stores account for approximately 1% of the total.			
3	**Costco Wholesale Corp.** Issaquah, Wash.	Jim Sinegal president, CEO	540	77.9A 8/29/10
	Revenues at Costco include sales of $76.2 billion and membership fees of $1.7 billion. Groceries, encompassing food, sundries and fresh products, plus pharmacy and gasoline, account for 72% of total sales. Of the company's total sales, 77% comes from 416 warehouses in the U.S. and Puerto Rico; 15% from 79 warehouses in Canada; and 9% from 45 warehouses in the United Kingdom, Japan, South Korea, Taiwan and Australia. (Volume from 32 Costcos in Mexico are not included in the company's reported sales.)			
4	**Safeway** Pleasanton, Calif.	Steve Burd chairman, president, CEO	1,712	41.0E 1/1/11
5	**Supervalu** Minneapolis	Craig Herkert president, CEO	2,349	37.9E 2/26/11
	Supervalu operates 1,445 corporate stores, encompassing 1,114 supermarkets and 331 Save-A-Lots; it also licenses 876 Save-A-Lots and 28 Cub Foods stores. Retail food accounts for 77% of total sales, while the supply-side division accounts for 23% of total sales.			
6	**Loblaw Cos.** Toronto	Allan Leighton president, deputy chairman	1,029	30.6(U.S.)E 1/1/11
	Loblaw operates 613 corporate stores under a variety of banners and supplies 416 franchised stores that also operate under a variety of banners.			
7	**Publix Super Markets** Lakeland, Fla.	Ed Crenshaw CEO	1,032	25.1E 12/25/10
8	**Ahold USA** Quincy, Mass.	Lawrence Benjamin EVP, COO	745	23.4E 1/1/11
	Ahold USA, the U.S. arm of Amsterdam-based Royal Ahold, operates three store groups: Stop & Shop, Quincy, Mass., with 386 units; Giant Foods of Landover, Md., with 179 units; and Giant Foods of Carlisle, Pa., with 180 stores, including Martin's. Ahold USA accounts for approximately 60% of the parent company's total sales.			
9	**C&S Wholesale Grocers** Keene, N.H.	Rick Cohen chairman, CEO	0	19.3E 9/25/10
	C&S volume does not include sales from two retail subsidiaries: Grand Union Family Markets, which operates 28 locations in the Northeast; and Southern Family Markets, which operates 70 locations, including 10 liquor stores, in the Southeast under the Southern Family and Piggly Wiggly banners. During 2010, C&S supplied products to several companies on the Top 75 list (including A&P, Ahold USA, Bi-Lo, Demoulas Market Basket, the Ralphs division of Kroger Co., Safeway, Save Mart Supermarkets, the Shaw's division of Supervalu, Target and Tops Friendly Markets), and volume from those companies is reflected in the sales total for C&S as well as for each of those companies individually.			

10	**Delhaize America** Salisbury, N.C.	Pierre-Olivier Beckers CEO	1,605	18.8E 1/1/11

Delhaize America, the U.S. division of Brussels-based Delhaize Group, encompasses 1,163 Food Lions, 176 Hannafords, 104 Sweetbay Supermarkets, 69 Harveys, 65 Bloom stores, and 28 Bottom Dollar Food stores. Delhaize America accounts for approximately 70% of the parent company's total sales.

11	**H.E. Butt Grocery Co.** San Antonio	Charles C. Butt chairman, CEO	330	16.1E 10/31/10

Sales include 38 stores in Mexico that account for approximately 6.7% of total sales.

12	**Sobeys** Stellarton, Nova Scotia	Bill McEwan president, CEO	1,334	15.6(U.S.)E 5/7/11

Sobeys operates 633 corporate stores, encompassing supermarkets, convenience stores, drug stores and fuel centers, and supplies 701 franchised stores. It is owned by Empire Cos. and accounts for approximately 98% of Empire's total sales.

13	**7-Eleven** Dallas	Joe DePinto president, CEO	6,526	15.5E 12/31/10

7-Eleven operates 6,063 stores in the U.S. and 463 in Canada. All locations in Canada and approximately 18% in the U.S. are corporate-owned, with the balance of the U.S. stores franchised. The company also operates 1,206 stores as part of a joint venture in Mexico.

14	**Meijer Inc.** Grand Rapids, Mich.	Hank Meijer co-chairman, CEO	195	14.2E 1/29/11
15	**Dollar General Corp.** Goodlettsville, Tenn.	Rick Dreiling chairman, CEO	9,112	12.4E 1/28/11

Consumables, including groceries, refrigerated foods and HBC, account for approximately 71% of total sales.

16	**Wakefern Food Corp.** Keasbey, N.J.	Joseph S. Colalillo chairman, CEO	72	11.8A 10/2/10

Of Wakefern's corporate stores, 45 operate under the PriceRite banner and 27 operate under the ShopRite banner; the company declined to indicate what percentage of total sales come from the corporate stores. Wakefern supplies products to three Top 75 companies — Saker ShopRite, Village Super Market and Inserra Supermarkets — and volume from those companies is included in the sales totals for Wakefern as well as for each company listed individually.

17	**Metro** Montreal	Eric R. La Fleche president, CEO	757	11.1(U.S.)A 9/25/10

Metro operates 426 corporate stores that account for 75% of total sales. It also supplies 331 franchised stores, including 146 supermarkets and 185 drug stores.

18	**BJ's Wholesale Club** Natick, Mass.	Laura Sen president, CEO	194	10.6E 1/31/11

Groceries, encompassing food and sundries, account for approximately 75% of BJ's total sales.

19	**Whole Foods Market** Austin, Texas	John Mackey chairman, co-CEO	301	9.0A 9/26/10
20	**Giant Eagle** Pittsburgh	David Shapira chairman, president, CEO	387	8.6A 6/30/10

Volume encompasses sales from 170 corporate supermarkets; 58 independently owned and operated supermarkets that use the Giant Eagle name; and 159 corporate-owned GetGo fuel and convenience stores.