E-tailing and Internet-related Real Estate Cost Savings: A Comparative Analysis of E-tailers and Retailers

Authors Andrew J. Schlauch and Steven Laposa

Abstract

This article is the winner of the Real Estate and the Internet manuscript prize (sponsored by PricewaterhouseCoopers) presented at the 2000 American Real Estate Society Annual Meeting.

This article explores differences in the corporate real estate strategies of traditional retailers and those of electronic retailers, or e-tailers. The primary issue addressed is whether e-tailing companies realize benefits of their non-retail, online operations, specifically in the form of lower real estate-related expense ratios when compared to traditional brick-and-mortar retailers.

The study reveals three trends. First, the majority of retailers studied continue to focus their corporate real estate strategies in the retail space world. However, some companies are incorporating their online operations into their real estate strategies and are beginning to see lower real estate-related costs as a result. Second, there are differences among e-tailers in their real estate strategies as well as some indication of differences in the real estate-related costs associated with the strategy chosen. Third, e-tailers are not realizing real estate-related cost savings over their retailing competitors.

Introduction

Academics, real estate practitioners and the financial press have touted the beginning of the end of retail real estate for several years due to the rise of Internet retail sales. Several sources indicate that Internet sales will make the retail store format nearly obsolete, as traditional retail companies require less space as they integrate Internet selling into their business model. The logic implies that store formats, if not eliminated, can be reduced in size, and traditional retail space will function as a showcase or testing ground for products sold online. Thus, retail stores will no longer need to stock inventory and interactive kiosks will take the place of store employees.

The theory assumes that companies doing business online can realize substantial real estate related cost savings, substituting expensive retail space for inexpensive warehouse and distribution space, and completely eliminating retail store personnel. Management viewpoints on anticipated real estate related savings, found in numerous S1 registrations of several major e-tailers, can be paraphrased as follows: While physical store-based retailers must make significant investments in inventory, real estate and personnel for each store location, online retailers incur a fraction of these costs, generally use centralized distribution, and have virtually unlimited merchandising space.[1]

The research question is whether or not e-tailers are realizing real estate related cost savings compared to traditional retailers. The purpose of this article is to provide a comparative and descriptive analysis of the differences in the corporate real estate holdings and strategies between traditional retailers and electronic retailers, or e-tailers. The analysis then examines the retail space efficiencies of retailers and e-tailers through standard accounting ratios leading to concluding remarks and further research issues based on the findings.

The descriptive analysis identifies two classes of retailers: traditional retailers and e-tailers. The real estate strategies for the samples of e-tailers and retailers are identified and classified. The sample of e-tailers is found to fall into one of three groups based on their warehousing strategy: Portals, Distributors or Mixed. The sample of retailers can be classified into two groups, based on their Internet-related real estate strategies: Retail-Focused or Mixed Media.[2] We examine real estate strategy differences within the classified groups, and raise questions as to the superiority of any one particular strategy.

Our quantitative analysis sets out to explore the between-group differences in real estate strategy efficiencies of retailing and e-tailing companies. We established two null hypotheses for this purpose.

H_{01}: E-tailers will exhibit greater efficiencies in their use of real estate space as measured by the ratio of rental expense to sales.

H_{02}: E-tailers will exhibit greater efficiencies in their use of real estate space as measured by the ratio of selling and administrative costs to sales.

Literature Review

The majority of research on electronic commerce and real estate has been directed toward the implications for traditional real estate space. In the non-academic press, numerous articles have been written forecasting dramatic changes, if not the death of the traditional retail format that will be a direct result of the Internet.

Baen (1999) examines the impacts of electronic commerce on traditional retail sales, commercial property values and percentage rents. The author concludes, among other things, that traditional retail space owners and managers need to

adjust leasing arrangements to capture lost sales from e-commerce. Similarly, Miller (1999) raises questions relative to the effects of e-commerce on property owners and managers. He speculates on the future of traditional retail real estate, and suggests, similar to Baen, that owners and managers need to develop new models for deriving retail rents.

Like Baen (1999) and Miller (1999), Borsuk (1999) also takes note of the leakage of traditional retail sales to e-commerce efforts. Similar to the others, he points to the likelihood of reduced income and values for property owners and managers. Yet, Borsuk goes one step further, mentioning the reduced demand for traditional retail space that is likely to result from retailers moving away from the world of brick-and-mortar and into the world of click-and-order. He indicates the likely source of this move to be founded in the reduced cost of operating in cyberspace versus the traditional physical sales channel. The author also indicates that the Internet will cause traditional retailers to limit new store development and even reduce a retailer's overall number of stores.

Similarly, Roulac (1994) points to a new paradigm for physical space that will result from the rapidly changing technological environment. He insists that retail space will need to change along with the environment in order to survive. In addition, the author asserts that retailers who utilize the Internet will be able to "reduce markedly both the overall quantity of space used to support the chain of retailing functions and the cost of the space actually used."

Data and Methodology

Our analysis is based on the qualitative and quantitative characteristics of two distinct groups of companies. The first sample group, which we refer to as e-tailers, conducts business operations solely over the Internet. This group sells products online, and occupies no traditional retail space. Examples of companies in this group include Amazon.com, Furniture.com and Garden.com. There are twenty-four companies in the sample e-tailer group.

The other sample group is made up of traditional retail companies. These companies occupy retail space, but may also have online operations through which they conduct business. This group includes companies such as Barnes and Noble, Wal-Mart and Home Depot. There are twenty-seven companies in the sample retailer group. See Exhibit 1 for a complete listing of both sample groups. The objective of the sample groups attempted to match selected e-tailers with a retailer in the same line of business or industry. For example, selecting e-Toys and Drugstore.com as e-tailers, supports Toys-R-Us and CVS as comparable retailers.

The list of sample e-tailers was limited for several reasons. First, there are significantly fewer e-tailers than there are retailers with many traditional retailers supplementing in-store sales with online operations. Second, a fair number of companies who are strict e-tailers are privately held companies, or at the time of this research, just beginning the process of an initial public offering.

Exhibit 1 | Companies Used in Analysis and Real Estate Strategies

E-tailers	Strategy	Retailers	Strategy
Amazon.com	Distributor	Barnes and Noble	Retail-Focused
Audible.com		Bed Bath & Beyond	Retail-Focused
Beyond.com	Portal	Best Buy	Mixed-Media
Bluefly.com	Distributor	Circuit City	Retail-Focused
Bolt, Inc.	Portal	CompUSA	Mixed-Media
Buy.com	Portal	CVS	Retail-Focused
CDNow	Portal	Eagle Hardware and Garden	
Drugstore.com	Portal	First Union	
DVDExpress	Distributor	Gap Inc.	Mixed-Media
Eloan		Gart Sports	Retail-Focused
Etoys	Distributor	Home Base	
Fogdog Sports	Portal	Home Depot	Retail-Focused
Furniture.com	Portal	Kroger	Retail-Focused
Garden.com	Portal	Musicland	
GreatFood.com	Portal	Office Depot	Retail-Focused
KBkids.com	Portal	PETCO	Retail-Focused
Mortgage.com		PETsMART	Mixed-Media
Mothernature.com	Distributor	Pier 1 Imports	
MP3.com	Distributor	Restoration Hardware	Retail-Focused
Outpost.com	Portal	Rite-Aid	
Pets.com	Distributor	The Buckle	
Reel.com	Mixed	Toys-R-Us	Retail-Focused
Smarterkids.com	Portal	Walgreen	Mixed-Media
Streamline.com	Mixed	Wal-Mart	Retail-Focused
		Wells Fargo	Mixed-Media
		Whole Foods	Mixed-Media
		Wild Oats Markets	

Information concerning real estate holdings and real estate strategies was gathered for all companies from five pieces of information found in 10Ks or S1 registrations:

1. Narrative discussions concerning real estate strategies.
2. Disclosures of total square footage and type of existing properties.
3. Rental expense for the previous three years.

4. Selling and administrative expense for the previous three years.
5. Net revenues for the previous three years (in order to calculate efficiency ratios).

There are differences in the level of disclosure between companies as found in public documents. Consistent data across both sample groups of companies on leased or owned space, including retail and warehouse space, was not always available. Thus, measuring efficiencies in the use of real estate space based on a calculation of sales per square foot of warehouse and retail space combined is not possible. Some companies are extremely thorough in their disclosure of owned and leased property, while others are not. For example, several retailers neglect to disclose the aggregate square footage of their retail facilities, and few discuss in detail their warehouse and distribution facilities. Similarly, many e-tailers do not disclose the details of their warehouse properties. Therefore, sales per square foot comparisons are not possible based on public records.

As a result of the information inconsistencies, rental expenses disclosed in the leases or a contingencies note in the financial statement act as a proxy for the use of real estate space. Importantly, rental expense figures capture the total cost of rented real estate space including office, retail and/or warehouse facilities used by the e-tailor or retailer.[3] The ratio of rental expenses to sales was calculated for each company for the most current fiscal year and two years prior, when available.

We also noted, while compiling the narrative discussions on real estate strategies that the sample of traditional retailers tends to own more of their properties than the sample of e-tailers. As a result, traditional retailers' rental expense may not fully reflect the cost of operating their facilities. To account for this possible problem, data on selling and administrative expenses was obtained from public documents as another measurement to account for real estate operating costs. As noted by Roulac (1994), selling and administrative expenses include "costs of retail real estate that [are] integral to the traditional in-store selling environment." These expenses exist regardless of a company's lease/own strategy. Therefore, our comparative analysis includes ratios of rental expenses to sales, and selling and administrative expenses to sales.

Company Reports Analysis

This section describes critical corporate real estate strategies of the sample groups as presented in company public documentation including S1 registrations, 10Ks and 10Qs. The analysis of company reports supports the proposed classification of the sample e-tailers and retailers for further analysis. The qualitative analysis reveals several interesting trends between both samples. Among these trends, a majority of the selected retailers continue to focus most of their energy and resources in the retail world. For example, Barnes & Noble, one of the largest online retailers, ". . .believes its Barnes & Noble store format offers the greatest

opportunity to increase its share of the expanding consumer book market and intends to strengthen its position as the world's leading operator of book superstores by opening approximately 50 new stores during fiscal 1999."[4]

Other retailers share this same retail space focus. Home Depot, for example, stated that their policy will be to open stores "at a consistent rate of 21–22% per year for the foreseeable future."[5] CVS shares the same retail-based strategy, indicating that "the addition of new stores has played, and will continue to play, a majority role in our continued growth."[6] In fact, we analyzed store openings as a percentage of existing stores for twenty of our selected retailers.[7] The results are summarized in Exhibit 2, and show average store openings at nearly 14% of existing stores.

The aforementioned retailers all have online operations, but appear to focus on traditional retail space. While these retailers at least make mention of their online operations, others completely ignore their electronic commerce efforts, or simply

Exhibit 2 | Retail Store Openings as a Percentage of Existing Stores

Retailer	Openings as a % of Existing Stores
Eagle Hardware and Garden	40.6
Bed Bath & Beyond	24.9
Home Depot	21.9
Whole Foods	20.0
Wild Oats Markets	16.4
Walgreen	16.0
Office Depot	15.6
Wal-Mart	15.2
Best Buy	14.5
PETsMART	13.1
The Gap	12.2
CVS	10.7
Barnes & Noble	10.0
Home Base	9.5
Circuit City	8.5
PETCO	8.4
Pier 1 Imports	8.0
Musicland	3.7
Toys-R-Us	0.7
Average	14.2

do not have any intention of competing in that market. As an example, PETCO does not discuss any electronic commerce effort, rather focusing on traditional retail space. The same is true of Kroger, Bed Bath & Beyond and Whole Foods. Thus, we classified retailers with minimal or no e-commerce concentration as *Retail-Focused*.

Another retailer classification includes companies who not only recognize and discuss their electronic commerce operations, but also acknowledge a change in their real estate strategy as a result. This group of retailers is referred to as the *Mixed-Media* group. Walgreen Co., for example "plans to open or expand one distribution center a year for the next five years"[8] in order to accommodate the sales generated from their recently launched Internet pharmacy. Likewise, Gap Inc., despite steady planned increases in the number of retail facilities, is expanding its warehouse facilities and is focused on investing in the "development of new distribution channels to address changing market requirements."[9] According to company reports, PETsMART is making similar investments, expanding distribution centers "to better service the anticipated inventory and fulfillment needs resulting from its electronic commerce initiatives."[10] A listing of Retail-Focused and Mixed-Media companies is provided in Exhibit 1.[11]

The sample of e-tailers can also be classified into groups based on real estate strategies presented in public documents. Clearly, none of these companies are focused in the traditional retail space world. Yet, despite all existing in the same environment, their real estate strategies vary significantly. With this sample group, distributing products to customers generally takes place via one of three real estate strategies: (1) products are shipped directly from a third party, in which case the e-tailer is classified as a *Portal*; (2) products are shipped from the e-tailer's own warehouse, in which case the e-tailer is called a *Distributor*; or (3) the e-tailer can implement a combination of warehousing and third-party contracting, a *Mixed* strategy.

The majority of the sample e-tailing group are classified as Portals. As such, these companies have relationships with distributors and/or manufacturers who ship directly to consumers when products are purchased through the e-tailer's online store. As an example, GreatFood.com has "established strategic supplier relationships with specialty food manufacturers, distributors and importers who ship products directly to [their] customers on [their] behalf."[12] Other companies within this group have relationships with third party fulfillment and distribution organizations that take over once an order has been placed. For example, Buy.com states, "We use a virtual operating model that includes outsourcing the majority of our operating infrastructure to leading national distribution and fulfillment partners with established expertise."[13] For the most part, the Portals do not need warehouse and distribution space of their own. However, some small amounts of warehouse space may be required for returns and order aggregation.

The Distributors include companies that function more like a traditional retailer, in that they purchase goods from manufacturers and distributors and warehouse

Exhibit 3 | E-tailers vs. Retailer Descriptives

Sample Group	Sample Size	Mean (%)
E-tailers		
Rent % Sales, t_{-2}	13	49.5
Rent % Sales, t_{-1}	19	41.0
Rent % Sales, t_0	22	16.4
S&A % Sales, t_{-2}	14	331.0
S&A % Sales, t_{-1}	21	197.6
S&A % Sales, t_0	24	266.3
Retailers		
Rent % Sales, t_{-2}	27	4.4
Rent % Sales, t_{-1}	27	4.3
Rent % Sales, t_0	27	4.5
S&A % Sales, t_{-2}	25	23.0
S&A % Sales, t_{-1}	25	22.9
S&A Sales, t_0	25	23.3

the products before they are shipped to customers. Amazon.com is an example in this category. The company started out with 50,000 square feet of warehouse space in March of 1997. By December of 1998, warehouse space had grown to more than 650,000 square feet. In addition, their 10Q dated September 30, 1999, the company indicates that in the previous nine months, they "opened new distribution centers in Nevada, Georgia, Kentucky, Kansas and North Dakota and announced additional new distribution centers to be located in Kentucky, Germany and the United Kingdom."[14] Other e-tailers that act as distributors include Bluefly.com, DVDExpress, Etoys and Pets.com, who state that their "in-house distribution and

Exhibit 4 | Rent as a % of Sales—*t*-Test Results

	t-Test	Sig. (2-tailed)	Mean Difference (%)	90% Confidence Interval of the Difference (%)	
				Lower	Upper
Rent % Sales, t_{-1} Equal variances not assumed	1.71	0.105	36.7	−0.6	74.0
Rent % Sales, t_0 Equal variances not assumed	2.94	0.008*	11.9	4.9	18.8

*Significant at the 0.01 level.

Exhibit 5 | S&A as a % of Sales—*t*-Test Results

	t-Test	Sig. (2-tailed)	Mean Difference (%)	90% Confidence Interval of the Difference (%) Lower	Upper
S&A % Sales, t_{-1} Equal variances not assumed	1.71	0.105	174.7	−0.6	350.0
S&A % Sales, t_0 Equal variances not assumed	2.95	0.007*	243.0	101.9	384.0

*Significant at the 0.01 level.

fulfillment operation enables full control over the product supply process from product mix to customer shipments.''[15]

The Mixed strategy e-tailers warehouse some of their products themselves, typically the most commonly ordered items, and they utilize third-party contracting for the rest. Reel.com is an example of a mixed-strategy e-tailer. The company notes that they ''ship a majority of our customer orders from our approximately 27,000-square-foot distribution center located in San Leandro, California. The remainder of our products are shipped by our fulfillment partner, Baker & Taylor Inc.''[16,17]

Quantitative Analysis

Whereas our qualitative analysis and review of company reports explored real estate strategy differences within the retailing and e-tailing groups, the quantitative analysis attempts to examine differences between them.

Exhibit 3 illustrates means for rental expenses as a percentage of sales, and selling and administrative expenses (S&A) as a percentage of sales for the sample e-tailers and retailers. Means are included for the current year (t_0) and two years prior (t_{-1} and t_{-2}).

Exhibit 3 clearly shows a difference in the mean rental expense and selling and administrative ratios between the e-tailer and retailer groups for each of the three years. The results from the *t*-tests are presented in Exhibits 4 and 5 and show that e-tailers have higher mean rental and S&A expense ratios than retailers. Therefore, the null hypotheses is rejected for H_{01} and H_{02}.

The *t*-tests show statistically significant differences for both expense ratios in the most current year. Using the results from this test, we can prove with 99%

confidence, that there is a significant difference in the mean expense ratios between retailers and e-tailers for the most recent year. If we loosen our confidence interval to 89%, we can prove differences not only at $t = 0$, but also at $t - 1$.

Conclusion

This article identified differences in the corporate real estate strategies of traditional retailers and those of e-tailers. The results indicate that e-tailing companies are not realizing the benefits of their non-retail, online operations as presented in company public documents and mainstream industry publications. The excess financial exposure of e-tailers to real estate assets, either leased or owned, may also partially explain why several of the e-tailers in our sample have struggled to make ends meet over the last year. The next question is why aren't e-tailers realizing lower real estate-related expenses.

As mentioned previously, we suspect that one reason cost savings have not been realized is a direct result of the age[18] of the industry. Another reason is the immaturity of the online retail industry that impacts consumer acceptance and online sales. If age and lack of sales are the primary factors, then lower real estate expense ratios can rationally be expected in older e-tailers. Amazon.com, for example, has a rental expense to sales ratio between 1.4% and 1.7% over the last three years, and decreases in selling and administrative expense as a percentage of sales ratios from 39% to 22% over the covered time period. When Amazon's ratios are compared to their closest retail competitor, Barnes & Noble, Amazon.com's real estate strategy appears to be superior, with anticipated real estate savings having been realized. Barnes & Noble ratios are consistent between 9.1% and 9.2% for rental expense ratios compared to Amazon.com's 1.4% to 1.7%.

We suggest expansion of this research as (1) additional e-tailing companies go public, or private e-tailers provide data, and (2) additional time periods allow further trend analysis. A more comprehensive or inclusive measure of real estate operations expenses between the sample groups benefits direct comparisons when leasing and ownership ratios vary significantly across companies and across time. Perhaps an entirely different measure of real estate-related cost efficiencies could be developed to benchmark e-tailers to retailers. In addition, further research should consider the within-group differences in e-tailers and retailers, *i.e.*, Retail-Focused vs. Mixed-Media and Portal vs. Distributor vs. Mixed-Media.

Endnotes

1. Adapted from several S1 registration statements, but nearly quoted directly from the November 26, 1997 S1 registration statement of CDNow.
2. The authors originated all taxonomies referenced in this article.
3. In addition, we extracted the minimum future operating lease obligations from the footnotes to the financial statements. However, we concluded that this number was not

necessarily an accurate reflection of how a company was utilizing real estate space due to variations in lease terms and rollover dates. Therefore, we decided to conform to measurements based on a company's performance and the cost of real estate space needed to achieve that level of performance.

[4] Barnes & Noble Annual Report, January 30, 1999.

[5] Home Depot Annual Report, January 31, 1999.

[6] CVS Annual Report, December 31, 1998.

[7] Store openings as a percentage of existing stores was based on expected openings when available. When this figure was not disclosed, we calculated this percentage based on the most recent year's openings.

[8] Walgreen Co. Annual Report, August 31, 1999.

[9] Gap Inc. Annual Report, January 30, 1999.

[10] PETsMART Annual Report, January 31, 1999.

[11] We examined differences in rental and selling and administrative expenses as a percentage of sales for Retail-Focused and Mixed-Media retailers. Although sample sizes were small, the results show Mixed-Media retailers realize slightly lower real estate-related cost ratios. The authors believe one reason behind the lower costs achieved by Mixed-Media retailers may be the fact that these companies incorporate their online operations into their real estate strategies.

[12] GreatFood.com S1 Registration Statement, May 20, 1999.

[13] Buy.com S1 Registration Statement, October 27, 1999.

[14] Amazon.com 10Q, September 30, 1999.

[15] Pets.com S1 Registration Statement, December 9, 1999.

[16] Reel.com S1 Registration Statement, December 2, 1999.

[17] We examined differences in rental and selling and administrative expenses as a percentage of sales for Portal, Distributor and Mixed e-tailers. Although sample sizes were small, the results show lower real estate-related cost ratios for Portals vs. Distributors. Those companies employing a Mixed strategy appear to be able to lower these ratios even further. These trends show the advantages of utilizing less warehouse space, but also illustrate the importance in keeping some level of control within the organization.

[18] Of our twenty-four e-tailers, nineteen of them have gone public since January of 1999. As a result, many of these companies may be too young to be able to realize the lower real estate related expenses that result from doing business exclusively online. Perhaps they have made substantial investments in warehouse and even office space in anticipation of expected growth, but have few sales to offset these costs.

References

Baen, J. S., The Effects of Technology on Retail Sales, Commercial Property Values and Percentage Rents, Unpublished working paper, University of North Texas, 1999.

Borsuk, M., Nowhere Yet Everywhere: Investigating Online Buying's Impact on Retail Property Values, Unpublished working paper, The Real Estate Transformation Group, 1999.

Miller, N. G., Retail Leasing in a Web-enabled World, Unpublished working paper, University of Cincinnati, 1999.

Roulac, S. E., Retail Real Estate in the 21st Century: Information Technology + Time Consciousness + Unintelligent Stores = Intelligent Shopping? NOT! *Journal of Real Estate Research*, 1994, 10:4, 125–50.

The authors would like to thank Nicholas Murray for his invaluable contributions to this article.

Andrew J. Schlauch, PricewaterhouseCoopers LLP or andrew.schlauch@us.pwcglobal.com.

Steven Laposa, PricewaterhouseCoopers LLP, Denver, CO 80202-2972 or steve.laposa@us.pwcglobal.com.