Chapter 8. Supply & Demand by Property Type: Office, Retail & Industrial

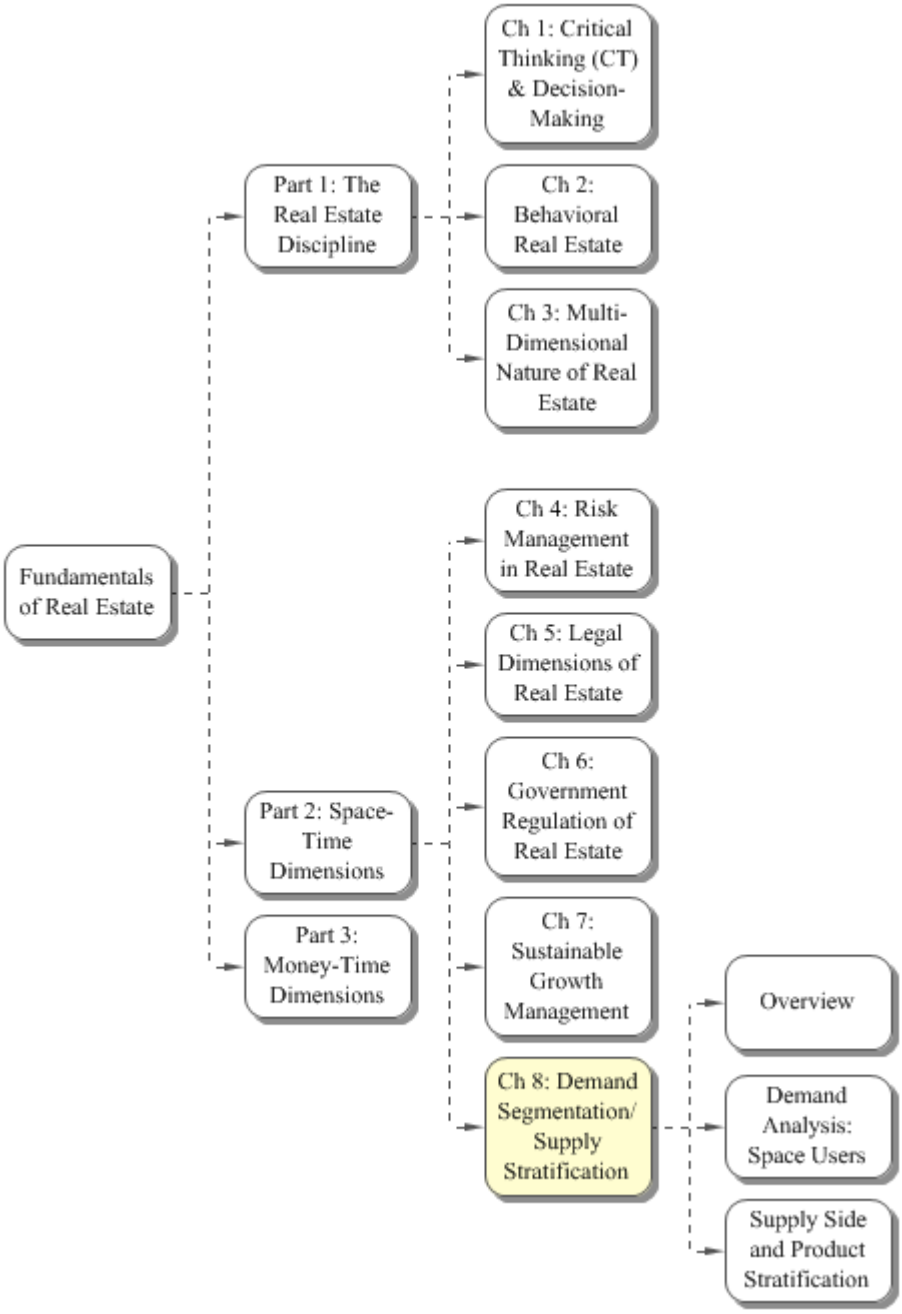
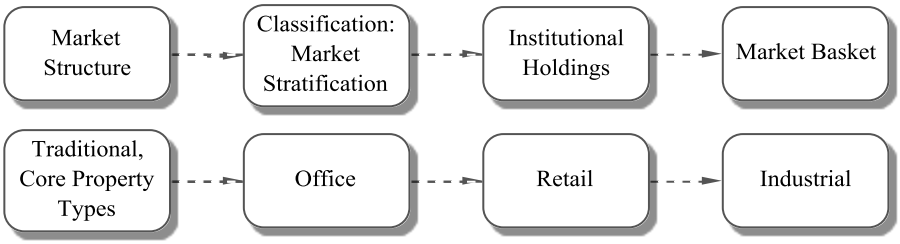


Table of Contents

Table of Contents

Preview Chapter 8: Core Property Type Fundamentals-Office, Retail & Industrial



Overview

This chapter begins with a discussion of why pure economic models cannot be extended to real estate without adjusting for the inefficient, behavioral nature of the market. It introduces the "goodness-of-fit" criterion which can be used to develop a more precise understanding of the supply/demand balance when viewed in terms of product stratification and market segmentation.

The discussion then explores the major property types in terms of market structure and market share. It also introduces the notion of market segmentation and the drivers of demand for real estate. Based on this foundation, the office, retail and industrial property sectors are explored in terms of the underlying drivers of value that affect demand and supply and ultimately, investment performance. A standardized format is applied to each property type to highlight the differences that affect the respective sectors. This includes an in-depth discussion of the structure of the market, as well as the primary sources of demand.

What you will learn in Chapter 8

- Real estate projects as cash cycle enterprises and the importance of maintaining cash solvency.
- The relative property type allocations of private and public institutional real estate investors.
- A typology of the major sub-classes of the three property types that can be used to understand the structure of the market.
- The primary and secondary sources of demand for the respective property types and sub-types.
- The nature of specialized facilities that fall under each of the major property types and how they fit in the larger picture.
- Relative levels of investment performance among the property types and selected sub-types for private and public holdings.
- Forces that have changed market fundamentals and supply/demand balance among the major property types.
- Future trends affecting the major property types including globalization, sustainability, logistics and technological innovations.

Market Segmentation and Product Stratification

Evaluative Criteria	Market Segmentation	Product Stratification
•Measurable	•Quantifiable & capable of being compared	•Capable of being profiled and clustered
•Accessible	•Identifiable and reachable	•Implementable in terms of adoption & use
•Substantial	•Significant enough to justify added costs	•Sufficiently large to warrant tracking and monitoring
•Meaningful	•Responsive to differentiation & profitable	•Different drivers of value and performance; accepted by market
•Comprehensive	•Optional; appropriate is key	•Exhaustive; provide class for all meaningful properties
•Unambiguous	•Can be proprietary, change over time	•Reliable, relatively stable over time and clear methods

Fundamentals of Supply & Demand

Economics of Supply and Demand: Enterprise Perspective

In many respects a real estate project is a cash cycle enterprise that has both a space-time and a money-time dimension. Since real estate is capital intensive, the decision to develop, acquire or operate real estate has economic implications. This holds true for all types of real estate projects whether the ownership is for direct use or for an investment. Over time, the enterprise must have access to adequate cash flows to cover operating expenses and satisfy other cash requirements on an on-going basis. While temporary cash shortages may be satisfied by infusion of short-term capital, to sustain the enterprise over the long haul it must maintain cash solvency. Exhibit 8-1 depicts a real estate enterprise operating over time. As noted, during the first phase the project is cash flowing with gross income covering operating expenses. Income grows for the first two years before flattening off. During the second phase revenues stumble while operating expenses increase. Before the growth in expenses is brought under control, the deficit grows putting an economic strain on the enterprise. To carry the project through this period some form of operating subsidy is required. In an effort to get expenses in line with income and regain solvency the enterprise manager may make some changes such as cutting expenses, deferring repairs, reducing operating hours and laying off staff. While helping close the deficit, these cutbacks in services could easily translate to a decline in revenue as demonstrated in the illustration. Once this cycle starts, it can gain momentum which unless checked can endanger the survival of the enterprise. In this case, capital is infused which may change the economics and lead to an increase in revenues. However, the project now has a higher cost basis which may not be justified by an increase in benefits.

Enterprise Cash Solvency

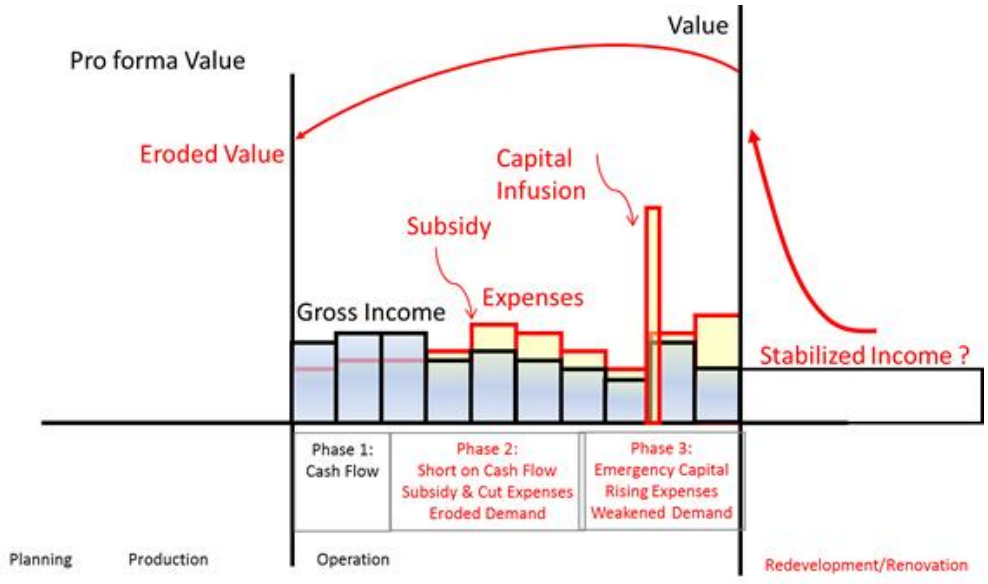


Exhibit 8- 1

In addition to pointing out the importance of cash solvency, the depiction of real estate as an operating enterprise illustrates another critical dimension of real estate. That is, to retain tenants or justify continued use, the enterprise must provide a positive cost/benefit ratio. There are two different categories of costs that should be recognized: the cost of initial acquisition or construction; and, the cost of capital and the cost of any operating deficits that may be incurred over time. For owners/investors, the benefits include economic factors such as maintaining solvency and providing an adequate return on investment. For users/tenants, the economics must also pencil out with total occupancy costs being within budget or supported by revenues generated at that property. For example, if the space is leased to a retailer, the total occupancy costs as a percent of sales must be in a range (i.e., 12%-14% of sales) to allow the outlet to compete with others without forcing them to be the high cost provider. In the case of non-profit or public ownership, the positive side of the scale should include non-economic benefits related to how well the space helps the entity to fulfill its mission.

Since real estate assets are durable, the real test of sustainability is whether a project can maintain solvency; generate an adequate return to compensate capital, and create value that endures over the long term.

Since real estate assets are durable, the real test of sustainability is whether a project can maintain solvency; generate an adequate return to compensate capital and create value that endures over the long term. In order to meet these requirements, a project must be economically viable and must satisfy the needs of the market in which it operates. For private projects the market will determine the long-term viability of a project; if it doesn't deliver, it won't retain tenants or users. For non-profit and public projects, the determination of whether a project meets the needs of the market over time is more difficult to evaluate, especially if it is a captive market with no plausible options. However, regardless of ownership form or profit motivations, end user satisfaction should be the ultimate test of the success of a project. In order to make this evaluation, it is important to explore how the supply/demand proposition plays out in the real estate market.

Classical Supply/Demand Analysis in Real Estate

Supply/Demand Equilibrium

The classical laws of supply and demand apply to real estate to a certain extent. As noted in Exhibit 8-2, the relationship between quantity of property or supply on the market and the price it will command is inversely related. The downward sloping demand line suggests that the market will find an equilibrium point in which demand and supply are in balance. At that point, the rate of return will be determined by the market and will be commensurate with the relative risk. If supply increases beyond that point, rents will fall since the market will be oversupplied and values will decline correspondingly.

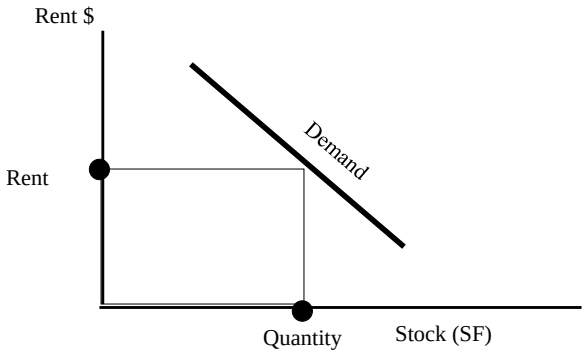
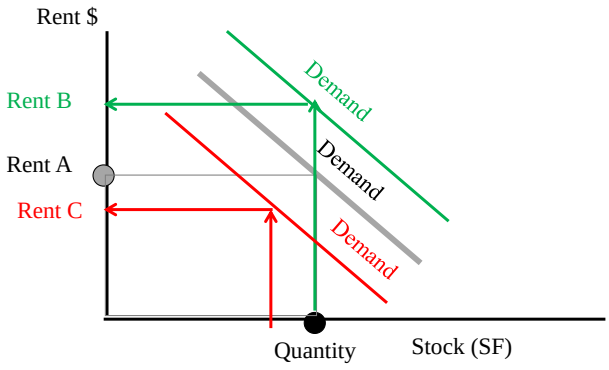


Exhibit 8- 2

Changing Demand



If demand increases, the demand line shifts upward as noted by the green line. In real estate, since supply is inelastic (i.e., has lags in production) rents will rise as space users compete for space by paying higher rents. This is commonly referred to as a sellers' market. If demand declines due to a recession or a decline in space users in a particular market, the rents will tend to fall as the market has an oversupply of space.

Exhibit 8- 3

Factors Limiting Economic Models

The real estate market differs from other asset classes on a number of fronts that limits reliance on simple supply/demand analysis at an aggregate market basis. These factors include: 1) the inefficient nature of the market, 2) the behavioral operation of the market, and 3) its dependency on negotiated transactions.

Factors Restricting Application of Pure Economic Models

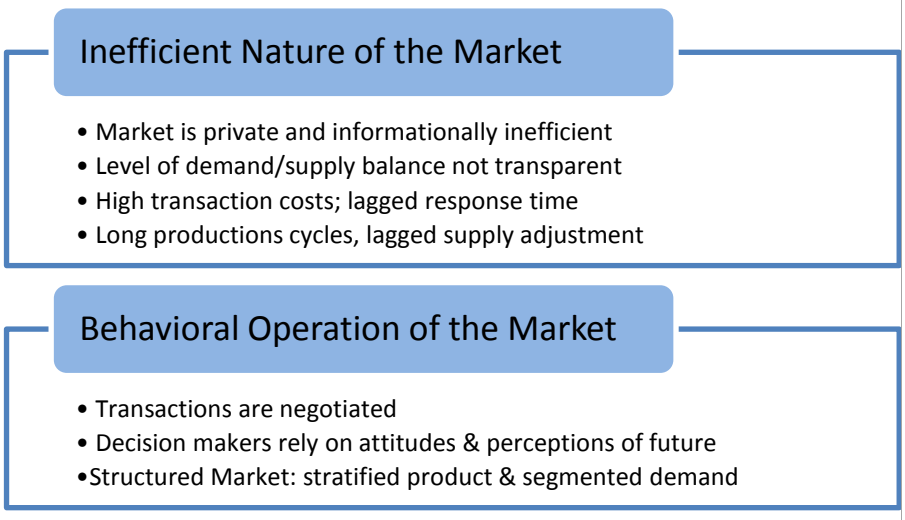


Exhibit 8- 4

The real estate market is inefficient in terms of information required to apply economic models. Several examples illustrate this limitation.

- First, despite advances in data availability, the real estate market remains largely private.
  Although sales prices may be recorded, there is no mandated disclosure on other contractual terms or other considerations that affected prices.
- Second, monitoring supply/demand balance is complicated by the fact that lease terms are not made public. Thus, it is difficult to identify the "effective rent" (i.e., rent after concessions, incentives) which could indicate the relative balance since the myriad lease terms that can change effective rent from reported asking rents or contract rents are not disclosed. Furthermore, there is no mandated reporting of vacancy levels. Although many brokers and data vendors try to track

such data, these efforts ultimately rely on voluntary disclosure from owners which can be difficult to validate. The difficulty in tracking supply/demand is exacerbated by the existence of phantom space; space for which tenants pay rents to satisfy contractual requirements but do not need to support operations. Similarly, sublease activity in which tenants transfer leasehold interests to third parties is often difficult to track. Finally, unexpected tenant turnover can dramatically change actual cash flows from pro forma assumptions and simplified pricing models. Not only can this pose a risk of insolvency, it can force owners to offer free rent and other economic and non-economic incentives that are not made public.

Pro Forma vs. Rent Roll w/Turnover

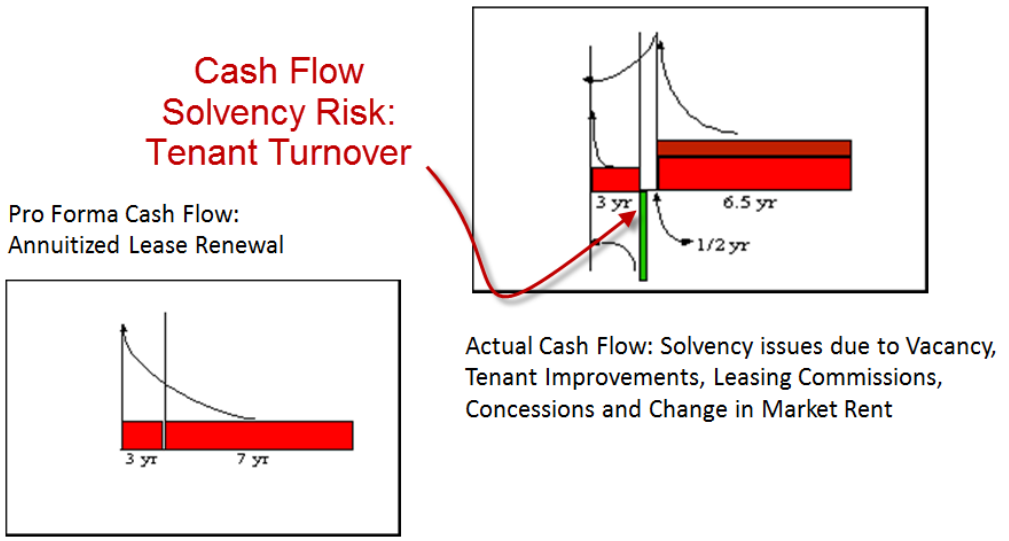


Exhibit 8- 5

- Third, there are high transaction costs in real estate that affect leases, subleases, sales and other transactions creates a disincentive to react to economic conditions in the market. In addition, lease terms often lock tenants into space that may no longer be suitable or economically viable, or may be held at above-market rents in cases where market rents declined. On the other hand, options to extend a lease may prevent an owner from capturing current market rents in cases when rents have risen, distorting contract rents from market rents.
- Finally, real estate production times are fairly long, creating significant lags in the ability to expand to satisfy increases in demand. At the same time, assets are lumpy or fairly large making it difficult to adjust to moderate increases in demand. On the other hand, assets are durable and fixed making it difficult to contract space to adjust to declines in demand.

… high transaction costs in real estate that affect leases, subleases, sales and other transactions creates a disincentive to react to economic conditions in the market.

The behavioral nature of the market complicates application of economic theory to real estate. Thus, even if it was possible to isolate the actual balance between supply and demand in quantitative terms, such analysis may be inappropriate in the

sense that they transcend or fail to reflect how decision-makers process information to make real estate decisions. This is especially true with regard to locational decisions made by space users that have a temporal dimension in which the entity will be passing through its own life cycle phases which may translate to different spatial requirements. At the same time, most entities are operating in a competitive arena and must respond to market forces that affect customers and the ability to respond to the demand for goods and services while offering a competitive price/value proposition. For many space users, these market forces have taken on even more importance as a result of such trends as globalization that has changed the competitive arena, and technological innovations that have changed the demand function affecting many place-bound activities. Similarly, the renewed interest in corporate social responsibility and sustainability has shifted the demand function at a rate that has far outpaced adjustments in the nature and supply of space.

… the renewed interest in corporate social responsibility and sustainability has shifted the demand function at a rate that has far outpaced adjustments in the nature and supply of space.

Goodness-of-Fit Criterion

Despite the challenges that make extension of economic theory to real estate somewhat problematic, the fact is that real estate remains an enterprise in which cash solvency is critical to long term success. As such, over the long haul the market is subject to the laws of supply and demand. However, intervening variables and other non-economic considerations must also be factored into the equation. This punctuates the importance of applying market-based solutions to such factors as growth management and sustainability.

Market Segmentation and Product Stratification

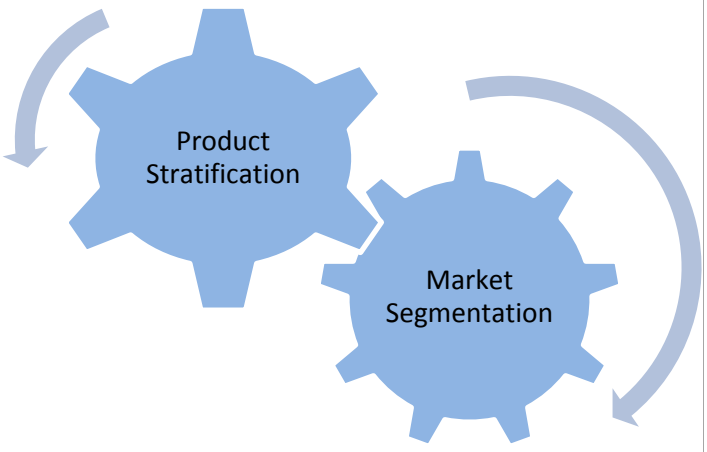


Exhibit 8- 6

When evaluating the demand side of the equation, it is important to apply market segmentation. Briefly, "market segmentation" is the subdividing of space consumers into homogeneous groups that have similar demand functions within clusters and different demand functions among clusters. This is especially true in light of the increasing diversity among space users and the more specialized demand functions for real estate that they represent. When evaluating the supply side, it is important to subdivide property types into homogeneous clusters or categories which have similar drivers of demand and market mechanisms. Assuming market segmentation and product stratification theory have been applied correctly, analysis of

market balance can shift from a purely quantitative assessment at an aggregate level to a more qualitative basis at a disaggregate level.

By segmenting and stratifying real estate, emphasis can shift to an exploration of the "Goodness-of-Fit" criterion; how closely real estate offerings created by space producers match needs of space consumers which is both more socially responsible and sustainable. This shift in emphasis is important to the durability of real estate in terms of its ability to satisfy demand over time rather than focusing on short-term needs or opportunities. Emphasis on the goodness-of-fit can also help reduce risk that new competition will cannibalize demand and reduce the risk of oversaturation that often occurs when emphasis is on generic or "one-size-fits-all" approaches to real estate.

By segmenting and stratifying real estate, emphasis can shift to an exploration of the "Goodness-of-Fit" criterion; how closely real estate offerings created by space producers match needs of space consumers which is both more socially responsible and sustainable.

Market Segmentation/Product Stratification

Evaluative Criteria	Market Segmentation	Product Stratification
•Measurable	•Quantifiable & capable of being compared	•Capable of being profiled and clustered
•Accessible	•Identifiable and reachable	•Implementable in terms of adoption & use
•Substantial	•Significant enough to justify added costs	•Sufficiently large to warrant tracking and monitoring
•Meaningful	•Responsive to differentiation & profitable	•Different drivers of value and performance; accepted by market
•Comprehensive	•Optional; appropriate is key	•Exhaustive; provide class for all meaningful properties
•Unambiguous	•Can be proprietary, change over time	•Reliable, relatively stable over time and clear methods

Exhibit 8- 7

Exhibit 8-7 presents a comparison of the evaluative criteria for market segmentation and product stratification in real estate. As noted, the two types of analysis share a number of common attributes in terms of being measurable, accessible, substantial and meaningful. On the other hand, product stratification adds two dimensions to traditional rules of classification. First, it must be comprehensive in terms of enfolding all meaningful subtypes. Second, it must be unambiguous to be accepted by the market and warrant costs of maintaining over time. Thus, while changes are possible, such decisions should not to

be taken lightly to avoid instability and market overload. The two additional criteria imposed on the product stratification side of the analysis are worthy of more elaboration.

…product stratification adds two dimensions to traditional rules of classification. First, it must be comprehensive in terms of enfolding all meaningful subtypes. Second, it must be unambiguous to be accepted by the market and warrant costs of maintaining over time.

- **Comprehensive**. The system must be capable of covering the full spectrum of sub-property types that satisfy the other criteria as well as those commonly used in the market. This does not mandate that all formats be included but that it accommodates the significant types embraced by users and others upon whose acceptance such systems depend for legitimacy. At the same time, there must be enough observations in each category to make them significant. This is particularly important in the case of new categories with sparse initial data but which may evolve into a distinct class of centers.

- **Unambiguous**. A classification system for sub-property types must avoid uncertainty. That is, the determination of whether a particular property fits in one category or another must be clear and unambiguous. In this context clarity refers to the fact that the classification should not be subjective and subject to varying interpretations. However, it should also be recognized that in many cases the lines determining the assignment of an individual project to one category over another may involve some judgment, depending on how the various components are packaged. The important criterion is that the assignments must be applied in a consistent manner.

Product Stratification

General Classification

The real estate market is comprised of a diverse array of products ranging from traditional single-family houses to complex infrastructure projects. The private real estate market can be grouped into two broad categories: 1) residential properties which typically refer to detached single-family homes, and 2) commercial properties which include multifamily rental and other income-producing properties. From an institutional perspective the market can be subdivided into two major classes: traditional core real estate, and nontraditional non-core real estate. The traditional property type category consists of five major food groups: retail, office, industrial, apartment and hotel. The nontraditional category contains a much broader array of property types including natural resource-based timber and agricultural, specialized, mixed-use and infrastructure projects.

Traditional vs. Nontraditional Property Types

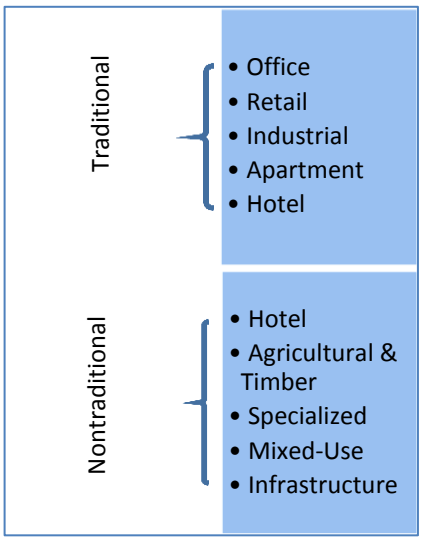
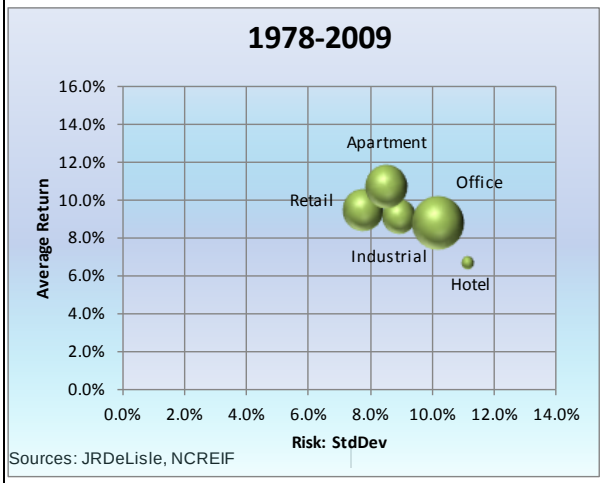
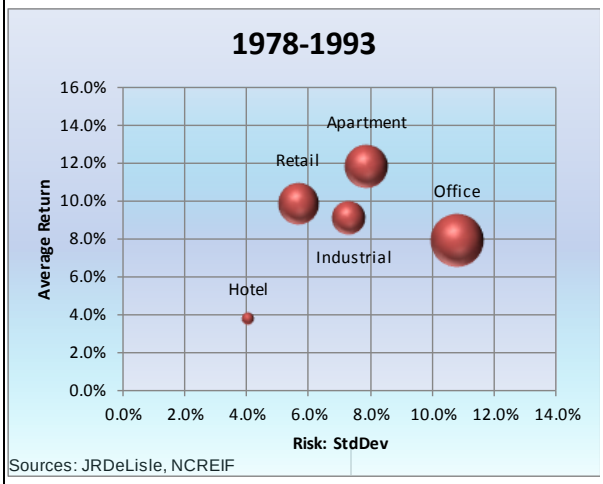


Exhibit 8- 8

Commentary 8- 1

Property Type Risk/Return Positioning





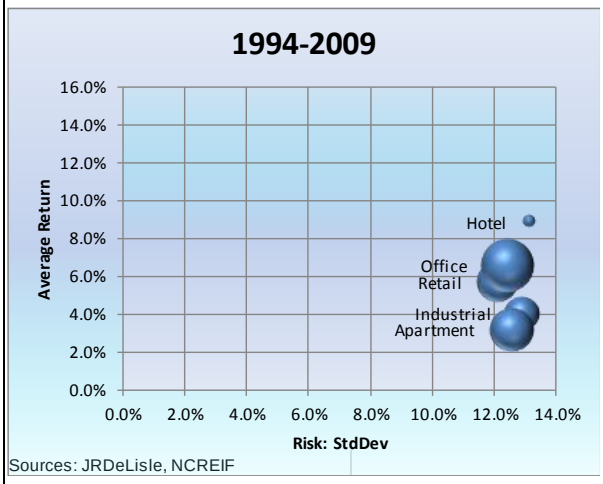


Exhibit 8- 9

In the competitive real estate market, the interaction between supply and demand has a significant impact investment performance. Thus, some insights into property type differences can be gleaned by comparing investment performance over time. As noted in the top graph in Exhibit 8-9 over the long term, there are some significant differences in the average NCREIF return to risk ratio between 1978 and year end 2009.[1] These differences were even more pronounced over the first 15 years of the NCREIF index, with office investments providing the highest risk and apartment investments the highest return. Over the next 15 years, the real estate industry was characterized by a wave of commoditization in which investors paid less attention to spatial fundamentals of supply and demand and focused on real estate as fungible or commodity assets (see: panel 3, Exhibit 8-9). This disconnect was one of the major factors behind the collapse of the commercial real estate market which began in 2008 and continues to hang over the asset class.

Risk/Return Values

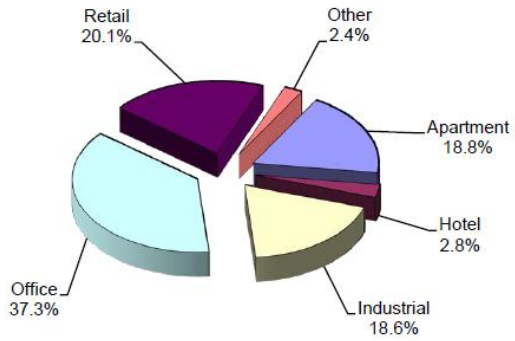
	1978-09		1978-93		1994-09	
Type	Average	Std Dev	Average	Std Dev	Average	Std Dev
Retail	9.5%	7.8%	9.8%	5.6%	12.1%	5.7%
Industrial	9.2%	8.9%	9.1%	7.3%	12.8%	4.1%
Apartment	10.7%	8.5%	11.8%	7.8%	12.5%	3.2%
Office	8.8%	10.2%	7.9%	10.7%	12.4%	6.6%
Hotel	6.8%	11.1%	3.8%	4.0%	13.1%	8.9%

Exhibit 8- 10

Unfortunately, there is no industry standard for classifying property and sub-property types. This makes it difficult to unambiguously monitor supply and demand conditions. Thus, it is necessary to understand how classification systems differ so adjustments can be made to rationalize them data.

[1] ___, Property Index Real Estate Performance Report, NCREIF, Second Quarter 2010; for more, see www.ncreif.org

NCREIF ODCE by Property Type



The property type market share of institutional holding is presented in Exhibit 8-11. As noted, the office sector has the highest concentration of assets at slightly less than 40%, while retail, apartment and industrial each contribute slightly less than 20% of the total. The balance is made up of "hotel" and "other" which are non-traditional property types.

Exhibit 8- 11

The National Association of Real Estate Investment Trusts (NAREIT) tracks real estate investment activity and performance for the public side of the real estate industry.[2] As noted, the property type allocations on the public side of the market differ from those on the private side on a number of fronts. First, office and retail market shares are almost completely reversed, with retail making up 33% of NAREIT and compared to 18% for office properties. The public side has a slightly higher allocation to apartments, while industrial is lower.

NAREIT Traditional Property Type Share

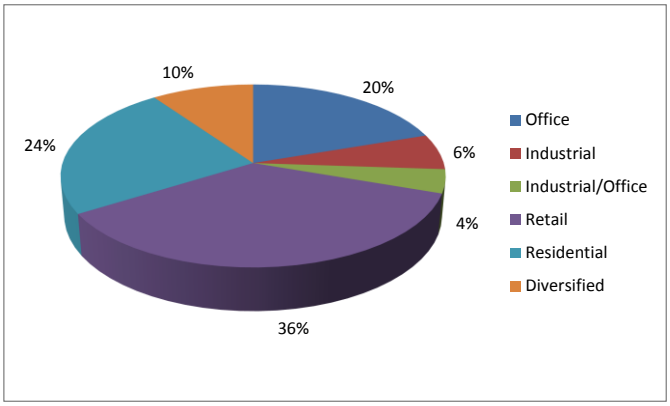


Exhibit 8- 12

NAREIT Traditional & Nontraditional Property Types

Type	Share	Number	Equity Market Cap	Trad/Non Share
Traditional				
Office	18%	15	$ 38,771,794	
Industrial	6%	8	$ 12,271,383	
Industrial/Office	4%	6	$ 8,198,356	
Retail	33%	26	$ 70,307,004	
Residential	22%	16	$ 46,974,973	
Lodging/Resorts	22%	11	$ 16,953,836	
Diversified	9%	7	$ 19,228,554	
Total Traditional	100%	89	$ 212,705,900	73%
Nontraditional				
Health Care	50%	12	38,459,195	
Self Storage	26%	4	19,782,500	
Specialty	25%	6	19,266,819	
Total Nontraditional	100%	129	77,508,514	27%
Grand Total			290,214,414	100%

Sources: JRDeLisle.com, NAREIT

Exhibit 8- 13

It should be noted that the office and industrial shares are under-reported in NAREIT since some holdings are in hybrid office/industrial REITS and others are in diversified REITs. Similarly, while NCREIF has slightly over 2% in "other" property types, the category comprises 27% of the NAREIT property type holdings.

[2] For more detailed information about REITs, go to www.nareit.org

NCREIF Property and Sub-property Classes

One example of property type and sub-property type classification that is widely tracked is the system adopted by the National Council of Real Estate Investment Fiduciaries (NCREIF).[3] As noted, NCREIF breaks four of the property types down into sub-property types. Where sufficient data are available, NCREIF produces sub-property type performance indices indicating income returns and capital returns. It should be noted the sub-property types differ from some of the categories presented later in this chapter. However, the NCREIF returns will be reported to provide insights into relative investment performance levels associated with differences in drivers of value and market activity.

Property Type	Property Sub-Type		
Retail	Community	Regional	Outlet
	Power	Fashion/Specialty	Single Tenant
	Super Regional	Theme/Festival	Neighborhood
Industrial	R & D	Flex	Office
			Showroom
	Warehouse	Manufacturing	
Apartment	Garden	High Rise	Low Rise
	Congregate Care		
Office	CBD	Suburban	
Hotel	None		

Exhibit 8- 14

NAREIT Property and Sub-property Classes

Industrial/Office	Industrial Office Mixed
Retail	Shopping Centers Regional Malls Free Standing
Residential	Apartments Manufactured Homes
Diversified	
Lodging/Resorts	
Other	Health Care Self Storage Specialty

Exhibit 8- 15

As noted in Exhibit 8-14, the NAREIT classification system differs significantly from the NCREIF system. Part of these differences can be attributable to differences in the level of classification with NCREIF operating at a property level and NAREIT at an entity level. Thus, it might appear that there is not as much diversity in sub-property type holdings in the public sector as in the private sector. Indeed, the greater proportion held in the "other" category combined by an analysis of individual REITs suggests there is at least as much if not more diversity in holdings.

However, the differences in classification as well as in investment performance punctuate the importance of paying attention to property and sub-property fundamentals. This is necessary to allow one to understand differences in the underlying drivers of value that affect relative performance as well as spatial requirements of various segments.

Traditional Property Type Examples

Exhibit 8- 16

[3] For more details, go to www.ncreif.org

Market Segmentation

General Classification

The general classification of space users can be subdivided into two major categories: individuals or households who consume goods and services; and, companies or entities that produce goods and services. Individuals and households are typically classified into segments based on a variety of factors ranging from demographics to psychographics. On the other hand companies can be classified into segments on the basis of the industry sectors in which they operate. The two major categories come together when looking at occupations which are defined as clusters of jobs that are segmented on the basis of similarity of functions they perform. Resultant occupational groups can work across industries and can be comprised of various segments of individuals and households.

Industry Typology

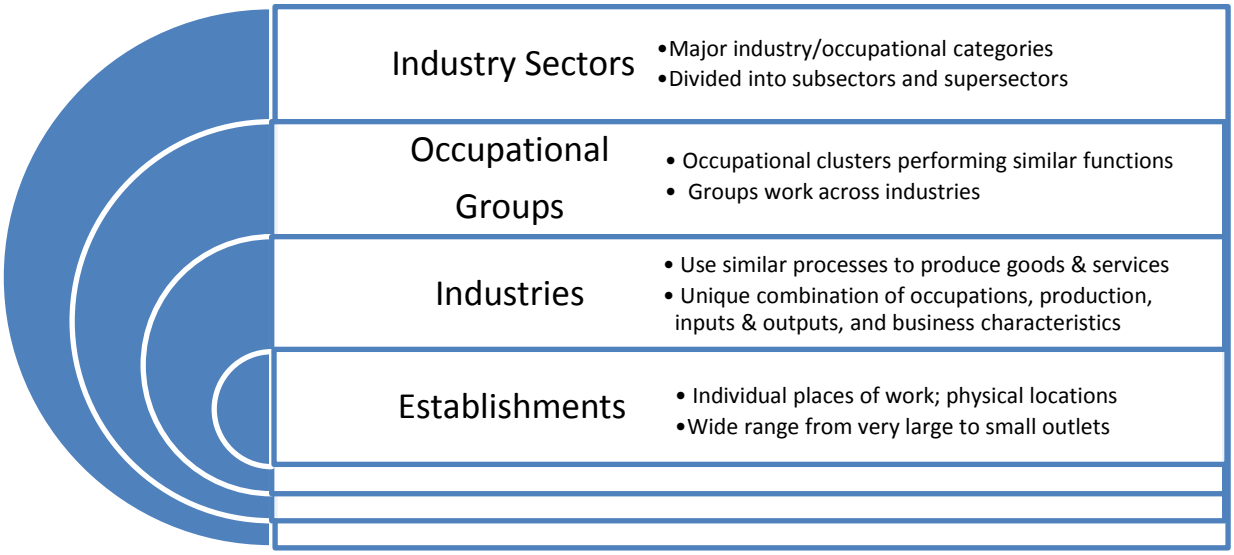


Exhibit 8- 17

Hierarchy of Industries, Occupations and Establishments

The Bureau of Labor Statistics defines industries by the processes used to produce goods and services. Given the diversity of products and services produced in the United States there is a large number of distinct industries. Each of these industries is comprised of a number of occupations, production methods, business characteristics, and inputs and outputs.[4] Industries are organized into industry groups which are then subdivided into industry subsectors and industry sectors. In analyzing labor market conditions, the BLS aggregates industry sectors and industry supersectors. An establishment is the physical location at which people work at which a company conducts business. Since companies perform a variety of functions, individual establishments they operate could be classified into a number of industries, sectors or supersectors.

[4] For more detailed information on industries and occupations see: http://www.bls.gov/oco/cg/indchar.htm

Employment Composition by Establishment Size

Establishments		Employment Share
Establishments by Number of Employees	Share	
1 to 4	61.6%	6.9%
5 to 9	15.9%	8.3%
10 to 19	10.6%	11.3%
20 to 49	7.4%	17.4%
50 to 99	2.5%	13.5%
100 to 249	1.4%	16.7%
250 to 499	0.3%	9.3%
500 to 999	0.1%	6.5%
1,000 or more	0.1%	10.2%
Total	100%	100%

Exhibit 8- 18

Exhibit 8-18 presents a breakdown of the share of establishments by number of employees as well as by the employment share within those size categories.[5] As noted some 62% of establishments in the US have under five employees in almost 88% of establishments have less than 20 employees. The statistics point out the importance of small business the overall economy. Despite the dominance of smaller establishments the bulk of employees work for companies over 20 employees which consists of some 75% of total employment. While accounting for less than 1% of total number of establishments, large companies (i.e., over 250 employees) employed some 25% of wage and salary workers.

In 2008 there were some 151 million jobs in United States including some 11.5 million self-employed workers and 140 million wage and salary workers. Employment growth is expected to increase by some 10% by 2018 increasing the number of employees to over 166 million.

Employment and Forecast by Occupational Group

Exhibit 8–19 presents the number and share of employees by occupational group. As noted in the professional and related category comprises the largest occupational group followed by service, office and industry support, sales and related, and management, business and financial. In terms of prospects for growth the professional and related category is projected to outpace other occupational groups followed by service, construction and extraction, and management, business and financial. This will result in a modest shift in the share of employment with a decline in production forecasted to continue in light of global competition and trade.

Occupational group	Employment 2008		Change 2008-2018
	Number	Share	
Professional & related	31,054	21%	17%
Office & administrative support	24,101	16%	8%
Sales & related	15,903	11%	6%
Management, business & financial	15,747	10%	11%
Production occupations	10,083	7%	-4%
Service occupations	29,576	20%	14%
Transportation & material moving	9,826	7%	4%
Construction & extraction	7,810	5%	13%
Installation, maintenance & repair	5,798	4%	8%
Farming, fishing & forestry	1,035	1%	-1%
Total: All Occupations	150,933		10.10%

Exhibit 8- 19

[5] Data were extracted from BLS; for details ee: http://www.bls.gov/oco/oco2003.htm

Industry Supersectors[6]

Natural Resources, Construction & Utilities

- Agriculture, forestry & fishing
- Construction; mining; utilities industries

Manufacturing

- Aerospace products and parts; Machinery; steal products; motor vehicle manufacturing industries
- Chemical; pharmaceutical; medicine manufacturing industries
- Computer & electronics manufacturing industries
- Textile, textile products & apparel; Food; printing manufacturing

Trade

- Auto dealers
- Clothing, accessory, general merchandise
- Grocery trade; wholesale trade

Transportation & Warehousing

- Air transportation
- Truck transportation & warehousing

Information

- Broadcasting; motion picture and video industries
- Publishing; software publishing
- Telecommunications

Financial Activities

- Banking; insurance industries
- Securities, commodities and other investmens

Professional and Business Services

- Advertinsing & public relations; employment
- Computer systems design and services
- Management, scientific & technical consulting; scientific research

Education, Health & Social Services

- Child day care; social assistance
- Education; healthcare

Leisure and Hospitality

- Arts, entertainment & recreation
- Food services and drinking places; hotels & other accomodations

Government and Advocacy, Grantmaking & Civic Organizations

- Advocacy, grantmaking and civif organizations
- Federal; state and local government; except education & healthcare

Exhibit 8- 20

[6] Extracted from BLS; the use of a semi-colon indicates industry sectors have been combined for layout.

… due to the wide array of production methods, business models, and production processes analysis of demand for specific types of real estate quantified on both the space-time and money time side of the spectrum requires more in-depth analysis is supported by analysis of broad industry trends.

The breakdown of industry supersectors provides some insights into how the BLS classifies industries into various categories. As noted within these categories there are significant differences among industry sectors although the supersectors share some commonalities that make them useful for general segmentation analysis. As might be expected, companies operating within specific industries and industry subsectors and supersectors have some common spatial requirements. However due to the wide array of production methods, business models, and production processes analysis of demand for specific types of real estate quantified on both the space-time and money time side of the spectrum requires more in-depth analysis is supported by analysis of broad industry trends.

While the federal government publishes a number of data serious regarding current employment composition by occupation and forecast is often difficult to sift and winnow to the various data sources to get an accurate picture projected demand for real estate. Part of the challenge relates to inconsistencies in the compilation, analysis, and interpretation of data from various governmental and private parties. To help clarify the situation the government is adopted a Standard Occupational Classification (SOC) system for federal occupational data. As noted in Exhibit 8-21 the SOC uses the hierarchical coding system to group occupations. The code starts with the major group a two digit number, which is followed by minor group that provides more insight into the actual occupation, the next the ditches provide insights into the broad classification and the final digit suggest the detailed occupation. It option of the SOC by the Department of Labor, the Center for Education Statistics, the Department of Defense, National Science Foundation (NSF), and the Census Bureau provide some consistency across government agencies that make it easier to reconcile the occupational requirements in general, as well as implications for real estate demand in particular. The first SOC was developed in 1977 has undergone a number of major revisions. The latest code revisions were in 2010 to provide additional clarity into the structure presented in 2000 as well as to account for changes in the nature of work and technological advances that have affected occupational outlooks. Going forward the SOC will be updated periodically to respond to rapid changes in the workforce in industries that will ultimately translate to changes in real estate demand.

Standard Occupational Classification (SOC)[7]

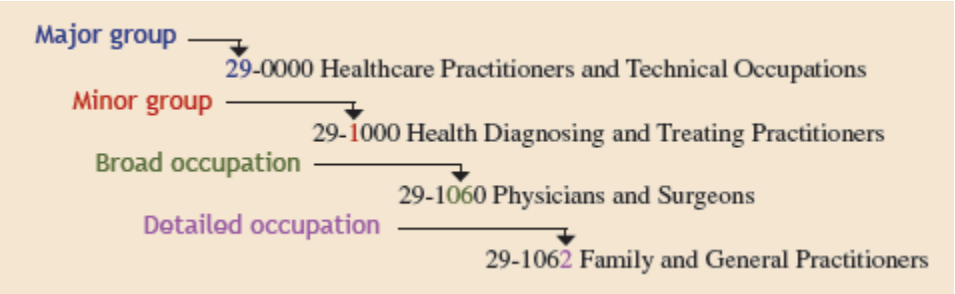


Exhibit 8- 21

[7] For an explanation of the Standard Occupational Classification system, see: http://www.bls.gov/opub/ooq/2010/summer/art02.pdf

Occupational Outlook

Employment Growth by Industry[8]

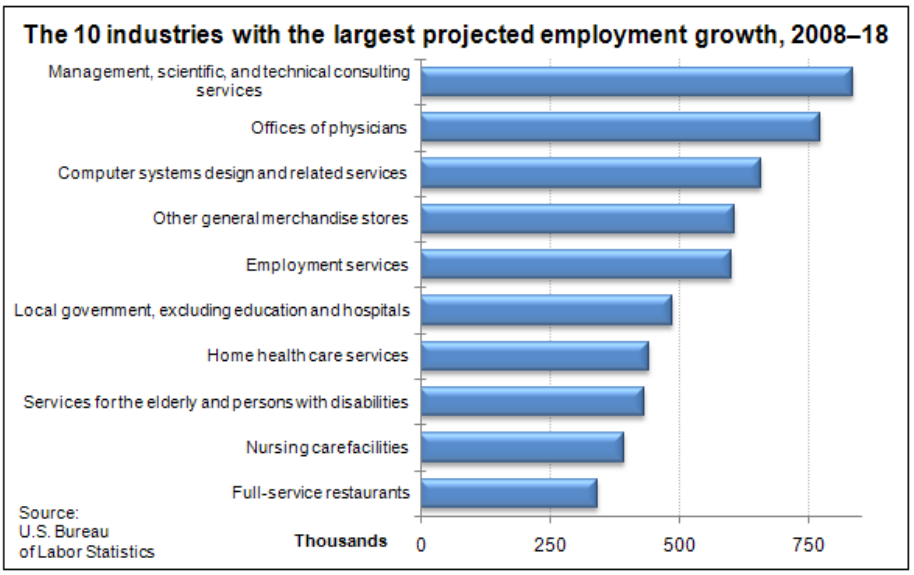


Exhibit 8- 22

The demand for space is highly correlated with the economy which drives employment. Exhibit 8-22 indicates the top 10 industries in terms of total employment growth. As noted, the top three industries are in the professional and business services categories: management, scientific, and technical consulting; computer systems design; and employment services. Going forward, these three industry groups are expected to add over 2 million jobs, many of which will be housed in office space, both general purpose and specialized space.

New vs. Replacement Jobs

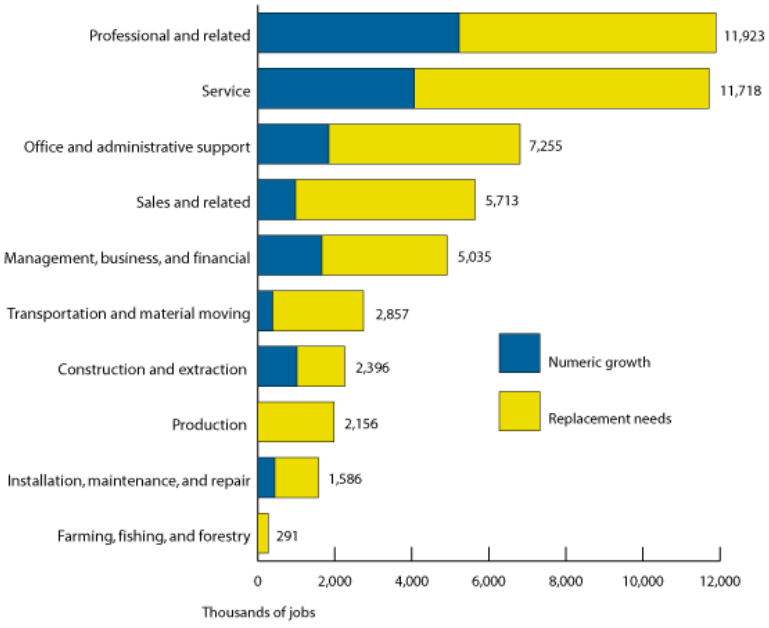


Exhibit 8- 23

In addition to understanding the demand for real estate related to job growth is important to understand the difference between net new jobs and replacement jobs. As noted in exhibit 8-23 the professional and related occupations and the service occupations are projected to have the greatest number of job openings over the next 10 years. However in quantifying demand it's important to know that the majority of job openings will be replacement jobs not new jobs requiring additional space. These forecasts are based on models that look at attrition rates as well as the age of the current workforce.[9]

[8] For more detail, see: http://bls.gov/opub/ted/2009/ted_20091217.htm
[9] For discussion of the underlying calculations, see: http://www.bls.gov/emp/ep_replacements.htm

Office Market

Office Market Snapshot

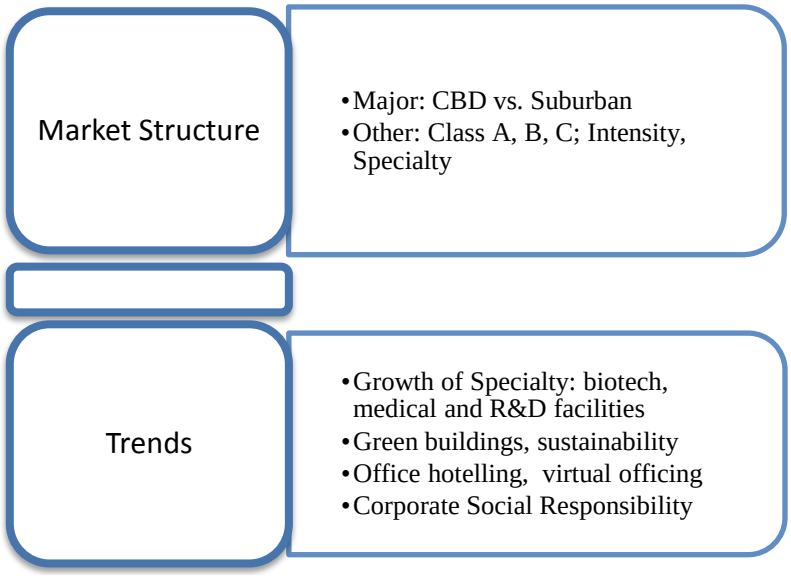


Exhibit 8- 24

Office Market Snapshot

Overview

The office market can be stratified into a number categories based on such attributes as location (i.e., CBD, suburban), quality (i.e., Class A, Class B), and intensity (i.e., high rise, low rise). Within each of these categories office buildings are quite different ranging from generic buildings to highly specialized medical or bio-tech buildings. Even though generic office buildings are fungible they can look quite different based on design, scale, façade or other building attributes. Within buildings, individual spaces within a building can be further differentiated by layout, finish and tenant improvements.

The demand for offices comes from a number of sources ranging from companies in industries that are almost completely comprised of white collar employees (e.g., finance, insurance and real estate) to companies in manufacturing or distribution who have some office employees. Many office users have similar spatial requirements and can be accommodated by a number of facilities. However, some targeted users and uses have very specialized needs. Fortunately, rather than being unique, most specialized users can be assigned to market segments along with other users with similar spatial needs. The ability to segment markets is important as it allows developers to create "customized spatial solutions" while still benefiting from some economies of scale in terms of standards for design, amenities, mechanicals and other building attributes. This allows space producers to "build a better mousetrap" and reduce risk of rental loss through improved tenant satisfaction. At the same time it provides insights into the future demand for specialized buildings that will affect the potential sales price. If a building is truly unique, then the added costs of differentiating it as well as the cost of re-purposing it in the future can be built into the rent to increase the rate of return over the holding period. This higher yield requirement is one reason that many companies choose to own specialized space and rent more generic space.

… the "best practices" for office development targeted to specialized users takes on a much more important dimension, requiring a greater understanding of the idiosyncratic needs of targeted tenants as well as the ability to create products that meet those needs.

Institutional Office Investment

Office Market Value and Market Share

Value		Number		Average Value
Market Value	Share	Number	Share	Value
$ 82,034,200,709	35%	1,403	23%	$ 58,470,564

Exhibit 8- 25

As of mid-2010, offices were the most dominant property type in the NCREIF Index. At that point, offices accounted for $82 billion in investments which was 35% of the total value of the NCREIF Index. In terms of number of investments, the 1,403 properties accounted for 23% with an average of some $58.5 million which put it ahead of all property types on all counts.

NAREIT Office Market Cap and Market Share

NAREIT Classification	Number of REITs		NAREIT Imputed Office Market Cap ($ 000s)				
	Number	Share	Total Market Cap *	Office Share **	Imputed Market Cap	Share of Total NAREIT	Average Market Cap
Office	15	14%	$ 38,771,794	100%	$ 38,771,794	13%	$ 2,584,786
Industrial/Office	6	5%	$ 8,198,356	50%	$ 4,099,178	1%	$ 1,366,393
Health Care	12	11%	$ 38,459,195	100%	$ 38,459,195	13%	$ 3,204,933
Diversified	7	6%	$ 19,228,554	35%	$ 6,729,994	2%	$ 2,746,936
Total	40	36%	$ 104,657,899		$ 88,060,161	30%	$ 2,616,447

* As of 8/31/2010 ** Assumed

Exhibit 8- 26

On the public side of the institutional market the analysis of the office market is complicated by the absence of a property level reporting system comparable to NCREIF. As noted in Exhibit 8 – 19, office investments held by REITs span four categories: office, industrial/office, healthcare and diversified. Since values are not reported on individual property basis it was assumed that 50% of the industrial/office category and 35% of diversified category were office investments. In the healthcare category it was assumed that all the investments were in office or office like properties including R&D facilities. The imputed market of office REITs was $88 billion which translated to a 30% share of the REIT universe. The average size of the 40 REITs in this aggregated category was $2.6 billion with healthcare REITs having the largest averages over $3.2 billion.

Office Driver of Value

The demand for offices is driven by two major categories of space users. The first category is the office-dominated "Finance, Insurance and Real Estate" (FIRE) type jobs. The second category consists of other industries that have office-related needs. That is, although manufacturing companies are primarily industrial space users, a significant proportion of jobs needed to maintain operations are office-related. Indeed, office employment is around 20% of total jobs in many light-moderate manufacturing operations. Thus, to estimate total demand, an "office occupational" grid should be overlaid against total employment by type of business. Similarly, a number of emerging industries are high consumers of office space, especially the burgeoning medical and biotechnical sectors. On the supply side the concentration of office usage becomes a major driver for the sector with companies migrating toward peer institutions. The growth in stock will be a function of the demand for space by market and submarket as well as the demand for assets which fuels new construction. The relative ease or difficulty in receiving entitlements for new projects will also be a major determinant of the growth of stock. The investment performance of office

buildings is affected by a number of factors including the quality of the building, the competitive market conditions in which it operates, and the quality of the rent roll. In the case of single tenant buildings, the emphasis is on the credit-worthiness of the tenant and their ability to generate sufficient revenue to cover expenses. In the case of multi-tenant buildings, the emphasis shifts to the mixture of tenants, as well as the timing of lease expirations. The money-time elements of office properties are relatively straightforward, with most tenants paying a base rent along which may or may not include a proportion of operating expenses depending on the nature of the lease. However, the "time" element can be complicated by options to extend, sublet, or expand or contract space without terminating an existing lease.

Office Drivers of Value

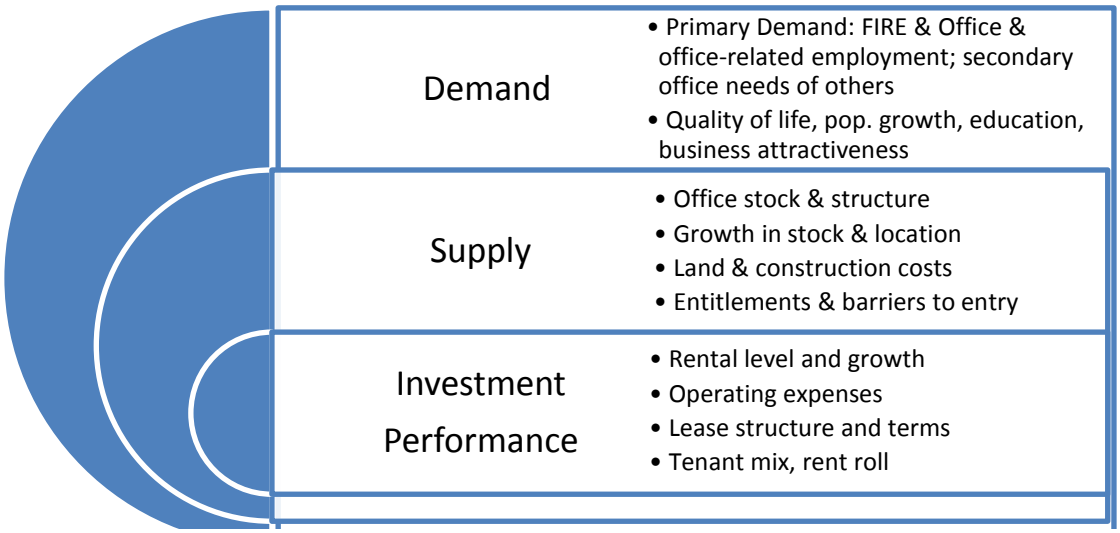
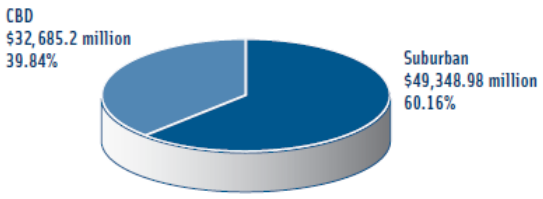


Exhibit 8- 27

Office Market Structure

The NCREIF office portfolio is dominated by suburban properties which comprise 60% of the total market value of investments as of mid-2010. Due to smaller average values of investments, this dominance is even more pronounced with accounting for some 85% of the number of office investments.

Private Office Market Share by Type



Office Properties	1,403
CBD Properties	212
Suburban Properties	1,191
Total Market Value	$82,034.2M

Exhibit 8- 28

CBD/Suburban Office Submarkets

CBD/Suburban Office Locations

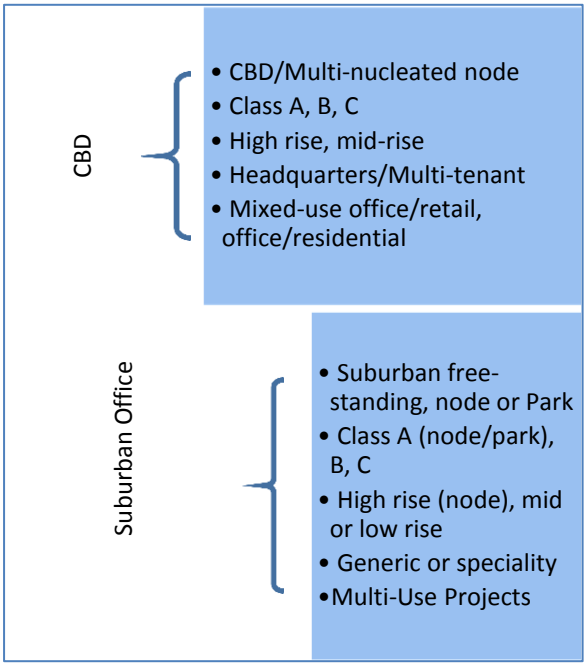


Exhibit 8- 29

The traditional classification of office properties focuses on CBD versus suburban locations. While useful this grouping into two major categories is an oversimplification of the structure of the office market. In reality, many metropolitan areas are multi-nucleated with more than one CBD-like center.[10] The symbiotic relationship between the Seattle proper on the West side and Bellevue on the Eastside provides an example of such a market structure. In effect each of the nodes has CBD like characteristics in terms of massing, scale, and tendency although each has some distinguishing attributes. The two markets can function in a complementary manner or a competitive manner with users migrating to the node that best serves their needs.

The structure of the suburban office market can be broken down into a number of categories ranging from ones located in isolated freestanding locations to those situated in office parks, office campuses, and R&D parks. To a certain extent these larger scale developments can create a symbiotic relationship with a mixture of uses creating a more self-contained node.

Office Market by Location

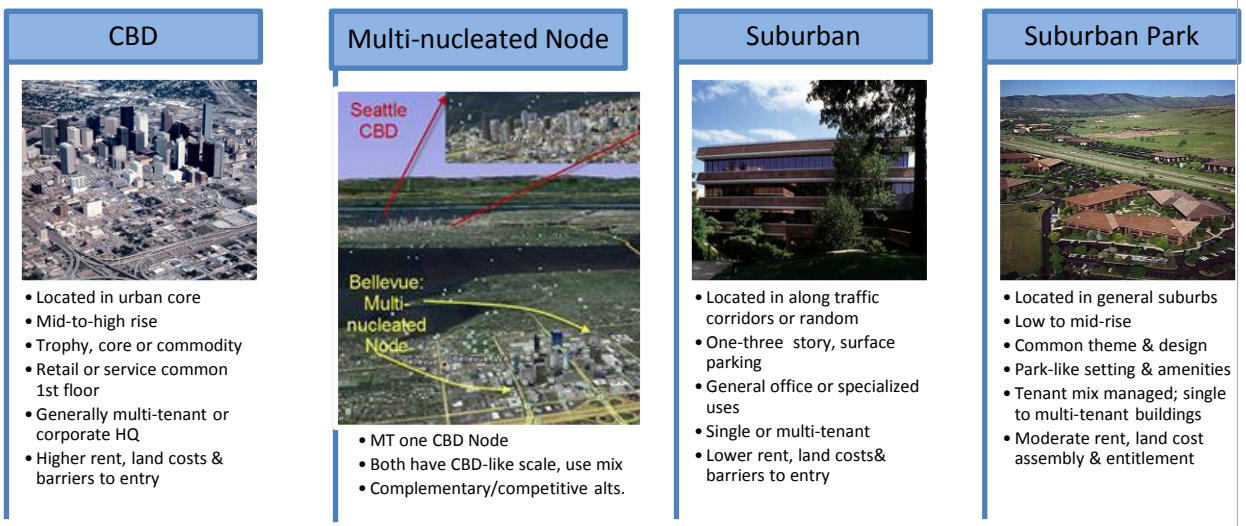


Exhibit 8- 30

[10] This is based on multi-nuclei Structural Theory developed by Harris-Ullman; see: Chapter 3 for more details.

Office Markets by Class and Intensity

In analyzing the structure and supply/demand balance of an office market is important to note that during down cycles Class B and Class C tenants tend to move up to Class A space. Such behavior can distort market statistics and create a false sense of recovery at the top end of the market…

Individual office properties are often referred to by the class of property to which they belong. These distinctions are somewhat subjective and can change over time. However, they do help explain the structure of the market. As noted in Exhibit 8 – 24 the criteria for distinguishing office buildings by class include rent, the nature of tenancy, the quality of construction, the condition of the properties, and the level of amenities. In general class A properties are the top 10% or so of the market and appeal to a higher end AAA tenants willing and able to pay for higher quality condition and amenities. Class B properties are above average in terms of rent and are generally occupied by stable tenants drawn by the combination of good quality and maintenance along with essential amenities. Class C properties command below average rents which attract a variety of tenants seeking functional space and a good price rather than higher-quality space. In analyzing the structure and supply/demand balance of an office market is important to note that during down cycles Class B and Class C tenants tend to move up to Class A space. Such behavior can distort market statistics and create a false sense of recovery at the top end of the market which will lose ground when markets recover and tenants return to more affordable space.

Office Market Structure by Class

Exhibit 8- 31

In addition to attributes related to location and class, office markets are often categorized on the basis of the intensity of development. While there are no strict cutoffs for building height high-rise properties are typically over 25 stories and are located in primary urban centers and in some cases in suburban nodes. Due to higher land and construction costs new high-rise properties tend to require higher rent and as such are typically built at the upper end of the market. Class B and class C space is created when successional forces to newer construction pushes them down the food chain in terms of competitive offerings. In general, high-rise developments face a number of barriers to entry that provides some insulation from oversaturation. However in periods of excess capital flows, this insulation can be quickly blown away. High-rise office buildings are typically multitenant facilities or may service corporate

headquarters. In many cases ground-floor uses consist of retail or business services which can connect the building to the street and provide complimentary goods and services. Mid-Rise properties span a fairly wide spectrum ranging from some 6 to 24 stories. They are commonly located in more mature areas of urban locations or in suburban nodes. As with high-rise properties they may serve as a single-tenant operating as a corporate headquarters although in most cases they are multitenant facilities. Low Rise projects are 1 to 5 stories are typically located outside of urban cores with the exception of older buildings that have not been redeveloped or are located in declining areas. These projects are typically commodity buildings and appeal to a variety of office tenants.

Market Stratification by Intensity of Project

High Rise	Mid-Rise	Low Rise
		
•Over 25 stories; underground pkg •Typically in urban core •Higher cost land, buildngs & rents •Often mixed retail/service 1st floor	•6-24 stories, underground pkg. •Some urban older; most suburban or node •Moderate land cost in suburbs •May be free-standing or in office or mixed use park •Some landscaping & open space •Multiple or single tenant •Moderate-higher rents	•1-5 stories, surface parking •Mostly suburban, park or freestanding •Lower cost land & construction •Some landscaping, limited amenities •Generally commodity space •Single or multiple tenant •Lower-moderate rents

Exhibit 8- 32

Office Markets by Specialty

One of the more significant trends in the office sector over the past decade has been the growth in specialty office buildings including specialty medical, biotech/medical research, and medical office.

One of the more significant trends in the office sector over the past decade has been the growth in specialty office buildings including specialty medical, biotech/medical research, and medical office. The specialty medical buildings category covers facilities handling direct patient care ranging from acute care to ambulatory care. Some of the specialized building design and unique features that differentiate them from classical office buildings include higher ceilings and more advanced electrical and HVAC systems. As such they tend to require higher rents or are owner-occupied by a physician of group of physicians or other medical professionals. For example according to the physicians hospitals of America there are some 265 physician owned hospitals many of which are specialty.

Physician-Owned Hospital Facilities

The class of physician-owned hospitals and specialty medical facilities is likely to change as a result of the health reform law enacted in early 2010 that placed major limitations on physician ownership of hospitals.[11] Under the new regulations physician owned facilities that are not certified under Medicare by the end of the year will not be allowed the program. At the same time existing facilities will not be allowed to expand and remain in the program placing the brakes on what was once a growth industry. Due to strong demand for medical facilities the private sector and investors are expected to step into the gap although the higher risk of specialized facilities will require higher returns putting upward pressure on medical care costs.

Multispecialty	149
General acute care	54
Heart	18
Orthopedic	18
Rehabilitation	12
Long-term acute care	8
Emergency care	3
Heart and general acute	1
Multispecialty children's	1
Multispecialty women's	1
Total	265

Source: Physician Hospitals of America

Exhibit 8- 33

Specialty Offices[12]

Specialty Medical

- Suburban locations, convenience factor
- Acute or ambulatory care
- Specialty medical/dental
- Higher ceilings & electrical
- On-site, underground parking; ermergency
- Higher rents, single tenant

Biotech/Medical Research

- Located in medical or biotech hubs
- Specialized design, image-oriented
- High ceilings, finish & mechanicals
- High costs, expenses, rents
- Single tenant, ofen named

Medical Office

- Located in proximity to hospitals
- Low-to-midrise
- Ambulatory care, medical services
- Multi-tenant, physicians
- Primary care to specialized
- Common services, deck parking, high finish, costs

Exhibit 8- 34

Strong demand for medical services has also created a boom in medical office buildings that carried beyond the peaking of the traditional commercial office market in 2007. Medical office construction has spilled over into fast-growing suburbs and has followed the outmigration of hospitals and the growth in outpatient facilities. Indeed, medical office buildings are somewhat tethered to hospital facilities providing

[11] Chris Silva, Physician-owned hospitals: Endangered species?; for copy of article go to http://www.ama-assn.org/amednews/2010/06/28/gvsa0628.htm#s2

[12] For more on medical centers, see http://pacificmedicalcenters.org/index.php/where-we-are/beacon-hill/

convenience for physicians and patients alike. The demand for new medical office space is also been driven by advances in medical technology that require infrastructure not available in many existing office buildings.[13] The rapid growth in medical office buildings is a departure from the past when such facilities were typically in the hands of hospitals and limited pool of specialized developers. In some cases physicians are helping continue the development of new medical offices by taking positions as investors or forming partnerships with developers. New research coming out suggest that the design of medical office buildings and hospitals can enhance patient experiences and recovery times which is likely to lead to new wave of product differentiation and stratification.

Importance of Space to Medical Community

Another office growth niche that has received significant attention is the demand for biotech facilities and medical research centers. This demand has been especially strong in the top biotech markets in the US, although the demand has also been felt in secondary markets and markets with strong university, research and medical presence.

Exhibit 8- 35

Top High Tech Centers in US

Exhibit 8- 36

Exhibit 8-29 identifies the top-25 high tech markets in the US according to the Milken Institute.[14] While these markets will tend to support more biotech and research facilities there are no guarantees. However, shear demand is no sign of success as the spatial needs and risk profiles of potential target market segments will vary dramatically. Thus, the biotech niche remains specialized and many building solutions have customized design, features, infrastructure and amenity requirements.

[13] See: Cook, Bob, The Race for Space: A medical Office Building Boom, American Medical News at: http://search.ama-assn.org

[14] For a free download, go to http://www.milkeninstitute.org/publications/download.taf?pubtype=pdf&pubid=38801198&file=/pdf/NAHTweb.pdf and register

Touchstone's 9th and Stewart Life Sciences Building in Seattle

Developers of biotech facilities have to address a complex array of issues that are not encountered when developing more traditional office buildings or more standardized medical office buildings. For example such buildings often require rigid frames to minimize vibrations and the entire ceiling to floor requirements support piping and wiring and ductwork needed to support specialized HVAC equipment. Many biotech users are also high consumers of energy forcing a developer to put greater emphasis on wiring and electrical capacity. Depending on the nature of tenancy in business lines in which they engage there are myriad other requirements that must be met that and to the costs and risk profile of such facilities.[15]

Exhibit 8- 37

Office Market Demand Segmentation

Primary Office Space Users

As noted earlier, there are a number of classification systems that are important to the real estate industry including the Standard Occupational Classification (SOC) and the BLS's classification of companies into industry groupings and sectors. In addition to these systems, the Bureau of Labor Statistics (BLS) has developed a detailed business classification system entitled the North American Industry Classification System (NAICS) which defines industry supersectors, industry sectors, and industry level groups. The NAICS codes replace the outdated Standard Industrial Classification Codes (SIC) providing more breadth of coverage and depth of analysis. While individual companies may have specialized office needs, in many cases the level and nature of demand can be approximated by understanding the types of activities the various industries perform, the business models under which they operate, and emerging trends and competitive conditions affect that affect their outlook going forward.

In looking at the office market, there are two industry categories that directly affect demand: Finance and Insurance (NAICS 52); and, Professional and Business Services (NAICS) 54. The Finance and Insurance NAICs code 52 includes businesses primarily engaged in financial transactions involving the creation, liquidation, or transfer of ownership of financial assets. As such, three key types of activities are performed by the sector. First, they raise funds by taking deposits and/or issuing securities in exchange for taking on liabilities. In effect, they work as financial intermediaries, accepting risk as they match funds

[15] For a discussion of the challenges faced by Touchstone in developing its speculative bio-tech facility, see: http://www.naiop.org/developmentmag/specialsections/200502indexc.cfm

from lenders to borrowers. Second, pooling risk by underwriting insurance and annuities. Businesses in this sector provide a variety of services including collecting fees and insurance premiums, managing investments and making payments for a fee. Third, they provide specialized services facilitating or supporting financial intermediation, insurance, and employee benefit programs. In general, these activities are housed in traditional office space, although some are front-office with client/consumer contact while others are back office and/or outsourced to more remote locations.

Primary Office Space Users

Spotlight 1: Financial Activities[16]

Financial Activities[17]

- Finance and Insurance (NAICS 52)
  - Monetary Authorities - Central Bank (NAICS 521)
  - Credit Intermediation and Related Activities (NAICS 522)
  - Securities, Commodity Contracts, and Other Financial Investments and Related Activities (NAICS 523)
  - Insurance Carriers and Related Activities (NAICS 524)
  - Funds, Trusts, and Other Financial Vehicles (NAICS 525)

Spotlight 2: Professional and Business Services

Professional and Business Services

- Professional, Scientific, and Technical Services (NAICS 54)
- Management of Companies and Enterprises (NAICS 55)
- Administrative and Support and Waste Management and Remediation Services (NAICS 56)
  - Administrative and Support Services (NAICS 561)
  - Waste Management and Remediation Services (NAICS 562)

Exhibit 8- 38

The Professional, Scientific, and Technical Services NAICS code 54 is a component of the Professional Business Services along with Management of Companies and Enterprises (NAICS 55) and Administrative and Support Services and Waste Management and Remediation Services. Businesses in the professional sector specialize in performing professional, scientific, and technical activities for others. These activities require a high degree of expertise and training and often specialize in particular areas of expertise.. Activities they perform include providing legal advice and representation; accounting, bookkeeping, and payroll services; architectural, engineering, and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific, and technical services. The real estate needs of these types of office users differ dramatically ranging from generic space in convenient locations for client/customer interaction to specialized facilities necessary to support certain activities.

[16] For information on NAICS, see: http://www.census.gov/eos/www/naics/
[17] If reading this in electronic format these items are hyperlink to the BLS data sources for more information

Secondary Office Space Users

Ancillary and Specialized Office Demand

As on the supply side where the spatial side of the market can be stratified into distinct formats, the demand side emanating from non-traditional office users of space can be clustered into distinct market segments. For example manufacturing, warehousing in other sectors have significant demand for office space is ancillary to their primary business activity. In many cases these users can be satisfied with generic office space that is similar to the types of space are targeted to the traditional office users whose employees are primarily office workers. On the other hand there are a variety of segments of space users that have specialized office needs that can be aggregated into distinct market segments. Exhibit 8-37 provides a listing of some of the high-tech manufacturing and services industries that will account for significant growth in the specialty office sector. In order to address their special requirements it is important to pierce into underlying business models of activities that they perform. These market segments can be aggregated into distinct groups to provide for some economy of scale while in others they will have to be treated as unique in terms of real estate needs. In some cases, demand will be satisfied with traditional office space, while in others the demand will translate to more specialized space.

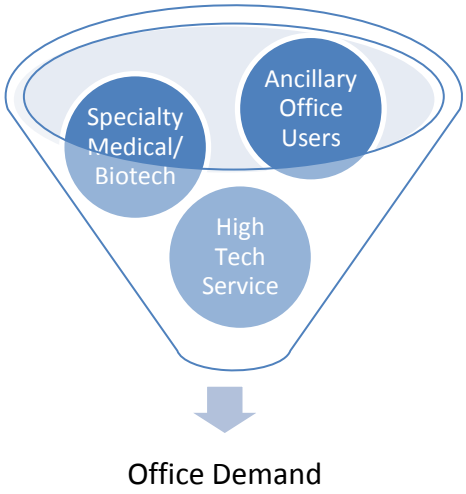


Exhibit 8- 39

Office Occupations as Share of Total

As of 2008, there were some 150,900 occupational workers in the US. Of that total, over 71,000 workers (47%) worked in office-type space. These occupations included: Management, Business & Finance; Office & Administration; and, Professional & Related. This suggests that on average, for every 1,000 new jobs created there is a demand to house 470 new office workers.

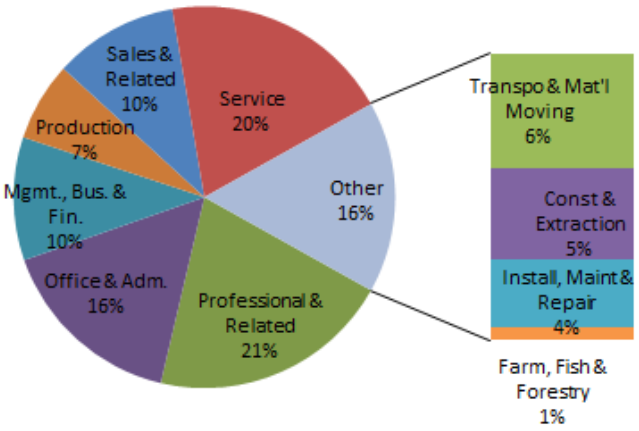


Exhibit 8- 40

Employment Growth by Occupational Group

Some trends in employment that affect office demand include:

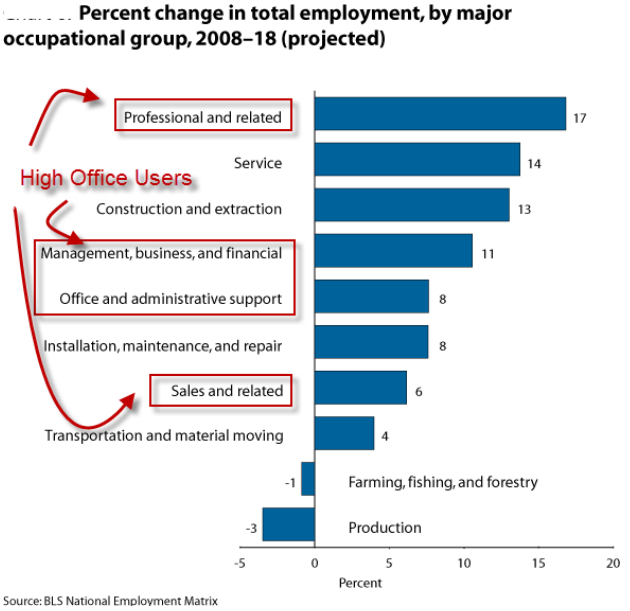


Exhibit 8- 41

- **Professional, Technical and Scientific Employment**. Employment in these categories will experience strong growth, especially jobs in healthcare and related industries. Healthcare and related jobs are forecast to account for over 25% of new jobs. The industry sector includes both public and private hospitals, nursing and residential care facilities, and individual and family services. Employment in the information industry is expected to continue to increase, especially the fast-growing computer-related industries (e.g., data-processing, Web and application hosting and streaming services, internet publishing, internet broadcasting and software publishing.
- **Service Employment**. The shift away from goods-producing in favor of service-providing jobs will continue in the US. However, growth among service-providing industries will vary by type of industry and market positioning.
- **Management of Companies and Enterprises.** Jobs in these categories are expected to grow rather slowly as companies focus on improving efficiency and the bottom line rather than growth. The finance and insurance industry is expected to increase led by securities, commodities, other financial investments and related activities in line with an increase in baby boomers in their peak savings years, tax-favored retirement plans, and continued globalization . Financial intermediaries are also expected to grow including credit institutions and banks although financial reform has yet to be factored into the numbers. The insurance and insurance-related industries are expected to grow as companies seek to serve the aging, risk averse segment of the populations.
- **Office and Administrative Support**. The office and support categories will experience strong growth, with a significant number of new employment opportunities. The demand will be highest for seasonal, temporary and for specialized human resource services.

Employment in the information industry is expected to continue to increase, especially the fast-growing computer-related industries (e.g., data-processing, Web and application hosting and streaming services, internet publishing, internet broadcasting and software publishing.

Location Quotients for Professional Service Jobs by Market

In addition to differences in intra-urban location and office design, different segments of office users will tend to have different interurban tendencies. In many industries, interurban locational decisions of firms are drawn to markets that have higher concentrations of the types of occupations and employees in a firm. Exhibit 8-42 presents the location quotients for professional service jobs by major metropolitan area.[18] As noted markets with high concentration of professional service jobs are scattered across the country ranging from national financial centers to regional centers. The type of spatial requirements of specific market segments will depend in part the role that they and the market in which they reside plays in the broader economy. For example, the high tech industry can be broken down into manufacturing and service providing industries. In both cases, companies will require office space, although the percent of such space and its locational and design requirements can be relatively unique.

Exhibit 8- 42

Selected High-tech Ancillary and Primary Office Users

High-tech manufacturing industries: NAICS and description

3254 Pharmaceutical and medicine manufacturing
3333 Commercial and service industry machinery manufacturing
3341 Computer and peripheral equipment manufacturing
3342 Communications equipment manufacturing
3343 Audio and video equipment manufacturing
3344 Semiconductor and other electronic component manufacturing
3345 Navigational/measuring/medical/control instruments manufacturing
3346 Manufacturing and reproducing magnetic and optical media
3364 Aerospace products and parts manufacturing
3391 Medical equipment and supplies manufacturing

High-tech services industries: NAICS and description

5112 Software publishers
5121 Motion picture and video industries
5171 Telecommunications
5181 Internet service providers, web search portals, and data processing services
5191 Other information services
5413 Architectural, engineering and related services
5415 Computer systems design and related services
5417 Scientific R&D services
6215 Medical and diagnostic laboratories

Exhibit 8- 43

[18] Location quotients indicate the ratio of employment in a certain job category relative to the expected level based on national data. Concept is discussed further in chapter 3.

Office Market Investment Performance

…in order to develop an understanding of the risk return prospects for a particular type of office property is important to understand the basic concept and the key drivers of value on the supply side as well as the nature of demand and consumption side.

The office property sector accounts for a significant portion of the private (i.e., NCREIF) and public (i.e., NAREIT) institutional real estate investment markets. This role the overall commercial market is much higher when considering corporate owned real estate as well as government and properties that do not show up in the commercial office market data. As might be expected the different classes of office properties is significantly different risk return profiles. Unfortunately detailed performance data are not provided on a property by property level which would allow aggregation into the distinct subtypes that have been profiled.[19] However the general categories of CBD suburban can be used as a benchmark that can be used to position the distinct office categories. In order to make such adjustments to extrapolate general data to more specific types it is important to understand the basic concept and the key drivers of value. Given this insight, one can assign premiums or discounts to observed performance of more general categories of office space for which data are available to reflect the relative risk of a particular type of office property. Since this performance will differ by ownership type it is useful to look at the private market performance as well as the public market performance over time.

Private Office Market Returns: CBD vs. Suburban

Private Market NCREIF CBD Office Returns

CBD Office Sector 4Q09 Market Snapshot

Value	Office %	Number	2009 Sales
$32,256	37%	216	$458

Indexed Total Returns

	10 Year	78-'09
Current from 100	214	1,566

Office CBD Total Returns					
Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	'78-'09
-1.7%	-11.5%	-19.1%	-1.3%	8.7%	10.0%
		Standard Deviation		13.7%	12.5%
		Return/Risk Ratio		0.64	0.80

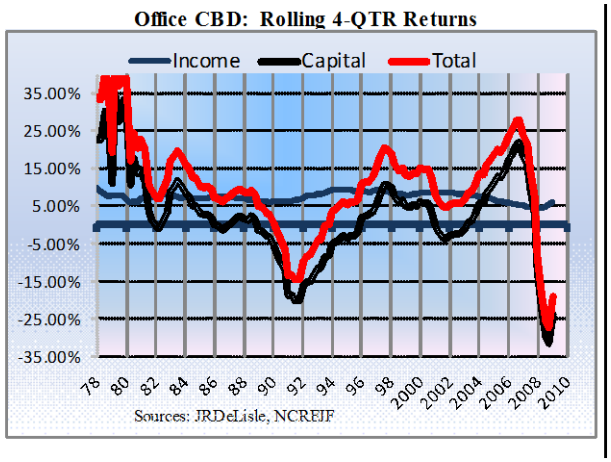


Exhibit 8- 44

Exhibit 8–48 presents the CBD office returns in a creep index from 1978 through mid-2010. As noted the initial data were off the charts total returns in the upper double-digits. During this phase pension funds were first moving into the real estate asset class creating a shortage of investable product that resulted in

[19] It should be noted that customized indices could be generated from CoStar ® data as well as proprietary data for properties controlled by larger-scale investors/owners. Such data mining would provide a competitive advantage and is another example of the inefficiency in the real estate market.

bidding up prices. This is reflected in the high appreciation rates relative to the more stable income or capitalization rate at which office properties traded. The total returns from inception average 10% with the moderately higher standard deviation. Over the past decade office returns have slipped while the rest were standard deviation has increased. Exhibit 8–39 presents the performance data for the suburban office properties in the NCREIF index. Interestingly suburban properties did not experience the run-up in prices during the early stages of the index as institutional investors remain focused on core and trophy CBD properties to build their real estate portfolios. From a theoretical perspective, due to lower barriers to entry the suburbs can be expected that suburban properties would underperform their CBD counterparts. This assumption is borne out by the lower returns in relatively higher standard deviation of suburban office properties over time.

Private Market NCREIF Suburban Office Returns

Office Sector 4Q09 Market Snapshot

Value	Office %	Number	2009 Sales
$54,363	63%	1,288	$1,591

Indexed Total Returns

	10 Year	78-'09
Current from 100	177	805

Office Suburban Total Returns					
Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	'78-'09
-3.4%	-7.8%	-19.4%	-2.6%	6.5%	7.7%
		Standard Deviation		12.3%	10.0%
		Return/Risk Ratio		0.53	0.77

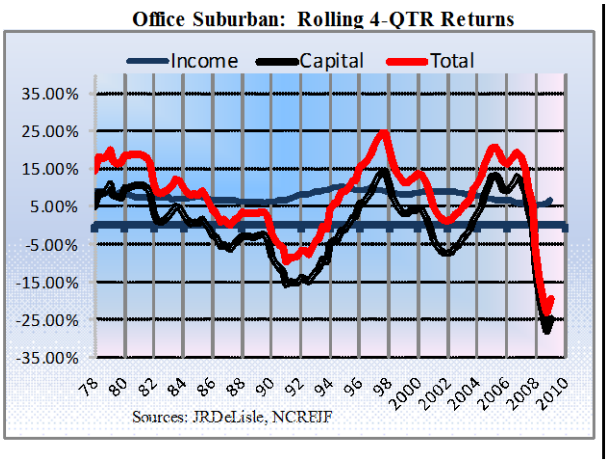
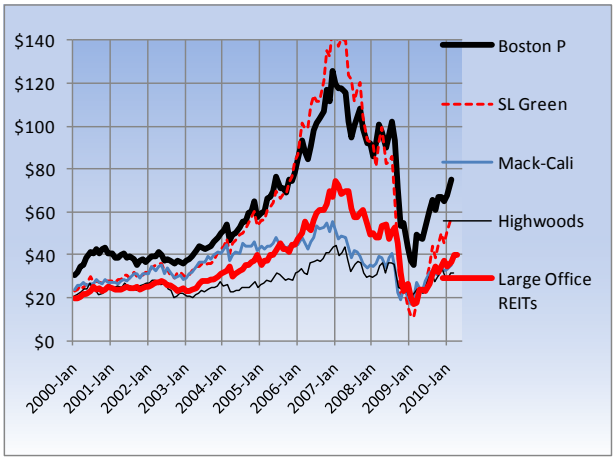


Exhibit 8- 45

Public Market NAREIT Office Performance

Large Office REITs



Medium-Size Office REITs

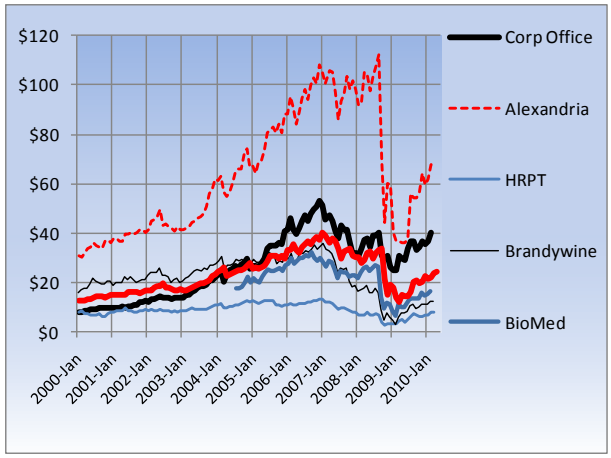


Exhibit 8- 46

On the public side of the market property specific data are not published making it difficult to track the performance of property types and subtypes. However a proxy for relative performance can be extracted

by observing the stock prices at which property specific office REITs traded over time. As noted in Exhibit 8–40 larger office REITs tended to outperform medium-size office REITs although there are exceptions. Interestingly although REITs are ultimately collateralized by the underlying real estate and should reflect market fundamentals there are significant differences in the performance measures between the private and public market. These differences may be due to actual performance differences in the underlying properties. However there also likely attributable to the difference in the efficiency of the two formats ownership.

Office Property Trends

There are number significant trends that affect the supply demand outlook for office properties going forward. These trends affect both the supply and demand side of the market and should be carefully monitored to help understand the relative risk profile of the office sector. Monitoring and anticipating emerging trends will also be critical to allow real estate professionals and space users develop proactive strategies for dealing with changing market conditions.

Future Trends Affecting the Office Market

Globalization
- Continued globalization expands the competitive arena
- Shifting among locations and greater elasticity in demand and supply adds risk

Consolidation
- Trend toward consolidation is continuing creating larger space users
- Increases in the scale of operations increases risk

Growth of demand for pecially office
- Demand for idiosyncratic space increases
- greater specialization requires more understanding of business activities of targeted users

Green/Sustaiinable buildings
- Concerns over environment render some buildings functionally obsolescent
- Added pressure to produce more efficient buildings

Corporate social responsibility
- Concerns over CSR pressures corporate users to focus on real estate
- Quality and character of office space will become more important

Virtual office andtechnological innovation
- Technological innovations will continue to change demand function
- Some changes will have impact on design and infrastructure requirements

Corporate Policies and Practices
- In the increasingly global, dynamic arena companies will place more emphasis on flexibility, mobility, collaboration and productivity
- Real estate solutions and the workplace will take on added importance in recruiting, retaining and motivating employees, especially "new milleneum" employees of the future

Exhibit 8- 47

Commentary on Sustainability: CSR and TBL

Corporate Social Responsibility (CSR)

Corporate Social Responsibility

Definition of CSR	•Explicit consideration of the interests of society •Take responsibility for the impact of their activities •Consider customers, shareholders, employees and society •Added sensitivity to impacts of all operations on environment
Scope of CSR	•Pervasive, covering all corporate activities •Voluntary obligation which goes beyond legal obligations •Involve activities take steps to improve the quality of life and place •Includes corporate real estate ownership, occupancy and utilization •Must be consistent with long-term shareholder value

Exhibit 8- 49

Real estate accounts for roughly one-third of corporate balance sheets. Despite its importance, few executives other than those working in real estate companies have any formal real estate education. This lack of attention to real estate is reinforced by analysts who tend to ignore real estate in evaluating corporate practices. In the past the exception to this approach was largely confined to mergers & acquisitions when pressure was on to lay off employees and reduce real estate holdings to harvest promised economies of scale. The recent interest in Corporate Social Responsibility CSR has focused attention on real estate practices. Indeed, due to its tangible and visible nature changes in corporate real estate practices can have an immediate impact on CSR. Although approaches to CSR may differ they have some commonalities in the fact that they include explicit consideration of the interests of society and allow a company to take responsibility for the externalities or secondary impacts of their decisions. CSR applies to both for-profit and nonprofit operations as well as for governmental and nongovernmental entities. The key difference between private and public entities in terms of CSR is the emphasis on shareholder value. On the other hand, using market-based solutions to satisfy the needs of customers and achieving their underlying value proposition is important for all entities regardless of the profit motivation. Once an entity has embraced the CSR the scope of implementation must be comprehensive and maintained over time.

Triple Bottom Line (TBL)

Over the past several years a number of companies have adopted some form of Triple Bottom Line (TBL) philosophies. While these initiatives may take a number of forms they all seek to balance concern for people, profit and planet. The TBL model was adopted by the UN in 2007 and has become a standard against which CSR programs are compared. In essence the TBL paradigm provides a framework by which companies can integrate economic, ecological and social responsibility in developing market-based solutions to business activities and real estate related decisions.

The Triple Bottom Line (TBL)

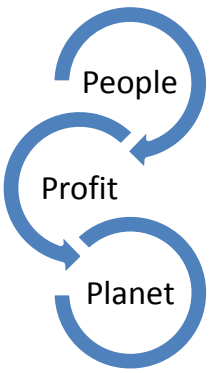


Exhibit 8- 48

Retail Properties

Retail Property Snapshot

Retail Market Snapshot

Overview

In general terms, a shopping center is a multi-tenant project that offers and assortment of goods and services that are matched to its trade area. Beyond that, the retail sector is extremely complicated and competitive, arguably offering the greatest intra-category diversity with property ranging from free-standing stores to mega-malls (e.g., Mall of America, Edmonton Mall). As such, the space-time continuum is extremely wide, with a range of sizes, configurations and locations.

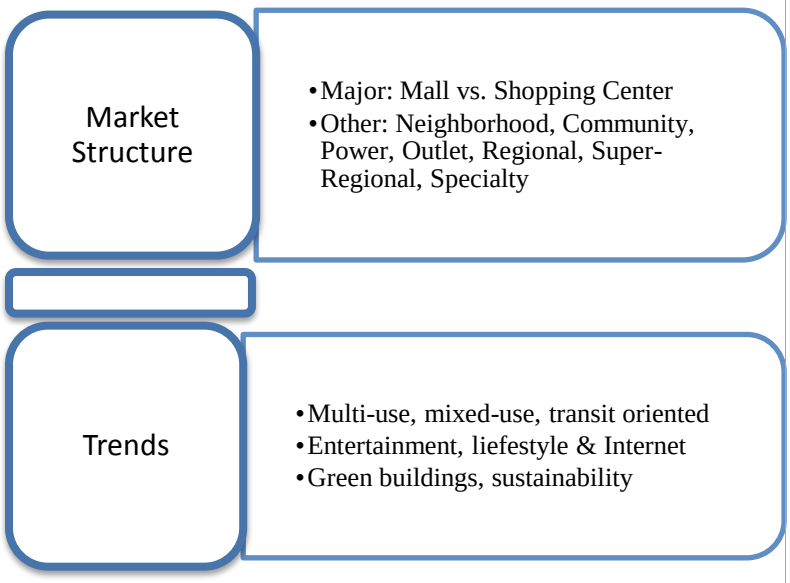


Exhibit 8- 50

The traditional regional mall has been under attack as a viable format for over two decades, but has survived by blending entertainment and other features to attract tenants.

The traditional regional mall has been under attack as a viable format for over two decades, but has survived by blending entertainment and other features to attract tenants. The tenants in malls are carefully orchestrated to ensure compatibility and appeal to trade areas. The money-time dimension includes traditional per square foot rents, but also percentage rents which align owners and tenants. Managing retail properties is akin to managing an enterprise, one that must be managed in a continuous, integrated manner to protect its market share and retain it shopper base. This outreach is achieved through the tenants, as well as the amenities and features offered by the center that help maintain its position and appeal to an ever-changing consumer and demographic mix.

Shopping centers have been evolving over the last 60 years. During that time a wide variety of shopping center types and formats with different configurations has emerged. The key concepts and value proposition offered by the various types of centers are dramatically different. Thus, In order to understand the structure of the industry is necessary to apply a basic topology or classification system. This task is complicated by the fact that there are not clear delineations that separate one type of shopping center from another. Rather, it is the preponderance of the evidence on a variety of factors that determines where a particular shopping center fits in the bigger picture.

Shopping Center Design Options

There are three basic design configurations for shopping centers.

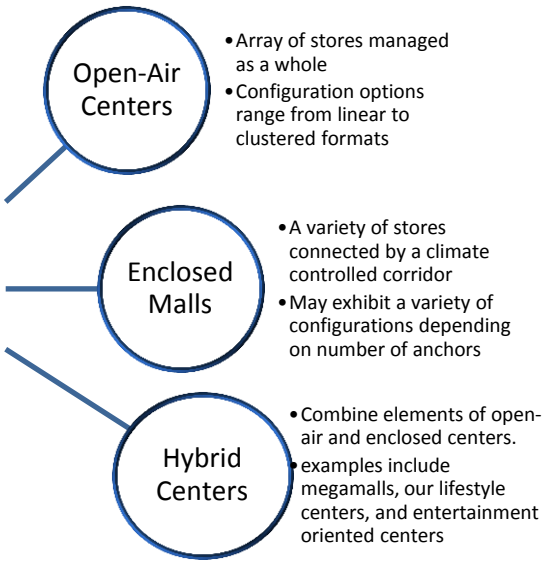


Exhibit 8- 51

- **Open-Air Centers**. The open-air center which consists of an array of stores that are managed as a whole the parking typically located in front of the stores. In some cases canopies may connect the storefronts and protect shoppers from the elements but the open-air center does not feature enclosed walkways. Open-air centers have a number of configuration options including linear, L-shaped, U-shaped, Z-shaped, or clustered. The linear form is common in strip, neighborhood and community centers. On the other hand the cluster forms are common in specialty and lifestyle centers in which design is part of the offering or character of the center.
- **Enclosed Malls.** The enclosed, climate controlled mall which features stores on both sides of the common corridor. Malls can have various configurations depending on the number of anchors and the number of in-line tenants that connect the anchors. In general on-site parking is typically provided around the perimeter of the mall with pedestrian traffic channeled through a limited number of openings to the common corridors.
- **Hybrid Centers.** Hybrid centers combine attributes of the enclosed center with common areas at open-air centers. Some of the more common examples of hybrid centers include megamalls which blend mall power center and outlet store elements; power lifestyle centers which combine power centers and lifestyle center attributes; and entertainment-oriented retail centers which combine movie theaters, themed restaurants and other entertainment venues with more traditional retail stores.

Some of the more common examples of hybrid centers include megamalls which blend mall power center and outlet store elements; power lifestyle centers which combine power centers and lifestyle center attributes; and entertainment-oriented retail centers which combine movie theaters, themed restaurants and other entertainment venues…

Institutional Retail Investment

Market Value and Market Share

As of mid-2010, the NCREIF Index included some $55.8 billion in retail investments which was 24% of the total value. In terms of number of investments, the 1,037 accounted for 17% with an average of some $53.8 million.

Value		Number		Average Value
Market Value	Share	Number	Share	Value
$ 55,824,650,357	24%	1,037	17%	$ 53,832,835

Exhibit 8- 52

NAREIT Retail Market Cap and Market Share

NAREIT Classification	Number of REITs		NAREIT Imputed Retail Market Cap ($ 000s)				
	Number	Share	Total Market Cap *	Retail Share **	Imputed Market Cap	Share of Total NAREIT	Average Market Cap
Shopping Centers	16	14%	$ 27,332,309	100%	$ 27,332,309	9%	$ 1,708,269
Regional Malls	6	5%	$ 36,588,782	100%	$ 36,588,782	13%	$ 6,098,130
Free Standing	4	4%	$ 6,385,913	100%	$ 6,385,913	2%	$ 1,596,478
Diversified	7	6%	$ 19,228,554	35%	$ 6,729,994	2%	$ 2,746,936
Total	33	30%	$ 89,535,558		$ 77,036,998	27%	$ 2,713,199

Exhibit 8- 53

On the public side of the institutional market the analysis of the retail property type is complicated by the absence of a property level reporting system and less reliance on standardized property classifications than on the private side. As noted in Exhibit 8 – 45, retail investments held by REITs span four categories: shopping centers, regional malls, freestanding properties, and diversified portfolios. To adjust for the fact that a portion of the diversified category consisted of retail properties it was assumed that 35% were retail investments. The imputed market for retail REITs was $77 billion which translated to a 27 % share of the REIT universe. The average size of the 40 REITs in this aggregated category was $2.7 billion. However due to larger property sizes and scale of operations the average size of regional mall REITs was over $6 billion.

Retail Drivers of Value

… retail demand is comprised of two components: primary demand from tenants leasing or owning space, and secondary demand from consumers and entities that patronize them.

Exhibit 8-46 introduces some of the key drivers of value in the retail industry. As noted, retail demand is comprised of two components: primary demand from tenants leasing or owning space, and secondary demand from consumers and entities that patronize them. These sources of demand are driven by a combination of economic conditions, growth, cost and access to credit, expectations and confidence levels. On the supply side, the size of the market and its structure are important components as well as growth in stock and barriers to entry. Investment performance is driven by the combination of market balance, rent roles and lease terms. However, since a retail property is an enterprise that depends on its ability to attract customers, the tenant

mix must be periodically adjusted to respond to changing demographic conditions in the trade area as well as new competition from traditional and non-traditional sources. This is especially true with the dramatic growth of Internet shopping and the encroachment or cannibalization of retail sales among various formats as merchants expand merchandise categories and product lines become more and more blurred.

Retail Drivers of Value

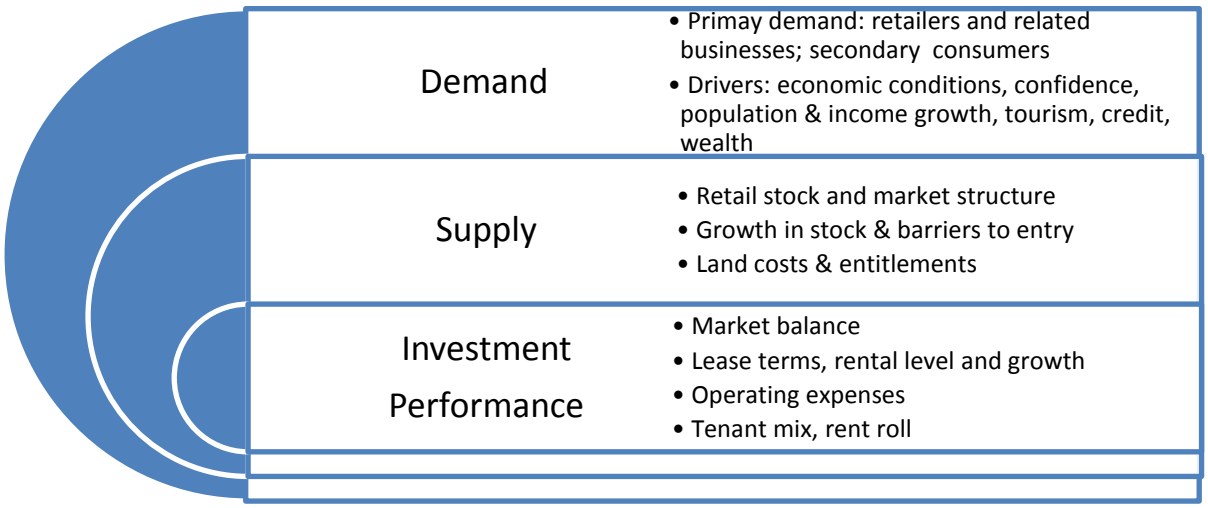


Exhibit 8- 54

Retail Market Structure

Private Retail Holdings

Slightly under half of the NCREIF retail portfolio is comprised of Regional and Super Regional malls. Despite this concentration, due to larger size malls only account for around 10% of the total retail portfolio. Community centers account for 24% of retail investments, followed by Neighborhood centers (15%), Power Centers (8%), and Fashion/Specialty (5%).

NCREIF Retail Market Structure

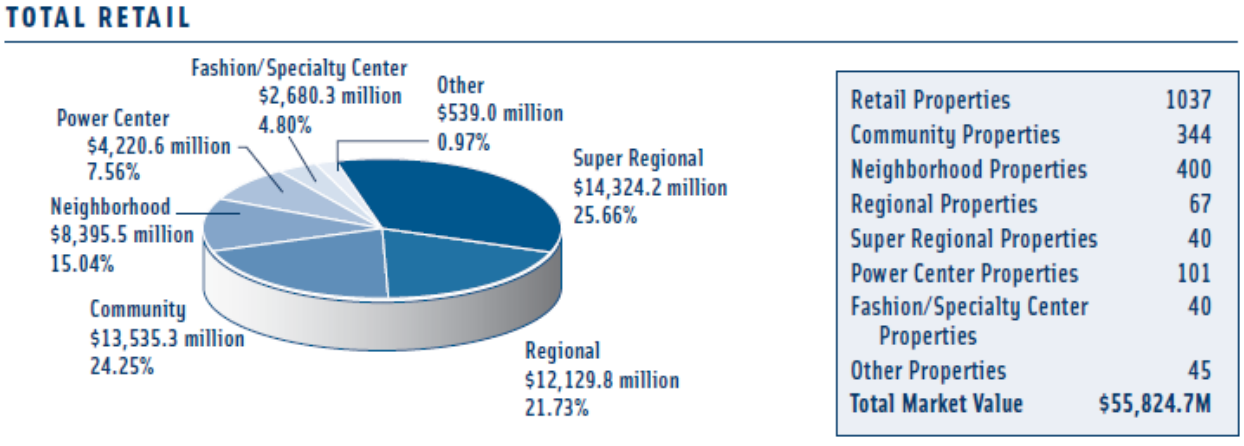


Exhibit 8- 55

Malls vs. Shopping Centers

Mall/Shopping Center Formats

The retail industry is comprised of a wide variety of retail formats ranging from freestanding stores to megamalls. The number of formats has changed over the past decade as developers experimented with new concepts in an attempt to respond to new competition and an increasingly diverse consumer base. At a general level retail formats can be categorized into two groupings: malls, and shopping centers. Malls tend to be larger formats ranging from enclosed regional shopping centers to megamalls. On the other hand shopping centers range from small strip and neighborhood centers to larger power centers. The category also enfolds a number of specialized formats including same centers, lifestyle centers, outlet centers and larger urban mixed-use and multiuse projects.

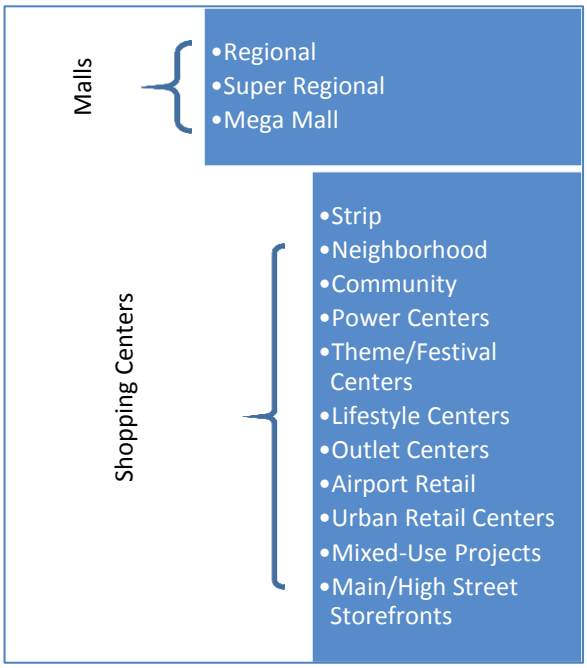


Exhibit 8- 56

Mall Stratification

Shopping Malls

Regional Mall

- Concept: one stop shopping; assortment of goods and services with free parking
- Size ranges from 400-800,000sf on 40-100 acre parcels
- Anchor ratio 50-70% with two or more full line dept. stores, mass merchants and fashion apparel
- In-line tenants matched to demographics and anchors
- Primary trade area 5-15 miles

Super Regional Mall

- Concept: similar to regional mall but more self-contained; wider assortment of goods and services and free parking
- Size over 800,00sf on 60-120 acres
- Anchor ratio 40-70% with three or more anchors; full line department stores and fashion
- In-line tenants match demographics
- May include entertainment component
- Primary trade area 5-20 miles

Mega Mall

- Concept: massing to create destination shopping experience
- Size over 4 million sf
- Achored by 4 or more full line department stores but anchor ratio lower than regional centers due to large number of in-line stores
- Features some entertainment venues, tenants and branding
- May be zoned into themed areas
- Primary trade area: regional/national

Exhibit 8- 57

Retail Stratification by Shopping Center Format

As noted, shopping centers come in a variety of formats ranging from strip centers to airport retail[20] and are generally targeted at distinct market segments. The ability to compete over time depends on active management of the tenant mix to respond to changing market dynamics and customer demand.

Traditional Shopping Centers

Strip Center

- Concept: convenience
- Size: 5-30,000sf
- Unanchored, small retail, personal service tenants; 7-11 or mini-mart typical tenants
- Auto-oriented customers; High parking ratio 4+/1,000sf
- Features easy ingress/egress
- Low-moderate rents

Neighborhood

- Concept: convenience
- Size 30-50,000sf; 3-15 acres
- 1 or more anchors; tenants supermarket, goods & service
- Anchor ratio 30-50%
- Primary Trade area: up to 3 miles
- Low-mod rents related to sales %

Community

- Concept: general merchandise, services
- Size: 100-350,000sf; 10-40 acres
- 2 + anchors, discount dept. store, supermarket, drug, specialty apparel, services
- Anchor ratio: 30-50%
- PTA: 3-6 miles
- Moderate rents, land costs

Power Center

- Concept: catergory killers
- Size: 250-5000,00sf, 25-80ac
- 3+ anchors; catergory killers, big box-oriented
- Anchor ratio: 75-90%
- PTA 5-10 miles
- Moderate to higher rents based on higher volume
- Located on outparcels of malls or suburban areas

Exhibit 8- 58

Specialty Shopping Centers

Theme/Festival

- Concept: leisure, tourist-oriented
- Unanchored with restaurants and entertainment
- Size large to achieve scale; 80-250,000sf on 5-20 acres
- Location varies from urban to destination

Lifestyle Center

- Concept: higher end fashiion and entertainment
- Tenant mix focuses on fashion
- Tenants mix, design & amenities for place
- Higher end retail products and servcies with higher rents
- Auto-oriented to draw traffice
- Trade area 5-15 miles

Outlet Center

- Concept: price and selection
- Unanchored but includes array of manufacturer's outlet stores
- Size large to create destination; 50-400,000sf on 10-50 acres
- Location varies from urban fringe to rural highway
- Automobile and tour bus oriented
- May be themed to draw

Airport Retail

- Concept: convenience and speed of service for travelling public
- Unanchored but often themed with ties to local market
- Size and location varies with some inside secured area and others outside
- Tenant mix controlled by concession facility manager

Exhibit 8- 59

[20] For an update on airport retail, see: http://retailtrafficmag.com/mag/retail_airport_retail_takes_2/

Other Retail Formats

In addition to the specialty shopping centers, a number of other retail formats are noteworthy and, in the aggregate, can materially add to total retail stock. The "other" includes urban retail facilities that are: 1) freestanding buildings or first-floor retail, 2) clustered into the district with similar or complementary merchants, or 3) contained in urban shopping centers are malls. In general they do not include big-box retailers although a number of those players will have been experimenting with different retail formats in an effort to capture market share especially in healthy and expanding downtowns which are benefiting from an increase in housing. The category of mixed-use retail consists of two basic types of properties: residential/retail mixed-use, and office/retail mixed-use. In both cases the first-floor space is used for retail or other commercial uses including business and personal services. In some markets the retail uses mandated to provide a sense of streetscape. In other markets it is used as a buffer between the street and the primary use especially with regard to housing. Mixed-use properties are inherently more costly and complex in terms of construction, leasing and operation. However, if the retail is synergistic with the building and/or other uses in the neighborhood it can help create a sense of place and create a critical mass that makes neighborhoods more self-sufficient.

Other Retail

Urban Retail Centers

- Concept: urban convenience, assortment of merchants
- Size: varies from smaller projects with common corridor to in-town regional malls
- Anchor ratio varies with some unachored and some 2-3
- Mixture of retail and services; often entertainment
- Primary trade area: CBD or transit-connected
- Price points vary from moderate to high if successful

Mixed-Use Retail

- Concept: synergy and convenience
- Size: generally smaller footprints to fit structure and demand
- Unanchored with mix of retail personal and medical services (often non-traditional)
- Located in urban villages and axial connectors
- Primary trade are limited depending on parking & transit
- Retail rent varies; may be subsidized by other users

Main/High Street

- Concept: urban convenience and experience
- Size: individual stores range from small to larger shopping districts
- Unanchored although merchants association may create formal or informal focal point on fashion, value or goods.
- Located througout major CBD core with some concentrations
- Primary trade from walking distance and tourists/transit connections
- Rents tend toward higher range

Exhibit 8- 60

Retail Demand

Primary Demand: Retailers

The primary demand for retail space consumer trends providing goods and services and retail establishments. The industry is highly competitive it is comprised of a number of market segments. These segments are differentiated by merchandise lines, target customers, price points, business models and value

propositions. Over the past several years the lines between retailers within a category and across categories have been blurred as retailers sought to provide more choice for shoppers, increased scale and efficiency, gain market share, expand their the customer base, and improve their bottom line performance. Given the dynamic and hypercompetitive nature of retail classification of merchants and their differentiation becomes problematic. This is especially true over time as merchants respond to changing economic conditions, changing competitive forces, and changing demographics and consumer demand. That's it is important to look at the individual retailers in some depth to understand how they fit into the broader retail mosaic. To that end is useful to provide a brief overview of the major retail categories and encourage readers to use the hyperlink to go to the websites of individual retailers to understand how they are changing and positioning themselves in the market.

Department Store Snapshot

Selected Department Store Links (click for investor and "About Us" pages)

Investor Link	About	Investor Link	About
JCPenney	JCP	Nordstrom	JWN
Kohl's	KSS	Saks	SKS
Macy's	M	Dillard's	DDS

Stock Performance

Exhibit 8- 61

Department stores offer an array of general merchandise, with no single dominant line. Such stores are typically arranged into distinct departments focused on such merchandise lines as apparel, furniture, appliances, home furnishings, cosmetics, jewelry, paint and hardware, electronics, and sporting goods. Some department stores also offer personal and healthcare services, including optical, photography, and organic foods. Some department stores are upscale specializing in personal services and higher end merchandise while others focus on value oriented shoppers.

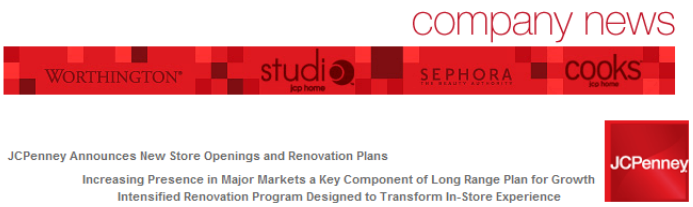


Exhibit 8 – 61 provides a listing of selected department stores along with hyperlinks to their websites. Although department stores compete with each other they differentiate themselves in terms of branding, merchandise lines, customer service, price points and value proposition. Department store returns measured in terms of stock prices differ rather significantly. Department stores are continuously adapting to new competition as well as changes in shopping patterns and demographics.

Real Estate Requirements of Department Stores

Department stores are typically located in malls and serve as anchors. Given changes that have occurred in the retail landscape, some are experimenting with other locations and other formats. Kohl's stores are typically located in power centers or in retail nodes. Some are moving into lifestyle centers and other non-traditional locations.

Discount Department Store and Dollar Store Snapshot

Selected Discount Department Store Links

Investor Link	About	Investor Link	About
TJX	TJX	Target	TGT
Stein Mart	SMRT	Costco	COST
Walmart	WMT	BJs Wholesale	BJ

Stock Performance

Exhibit 8- 62

Discount department stores differ from traditional department stores by their emphasis on price and value rather than service. They typically feature centrally located cashiers. Those selling durables and large items (e.g., major appliances, electronics, carpets, and furniture) may provide delivery and installation. In addition to general merchandise, some larger format stores offer food products.

Selected Dollar Store Links

Investor Link	About	Investor Link	About
Big Lots	BIG	Family Dollar	FDO
Dollar Tree	DLTR	Fred's Inc.	FRED

Stock Performance

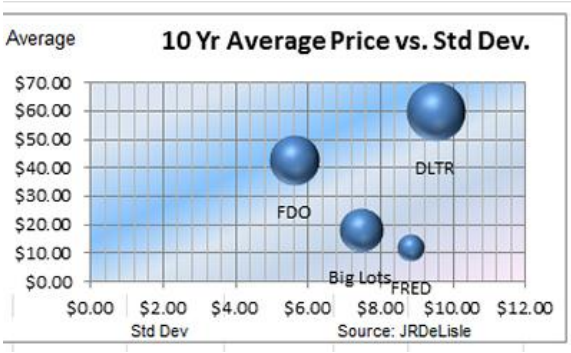


Exhibit 8- 63

Dollar stores are large-format discount stores feature low prices on selected merchandise lines.

Real Estate Requirements of Discount DS and Dollar Stores

Discount department stores are typically located in power centers although some are free-standing in strong locations. Dollar stores tend to smaller shopping centers and other locations where they can benefit from lower rent. Some big box stores (e.g., Walmart, Target) are experimenting with smaller formats that can be located in central business districts and other markets where the traditional boxes may not work. For example, Walmart has been testing smaller 15,000 sf prototypes, called Marketside that focus on fresh food. It also has some 200 Neighborhood Market stores that are around 42,000 sf and feature fresh food, pharmacy, beauty, stationery and pet supplies. It is also experimenting with a new format between the two which would combine the two concepts into a hybrid 20,000 sf formats.[21] At the same time, the average size of Walmart has fallen 50,000sf. Target has also been experimenting with urban stores and smaller format stores that would range from 60-100,000 down from its current 120,000 sf format.

[21] For a discussion of Walmart's concepts, see: http://walmartstores.com/aboutus/7606.aspx

Apparel Store Snapshot

Selected Apparel Store Links

Investor Link	About	Investor Link	About
American Eagle	AEO	Limited	LTD
Gap	GPS	Abercrombie	ANF
Pacific Sunware	PSUN	J. Crew	JCG

Stock Performance

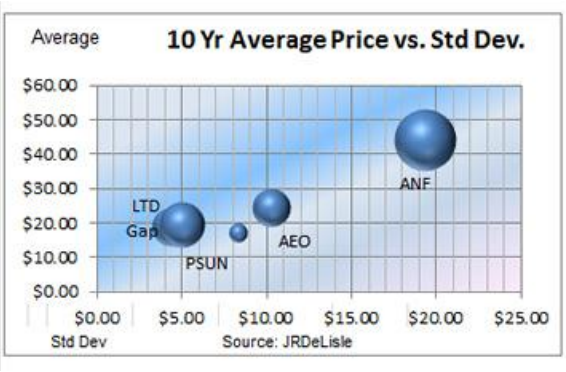


Exhibit 8- 64

There are a wide variety of apparel stores most of which are targeted toward distinct but complementary segments of consumers. These merchants tend to focus on fashion or value in addition to their target demographic segments. In this highly competitive industry retailers are continuously looking for the latest fashion trends to capture market share.

Investor Link	About	Investor Link	About
Charming Shoppes	CHRS	Ross Stores	ROST
Dress Barn	DBRN	Bebe	BEBE
Ann Taylor	ANN		

Stock Performance

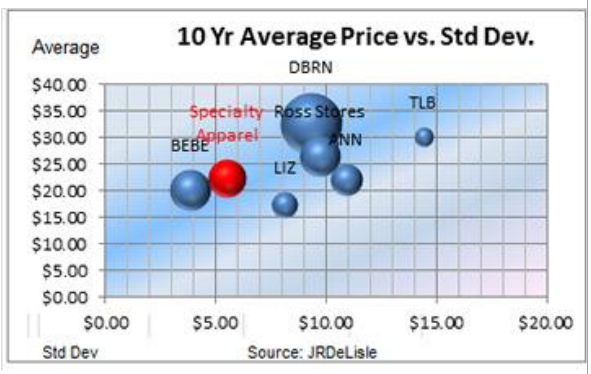


Exhibit 8- 65

Specialty Apparel Retailers

Investor Link	About	Investor Link	About
Cato	CATO	Gymboree	GYMB
Hot Topic	HOTT	The Buckle	BKE
Wet Seal	STSLA	Aeropostale	ARO

Stock Performance

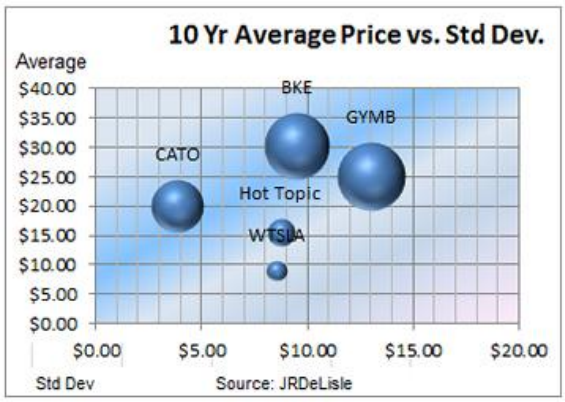


Exhibit 8- 66

Real Estate Requirements of Apparel and Apparel-related Stores

The real estate requirements for apparel and apparel related merchants varies from merchants who focus on low cost high value proposition and must seek convenient locations to those who target upper income fashion shoppers and are drawn to location and shopping center formats that feature higher-end amenities and complementary merchants. This includes lifestyle centers and upscale regional malls as well as high street or main street retail districts found in a number of major cities with vibrant downtowns.

Drugstores, Bookstores and Electronics Stores Snapshot

Selected Drugstore Links

Investor Link	About	Investor Link	About
Rite Aid	RAD	Drugstore.com	DSCM
Walgreens	WAG	CVS	CVS

Stock Performance

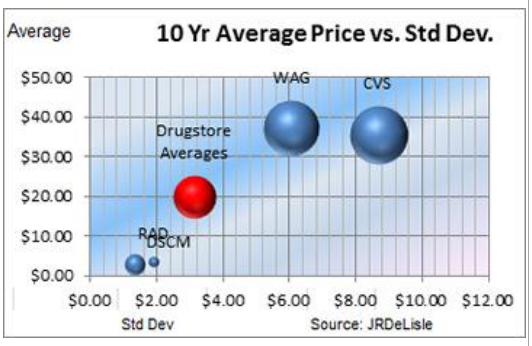


Exhibit 8- 67

Selected Bookstore Links

Investor Link	About	Investor Link	About
Barnes & Noble	BKS	Borders	BGP

Stock Performance

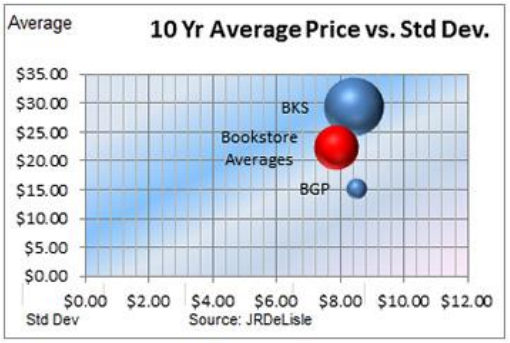


Exhibit 8- 68

Electronics and Move-Store Retailers

Investor Link	About	Investor Link	About
Best Buy	BBY	Hastings	HAST
Radio Shack	RSH	Game Stop	GME
Blockbuster	BBI		

Stock Performance

Exhibit 8- 69

Real Estate Requirements of Drugstores, Bookstores and Electronics Stores

The real estate requirements for drugstores, bookstores and electronics stores can dramatically differ depending on how the retailer is positioning its offering. In general drugstores have been moving toward larger store formats adding higher-margin product lines to become more full service and increase trade areas. A number of drugstores have migrated toward freestanding stores moving away from anchoring community and neighborhood shopping centers. The bookstore industry is dominated by two major players and feature relatively large store formats located in shopping centers and regional malls. The electronics industry has lost a number of players of the past several years with Best Buy emerging as the dominant player. As such it has opted for large formats that are either freestanding or anchors in power centers. The other electronics merchants tend toward neighborhood centers featuring convenience instead of breath and depth of product lines.

Miscellaneous Retailer Snapshot

Selected Office Product Store Links

Investor Link	About	Investor Link	About
Office Depot	ODP	Staples	SPLS
Office Maxx	OMX		

Selected Home Product Store Links

Investor Link	About	Investor Link	About
Williams-Sonoma	WSM	Jo-Anne	JAS
Bed Bath & Beyond	BBE	Pier 1	PIR

Selected Sporting Goods Store Links

Investor Link	About	Investor Link	About
Dick's Sporting	DKS	Big 5	BGFV
Hibbett Sports	HIBB		

Selected Home Improvement Store Links

Investor Link	About	Investor Link	About
Home Depot	HD	Louisiana-Pacific	LPX
Lowe's	LOW		

Selected Shoe Store Links

Investor Link	About	Investor Link	About
Footlocker	FL	Collective Brands	PSS
Retail Ventures	RVI	Brown Shoe	BWS

Selected Jewelry Store Links

Investor Link	About	Investor Link	About
Tiffany & Co.	TIF	Zale	SLC

Exhibit 8- 70

The real estate requirements of retailers differ dramatically depending on how the store is positioned relative to its increasingly diverse customer base and the dynamic arena in which it is forced to compete with traditional and not-traditional merchants as well as non-store retail channels.

Real Estate Requirements of Miscellaneous Retailers

The real estate requirements of retailers differ dramatically depending on how the store is positioned relative to its increasingly diverse customer base and the dynamic arena in which it is forced to compete with traditional and not-traditional merchants as well as non-store retail channels. For example in the case of office product stores and home product stores merchants tend to offer narrow product lines that focus on drawing customers for specialized needs. These merchants tend to seek convenient locations that benefit from synergy with complementary retailers. As such they tend to migrate toward community centers and power centers. Sporting goods stores have similar locational strategies although some have moved into larger freestanding facilities. Shoe stores and jewelry stores tend to locate among retailers with compatible lines the locations ranging from community shopping centers to regional malls. Home-improvement stores tend to be category killers areas are located in power centers or freestanding formats where they have sufficient scale of operations to attract and serve their targeted clientele. This allows them to serve both the contractor and consumer industry segments.

Grocery & Supermarket Market Segmentation

The grocery and supermarket industry is a major component of the retail industry and warrants special attention in terms of market segmentation. In 2009, there were more than 35,000 supermarkets with over $2 million in annual sales in the United States. [22] On average supermarkets had weekly sales around $11 per square foot which translated into almost $600 per square foot per year. In general, consumers allocated 6% of disposable income for food at home and spent some $28 per shopping trip and averaged two trips per week to the supermarket.

Average Supermarket Size Trends

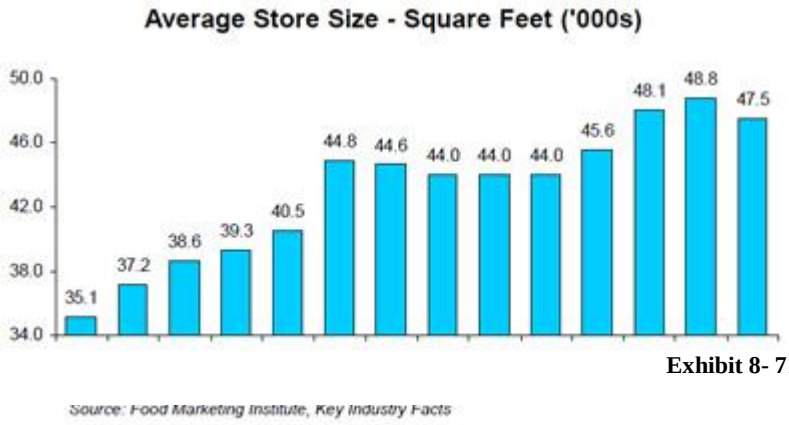


Exhibit 8- 71

The median store size was around 46,500sf which was some 5000 ft.² larger than 10 years earlier but downward from the peak reached in 2006. This trend will be important to watch as supermarkets experiment with new formats and nontraditional supermarket chains such as Walmart and Target explore smaller concepts in an effort to move into new market niches and urban cores.

[22] See: http://www.fmi.org/facts_figs/?fuseaction=superfact

Supermarket Sales by Department

Supermarket Sales by Department – Percent of Total Supermarket Sales

Departments	2003 Supermarket Sales ($ Millions)	*2003 Percent of Total Sales	2008 Supermarket Sales ($ Millions)	*2008 Percent of Total Sales
Grocery	**$146,928.47**	**39.45**	**$158,479.46**	**36.80**
Alcoholic Beverages	$ 13,492.01	3.62	$ 16,772.89	3.90
Dry Grocery (Food)	$102,263.60	27.46	$110,926.57	25.77
Dry Grocery (Non Food)	$ 31,172.86	8.37	$ 30,780.00	7.15
GM/HBC/Pharmacy	**$ 39,254.74**	**10.54**	**$ 49,163.51**	**11.42**
Perishables	**$186,217.36**	**50.00**	**$ 222,704.61**	**51.74**
Meat/Fish/Poultry	$ 49,625.00	13.33	$ 53,208.40	12.36
Service Deli	$ 12,920.00	3.47	$ 14,117.60	3.28
Deli/Self Service	$ 4,182.08	1.12	$ 5,669.62	1.31
Floral	$ 695.26	.18	$ 1,800.00	.42
Produce	$ 37,713.00	9.86	$ 45,842.40	10.65
Baked Goods	$ 12,124.94	3.26	$ 13,892.98	3.22
In-Store Bakery	$ 8,010.00	2.15	$ 8,480.50	1.20
Dairy	$ 34,819.21	9.35	$ 41,149.88	9.60
Frozen Foods	$ 27,136.88	7.20	$ 29,463.96	6.85
Grand Total	**$372,400.57**		**$430,347.58**	

Source: Progressive Grocer's Annual Consumer Expenditures Study (CES): 57th Annual CES, September 15, 2004, pp. 24-49 ; 62nd Annual CES, August/ September, 2009, pp. 1 -16 of digital download report..

FMI FOOD MARKETING INSTITUTE

Exhibit 8- 72

Over the past five years there have been some subtle but significant changes in supermarket sales by department.[23] For example in 2008 the market share of grocery goods declined from almost 40% to under 37% of total sales. On the other hand, the share of perishables in general merchandise and pharmacy goods increased. As might be expected, sales and profitability varied dramatically by supermarket chain. For example, Whole Foods (WFMI) and A&P (GAP) have the highest gross margins while Kroger and Supervalu had the lowest. There are also dramatic differences among supermarkets in real estate costs with Whole Foods paying almost 3 times the rent per leased square foot as their peers. This higher cost is related to the Whole Foods business model and helps explain the "whole paycheck" tag it has received from some quarters but has not deterred its growth in its targeted markets.

Supermarket Profitability

Supermarket Profitability Comparison (TTM)

	GAP	KR	SWY	SVU	WFMI	WINN
Gross Margin	30.2%	22.7%	28.3%	22.7%	34.1%	27.2%
SG&A % of Sales	29.6%	19.5%	24.1%	19.2%	29.8%	27.3%
Operating Margin	0.6%	3.2%	4.2%	3.5%	2.9%	-0.1%
EBITDAR Margin	3.4%	5.08%	6.8%	6.0%	6.1%	1.6%
Sales per Square Foot	$503.85	$523.58	$543.93	$612.92	$828.53	$299.27
Gross Profit per Square Foot	$153.16	$119.02	$154.18	$125.97	$281.95	$82.39
SG&A per Square Foot	$150.80	$102.18	$131.27	$106.39	$257.34	$82.59
Operating Profit per Square Foot	$2.35	$16.84	$22.91	$19.58	$24.61	($0.21)
Rent per Leased Square Foot	$7.60	$7.07	$8.87	$8.97	$24.84	$7.41

Source: Company reports, Barclays Capital Estimates

Exhibit 8- 73

pout/

Food Retailer Net Profit as % of Sales

Exhibit 8- 74

Over the past 25 years, the net profit margin on retail food stores has been very thin hovering around 1% as a percent of sales.[24] Thus, food retailers rely on volume rather than margins to achieve unit profitability. The improvement in margins can be attributed the growth in private label products as well as cost-saving measures and rationalization of the number of stores. One of the more challenging transit supermarket industry is facing is a loss in market share to alternative formats. For example the 2007 Census of Retail Trade revealed that supermarket sales grew by almost 20% over the five-year period up through 2007 while sales at warehouse clubs and supercenters increased by 70% in the same time. The end result was a decline in market share from 66% in 2002 to a projected 62% in 2009.[25] This decline in market share has hit the low margin industry fairly hard forcing it to explore alternatives for increasing sales and reducing costs.

Traditional and Non-Traditional Food Retailers

The Food Marketing Institute (FMI) has defined several distinct segments of food retailers which are categorized as "Traditional" which concentrate on food items and "Non-Traditional" which include food items along with other merchandise and service lines of business. Traditional food retailers include:

- **Traditional Supermarket**. These stores offer a full line of groceries, meat, and produce. In addition, up to a fifth of sales may come from non-food items in general merchandise and health and beauty care categories. Depending on the merchant, these stores may include a delicatessen, a bakery, and a pharmacy.
- **Fresh Format.** These food stores are distinguished by their emphasis on perishables. They also often feature a number of ethnic, natural, and organic foods lines. They often include a delicatessen, fresh bakery, and specialty meats and fish departments. Examples

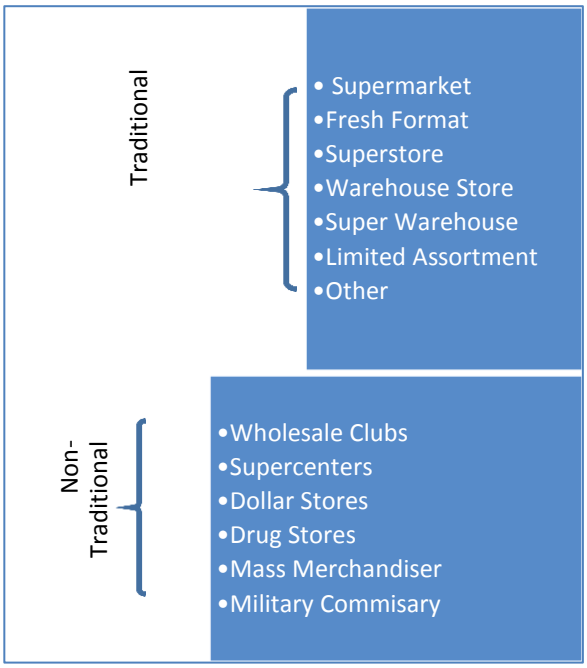


Exhibit 8- 75

[24] See: http://www.fmi.org/docs/facts_figs/Net%20Profit%20Percent%20of%20Sales2008.pdf
[25] For more information, see: http://supermarketnews.com/news/Retail_Census_0916/

of such merchants include Whole Foods, Publix GreenWise, The Fresh Market, and some independents. A number of these retailers have moved into urban locations, seeking higher income shoppers migrating back to cities.

Whole Foods: South Lake Union

Exhibit 8- 76

- **Superstore**. These are larger format supermarket over 30,000 sq. ft., generating $12 million or more annually. In addition to larger size, these merchants feature an array of non-food items, specialty departments and services.
- **Warehouse Store**. These stores can be large or moderate-sized. They are distinguished by their no frills nature and an emphasis on price and value. Goods may be unboxed, displayed in original shipping cartons. These stores often also sell food in bulk food and carry large size items.
- **Super Warehouse**. This is a high-volume hybrid store combining attributes of a large supermarkets and warehouse stores. Stores in this category offer a full range of food products and perishables. They try to offer lower price/high value propositions. Examples include Cub Foods, Food 4 Less and Smart & Final.

- **Limited-Assortment Store**. These stores offer a limited assortment of goods and perishable items. They placed emphasis on price and convenience. Examples of such stores include, Aldi, Trader Joe's, and Save-A-Lot.
- **Other Food Stores.** These stores include small corner grocery and convenience-oriented stores. The feature limited assortments, focusing on staples and other convenience goods. They can be located in urban settings or in neighborhoods, providing convenience as a trade-off for assortment and price.

Non-Traditional food retailers carry food as component of their overall product lines that is one of a number of merchandise lines.

Wholesale Club Stock Prices

Exhibit 8- 77

- **Wholesale Club.** These stores are distinguished by large size, standard format and membership requirements. Wholesale clubs combine retail and wholesale formats, blending attributes of superstores and large format warehouse stores to offer a balance of price and volume, with a narrower food selection than traditional supermarkets and more emphasis on non-food items. About two-thirds of the sales in these big box format stores (i.e., around 120,000 sf) are in general merchandise and health and beauty care. Membership categories typically include both businesses and consumers. Examples include Sam's Club, Costco, and BJ's.

- **Supercenters.** These stores are a blend of large supermarkets and mass merchandisers and feature a variety of food and non-food merchandise. These stores are the largest food store format averaging over 170,000 sf. Food items account for some 40% of floor space. Examples include Walmart Supercenters, Super Target, Meijer, and Fred Meyer.
- **Dollar Store**. These are moderate-size stores that have added food items to their traditional array of staples and knickknacks. They feature low every day prices with food items comprising a significant share of total sales. Examples of such stores include Dollar General, Dollar Tree, and Family Dollar.
- **Drug Store.** These stores are anchored on prescription-based drug sales but have evolved to include food and consumables, along with general merchandise, health and beauty care and seasonal products. A traditional anchor for neighborhood and community centers, a number of drug store chains have moved toward larger format, free-standing stores. Examples of these stores include CVS, Rite Aid and Walgreens.
- **Mass Merchandiser.** These are large format stores that traditionally focused on hardlines, clothing, electronics, and sporting goods but have also begun to offer food and non-food grocery items. Examples of such retailers include Walmart, Kmart, and Target.

The hypercompetitive nature of the food retail industry is evidenced by the fact that that six of the top-10 companies measured in terms of total sales in 1987 have fallen from the list.

Trend in Top-10 Supermarkets by Sales

Top-10 Supermarkets: Changing of the Guard

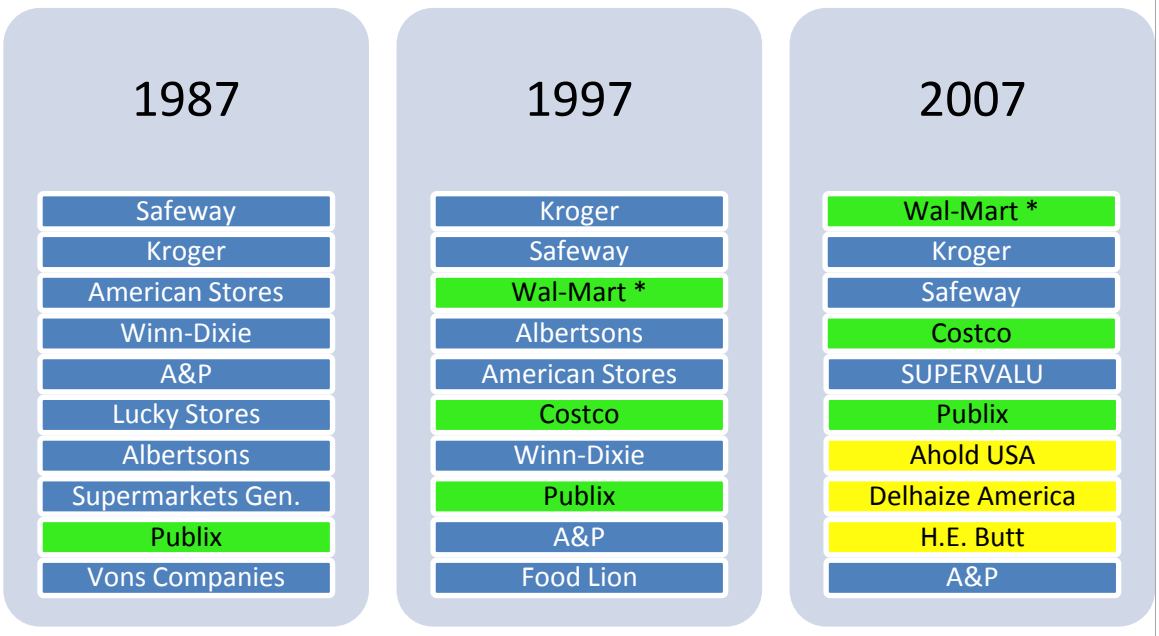


Exhibit 8- 78

The hypercompetitive nature of the food retail industry is evidenced by the fact that that six of the top-10 companies measured in terms of total sales in 1987 have fallen from the list.[26] As noted in Exhibit 8-78 the top-10 companies had dramatically change over the past 20 years, with non-traditional supermarkets

[26] For more facts on the supermarket industry, see: http://www.fmi.org/docs/facts_figs/CompetitionandProfit.pdf

and global operations dominating the market. One of the common themes among the top-10 supermarkets is the importance of breath the product line and branding. However, two of the surviving top three traditional supermarkets approach the issue of branding from a dramatically different perspective. For example the Kroger lineup includes a potpourri of branded stores covering several niches including traditional supermarkets, price oriented warehouse stores, multidepartment stores, marketplace stores, convenience stores, jewelry stores and personal services. Many of these operations have establishments in the same markets allowing Kroger target stores to certain demographics.

Spotlight on Kroger Brands[27]

Supermarkets

Price-Impact Warehouse Stores

Multi-Department Stores

Marketplace Stores

Convenience Stores

[27] For more info on Kroger, see: http://www.thekrogerco.com/

Jewelry Stores

Services

Safeway's approach to store branding and branding is dramatically different from that of Kroger and some other competitors. In particular Safeway has focused its brand on a single entity; the Safeway line of stores of which there are some 1200 separate establishments in the US. Supervalu brands has adopted a strategy somewhere between Kroger brands and Safeway's. As noted in the spotlight Supervalu has a number of independently branded stores many of which retain the names after acquisition to retain goodwill and market share.

Spotlight on Supervalue Brands[28]

Customers recognize the stores in Supervalue's retail network by their trusted names: ACME®, ALBERTSONS®, BRISTOL FARMS®, CUB®, FARM FRESH®, HORNBACHER'S®, JEWEL-OSCO®, SHAW'S/STAR MARKET®, SHOP 'N SAVE® and SHOPPERS®.

[28] For more information on Supervalue, see: http://www.supervalu.com/sv-webapp/retail/retail.jsp

Supermarket Trends

Walmart: Retrofit Truck Fuel

This truck was retrofitted to run on waste grease from Wal-Mart stores.

Exhibit 8- 79

Sustainability. To survive in the low margin food business, retailers have paid special attention to the cost side of the balance sheet. Over the past several years, this has translated to efforts to reduce energy consumption in stores by improving lighting, investing in more efficient refrigeration equipment and adopting more proactive energy management systems.[29] More recently, in an effort to contain costs and address environmental issues food retailers have focused attention reducing shipping and transportation costs. Interest in such efforts have been bolstered as a result of the recent recession which forced many retailers to increase reliance on private truck fleets to offset declines in third-party trucking availability and costs. A number of retail food and warehouse operators have embraced the EPA's smart way transport program in an attempt to reduce shipping costs and achieve social responsibility by contributing to environmental improvement.[30] For example, Kroger, Walmart, Smart & Final and others are investing in advanced trucking systems to gain efficiencies, cut costs, comply with regulations and help the environment while improving the bottom line.

Walmart's Marketside Stores

Exhibit 8- 80

Location & Format Changes. Over the past several years a number of supermarkets, warehouse clubs and supercenters have explored urban locations an attempt to capture market share from households drawn to central business districts. These efforts have met with a number of challenges to traditional supermarkets in larger format stores as they seek to right size urban stores without compromising their brands or business models. The most successful operations have been upscale supermarkets which have had appealed to the upper income residents being drawn by "new urban" projects. However, lower and moderate price format stores are also exploring smaller format urban stores. These smaller stores featuring narrower breadth and depth of products and place more emphasis on high throughput operations exploiting advances in technology and replenishment.

Private brands. A number of supermarket chains are attempting to improve margins and bottom line results by expanding their use of private brands. According to the Private Label Makers Association (PLMA) in 2009 almost a quarter of products sold in supermarkets were private labeled.[31] This translated to 20% of value and, 25% of volume as well as almost 90% of new revenue in the supermarket channel.

[29] For more information on cost-cutting and logistics planning, see: http://supermarketnews.com/logistics/0726-smart-trucking/

[30] Ror information on EPA's SmartWay transport program see: http://www.epa.gov/smartwaylogistics/

[31] For information on PLMA and more statistics, see: http://plma.com/storeBrands/sbt10.html

Private Label Maker's Association

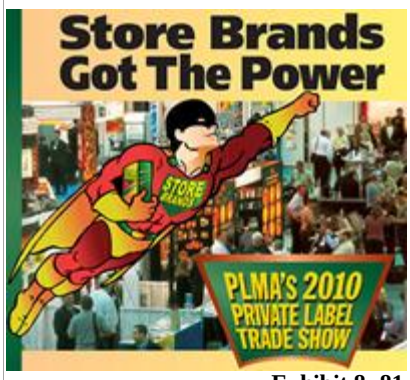


Exhibit 8- 81

The acceptance of private brands was bolstered by the combination of the recession and improvements that supermarkets have made in the value proposition for private label goods. In addition, some $15-$20 billion with the private label food products were sold and nontraditional channels including warehouse clubs, limited assortment/box stores, convenience stores and dollar stores. This raised the total value of private label sales almost $100 billion with prospects for continued growth.

Home Delivery. In the hey-dey of the dot-com era, a number of supermarkets and other food distributors got into the home delivery business. While these early efforts did not live up to the promise of a revolution in grocery shopping that would render location-based shopping obsoleted, the underlying concept has not gone away. For example, traditional supermarket chains such as Safeway offer home delivery. Rather than over-promising as in the past, the marketing and sales of home delivery services is more restricted and focused on niches where the service can be economically viable.

Safeway.com Home Delivery[32]

Exhibit 8- 82

an example of the traditional supermarket chain with home delivery is Safeway which offers a service in a number of selected markets including Northern California, Portland and Seattle, Phoenix, Philadelphia and Washington DC. Whole Foods also offer some delivery in a selected number of markets ranging from the East Coast to the West Coast.

Whole Foods Home Delivery Zones[33]

Exhibit 8- 83

[32] See http://shop.safeway.com/superstore/default.asp?brandid=1&page=corphome
[33] For an example in Manhattan, see: http://wholefoodsmarket.com/storesbeta/bowery/delivery/

On-line & Hybrid Supermarket Competitors

In addition to traditional supermarkets a number of online merchants (e.g., Netgrocer[34], Amazon Fresh) offer home delivery grocery products including net grocer and Amazon.com. A number of smaller boutique players focusing on organic and locally grown grocery items and prepared food products also offer home delivery on a selective geographic basis and for a narrower line of foods.

Amazon Fresh

Green Food & Home Delivery[35]

Delicious Planet[36]

Hybrid: Organic Home Delivery Options

Washington

• Earth Conscious Organics - Brewster, WA	Earth Conscious Organics - fresh, organic fruit delivered direct to you - www.myECOfarmer.com .
Eden's Organics - Bellevue, WA	Fresh organic produce right to your door!.
BlueBerries-N-More Organic Farms - Concrete, WA	Organic vegies, fruits, flowers, eggs,herbs.
Nature's Last Stand - Fall City, WA	Home delivering organic produce from ours&nearby farms, including recipes & nutritional info.
Mother Nature's Organics - Lynnwood, WA	Organice Produce Delivery .
Cafe Reiki - Seattle, WA	Cafe Reiki raw, vegan meal delivery and catering service in Seattle.
Chaco Canyon Organic Cafe - Seattle, WA	Seattle's only Raw Food Menu * Hot Vegan Sandwiches & Soups * Wheatgrass & Juice * Organic Espresso.
spud! Seattle - Seattle, WA	Local, Organic, Fresh, Grocery Delivery.
Wildly Organic! - Silverdale, WA	You receive the freshest organic fruits & veggies delivered to your door!.
FRESH Abundance! Inc. - Spokane, WA	An organic and whole foods grocery store with *great* prices and FREE delivery.
Steph's Luna Cafe' - Stanwood, WA	Steph's Luna Cafe' is an organic juice bar, mobile lunch truck.
Terra Organics - Tacoma, WA	Bringing You the Best of the Harvest - Seasonal Organic Produce, Delivered to Your Door.
Hawk Natural - Vancouver, WA	wild licorice root, wild Stinging nettles fiddleheads, wild watercress, white violet, mustard green.

Our Menu

FRESH ENTREES (11)
Baked Goods (1)
Breakfast (2)
Deli Sides (3)
Delicious DETOX (4)
Dessert (2)
Freezer Goodies (7)
Fresh Snacks/Dips (6)
Gift Cards (6)
Sandwiches/Wraps (5)
Soups (4)

Exhibit 8- 84

[34] For Netgrocer see: http://shop.netgrocer.com ; for Amazon, see: http://fresh.amazon.com/
[35] For examples and listings by state, see: http://www.greenpeople.org/FoodDelivery.html
[36] See: http://www.delicious-planet.com/welcome-delicious-planet

Secondary Demand: Consumers & Trade Areas

Retail space users (i.e., tenants) operate in an extremely competitive environment. This dynamic nature of the retail industry calls for proactive "enterprise management." From a real estate perspective, proactive management is important at the establishment or individual store level as well as at the shopping center level to ensure that the retail offering is current in light of changing consumer tastes in general and to those residing in the trade or catchment area in particular. Indeed, since demographics are changing rather dramatically, retailers and the shopping centers in which they reside must constantly re-engineering themselves to cater to customers and defend themselves from competition from traditional store as well as non-store merchants.

…proactive management is important at the establishment or individual store level as well as at the shopping center level to ensure that the retail offering is current in light of changing consumer tastes in general and to those residing in the trade or catchment area in particular.

Intraurban Trade Area Delineation

Trade Area Delineation and Demographic Profile

AGE OF POPULATION	King County		Seattle		Queen Anne	
Under 1 year	21,325	1%	5,751	1%	225	1%
1 to 9 years	194,507	11%	44,619	8%	1,461	5%
10 to 19 years	216,673	12%	52,934	9%	2,172	7%
20 to 29 years	257,018	15%	112,302	20%	7,540	25%
30 to 39 years	311,414	18%	110,430	20%	6,659	22%
40 to 49 years	295,718	17%	91,310	16%	4,665	15%
50 to 59 years	200,974	12%	61,239	11%	3,464	11%
60 to 69 years	103,605	6%	31,317	6%	1,398	5%
70 to 79 years	83,824	5%	30,949	5%	1,432	5%
80 and over	51,976	3%	22,524	4%	1,244	4%
TOTAL	1,737,034		563,375		30,260	

Exhibit 8- 85

From an investment perspective, retail establishments and shopping centers must also respond to changing demographics and competitive market conditions. Thus, the manager of a retail property must pay attention to the tenant mix to make sure that we assortment of goods and services appeals to the potential customers in the primary and secondary trade areas. This is particularly important since the failure of a tenant due to internal reasons at a corporate level or to poor productivity at and individual store level can create ripple effects that could jeopardize the entire shopping center. For example tenants often have co-tenancy agreements which ties their occupancy to that of other retailers that they believe bring a sense of synergy and who they can compete with effectively. Thus if one of these key tenants sales or closes operations the shopping center may implode with the loss of a number of tenants to whom leases are tied. On the other hand to provide the opportunity to replace underperforming retailers who do not contribute to the overall good of the center leases typically have kick-out clauses which allows the manager to replace the tenant prior to the expiration of lease. These dynamics elevate the shopping center at the level of an enterprise and increase the importance of managing rent rolls to avoid meltdowns as well as to adjust to changing demographics.

Population Diversity

Percent Change in Population Size by Race: 1980-2000[37]

The US population has been undergoing transformation for the past two decades. As noted in Exhibit 8-86 the white population has grown at a much slower rate than that of other ethnicities. This trend is expected to continue especially with the reliance on immigration is a key driver of population growth.

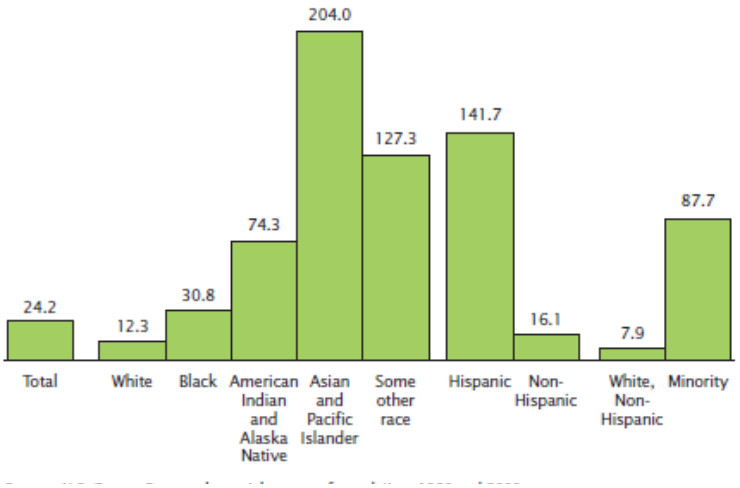


Exhibit 8- 86

In addition to changing composition of the US population in terms of race, the Brookings Institute has identified a number of key demographic changes that will affect the real estate market going forward.[38] the key trends identified cover five areas including: 1) population growth in output expansion of cities, 2) increasing diversity,3) aging of the population with a surge in younger residents, 4) uneven educational attainment, and 5) a lack of parity and income growth creating greater polarization between the haves and have-nots.

Selected Demographic Trends

Growth and outward expansion	• The current population exceeds 300 million • Large metro areas grew nearly double the rate of nonurban areas • Urban markets continue to spread growing faster than cities and inner suburbs
Population diversification	• Nonwhite population accounted for over 80% of the growth in the past decade • Immigration is the largest source of population growth • Large Metro areas are most diverse with the underagealready majority nonwhite
Population aging	• The population is bifurcated with over100 million baby boomers and seniors • Large metro areas are aging faster than the rest the country • Single personhouseholds are growing rapidly especially in the suburbs
Uneven educational attainment	• More than a third of adults have a postsecondary degreewhich is from a quarter • Adults in Metro areas are not keeping pace with educational attainment • Educational attainment is not as high among minorities creating a disconnect
Income polarization	• Inflation-adjusted income in the US declined over the past 10 years • Income losses were particularly hard for low and moderate income • Income levels are becoming bifurcated with the wealthy leaving many behind

Exhibit 8- 87

[37] Frank Hobbs and Nicole Stoops, Demographic Trends in the 20th Century, US Department of Commerce, 2002, p 81.
[38] ___, State of Metropolitan America: On the Front Lines of Demographic Transformation, Metropolitan Policy Program, Brookings Institute, 2010.

The Brookings Institute developed a classification for the 100 largest metropolitan areas dividing them into seven categories. As noted is areas are distinct in terms of demographics and are likely to become more differentiated going forward. These differences are combination of cause and effect with population migrating toward markets with jobs and opportunities and away from stagnant markets. The release of the 2010 census data will be closely watched to provide additional insights into key demographic trends affecting direct and indirect users of space.

Interurban Differences in Demographic Trends

The Seven Types of Large Metropolitan Areas Are Distinct Along Several Demographic Dimensions

Metro Type	Number of Metro Areas	Total Population (millions)	% Growth in Core Areas, 2000 to 2008*	% Population Age 45 and Over	% Population Foreign-Born	Educational Inequality Ratio**	Wage Inequality Ratio***	% Commuters Driving Alone
Diverse Giant	9	58	50	38	28	2.8	5.7	65
Skilled Anchor	19	31	n/a	41	9	2.1	4.6	77
Next Frontier	9	29	41	35	18	2.6	5.4	74
New Heartland	19	28	44	36	9	2.0	4.7	79
Industrial Core	18	22	n/a	40	6	2.1	4.5	82
Border Growth	11	19	30	33	19	2.7	4.9	77
Mid-Sized Magnet	15	13	29	41	8	2.0	4.5	81
100-metro average	100	199	33	38	16	2.4	5.2	74

Low Medium High

Exhibit 8- 88

Retail Investment Performance

Retail sales are highly integrated into the broader economy, accounting for some 70% of total economic activity. Since the will and ability to pay rent at individual retail outlets is correlated with revenue generation, retail investment returns tend to track the broader economy although the term of leases creates a lag in the impact on shopping center enterprise operations.

Super-Regional Malls: NCREIF

Super-Regional Mall 4Q09 Market Snapshot

Value *	Retail %	Number	2009 Sales
$13,757	26%	38	$0

* $ millions

Indexed Total Returns

Current from 100	10 Year	1983-'09 *
	270	1,171

* '78-82 not available

Super-Regional Mall Total Returns

Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	1983-'09 *
0.4%	-5.8%	-8.0%	1.9%	10.9%	8.5%
		Standard Deviation		10.7%	8.6%
		Return/Risk Ratio		1.02	0.98

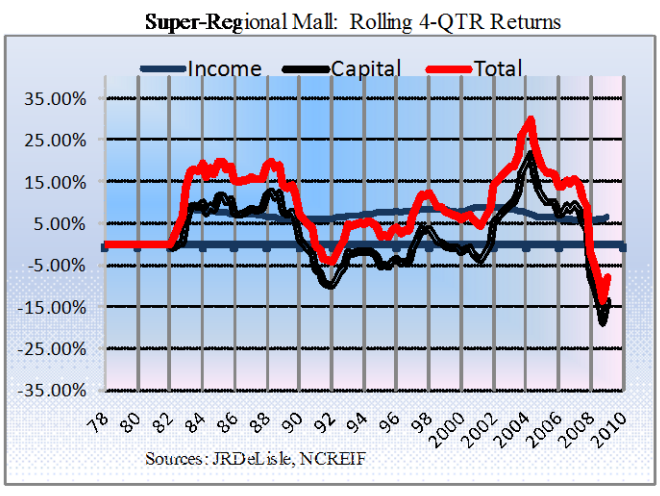


Exhibit 8- 89

On the private side of the market retail investment performance differs dramatically across different shopping center formats. For example over the past 10 years regional malls have generated rather strong returns in the lower double digits with a comparable level of risk. When compared to long-term averages is returns are up reflecting in part the importance of the retail sector to the overall US economy but also offering testament to the ability of owners and managers to adapt to changing competitive forces and consumer demographics. Community shopping centers have also provided competitive returns although lagging their larger counterparts by 100 basis points over the past decade.

Community Shopping Centers

Retail Community 4Q09 Market Snapshot

Value *	Retail %	Number	2009 Sales
$13,471	25%	348	$188

* $ millions

Indexed Total Returns

	10 Year	78-'09
Current from 100	239	1,400

Retail Community Total Returns					
Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	'78-'09
-2.1%	-6.1%	-11.9%	-1.7%	9.6%	9.0%
		Standard Deviation		10.5%	6.7%
		Return/Risk Ratio		0.91	1.35

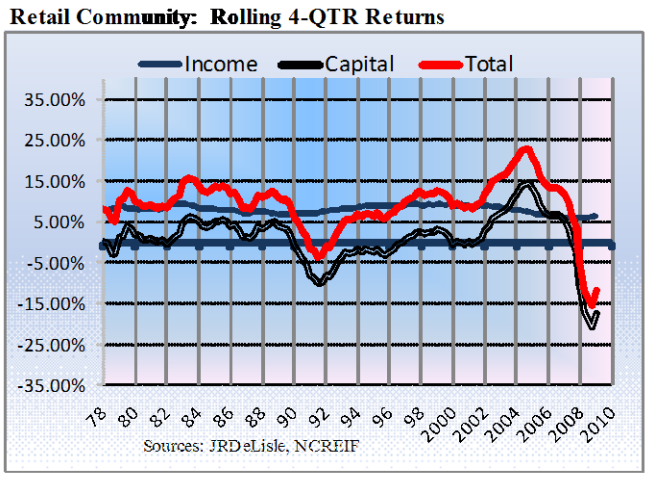
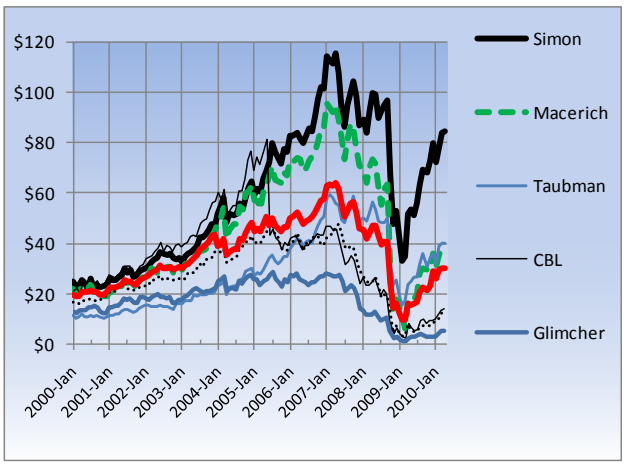


Exhibit 8- 90

In comparing retail returns between the public and private sectors an interesting pattern emerges. As noted in Exhibit 8 – 92 the stock prices of REITs which is a proxy for performance of the underlying real estate bounced back much sooner than the total returns in the private sector. Even more interesting is the fact that retail returns were rising while the economy remained in a nagging recession and most observers thought the market was oversaturated. Whether this pattern will hold long-term and how the retail sector will fare will depend greatly on the state of the economy and the application of proactive enterprise management.

Public Office REIT Stock Prices (through April 1, 2010)

Regional Mall REITs



Large Shopping Center REITs

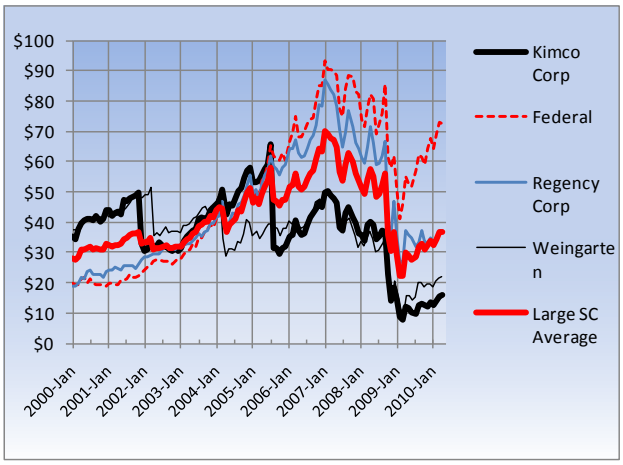


Exhibit 8- 91

Retail Property Trends

Re-purposing Centers and Storefronts

Exhibit 8- 92

The retail industry has always been hypercompetitive, a situation that will accelerate going forward driven by a combination of future trends. While the world will be getting smaller due to globalization stores will be getting larger due to continued consolidation. Traditional merchants will face greater challenges from non-store channels and will embrace them as part of their lines of business. The issue of sustainability will endure with retailers taking advantage of the latest innovations to improve bottom line performance. A number of new formats will emerge although re-purposing existing facilities will remain a priority. S consumers will become more diversified and have more options for satisfying the demand for goods and services retailers a place more emphasis on market segmentation addressing demographic and lifestyle changes. The pace of technological innovation will continue to accelerate facing additional demands on traditional retail channels.

Future Trends Affecting the Office Market

Globalization

- Continued globalization expands the competitive arena
- Shifting among locations and greater elasticity in demand and supply adds risk

Consolidation

- Trend toward consolidation is continuing creating larger space users
- Increases in the scale of operations increases risk

Non-Store Sales

- Internet-sales continue to grow
- Retailers adopt multi-channel sales

Green/Sustaiinable buildings

- Pressure for more effficient buildings
- Retrofit, redevelopment, re-purposing of big box stores

New Formats

- Lifestyle, Fashion centers; unanchored speciality centers
- Urban Retail; smaller formats; mixed-use projects

CRM, Segmentation & Mass Customization

- Increase attention to greater diversity and need for market segmentation
- Emphasis on customized merchandise and service delivery and shopper satisfaction

Demographics & Lifestyle

- Increasaing mobility and lack of time/loyalty; all bets off in terms of loyalty
- Value orientation endures with need for instant and continuous gratification

Technological Innovation

- RFID & Supply Chain Reconfiguration
- Social Networking and customer relationship managment

Exhibit 8- 93

Industrial Properties

Industrial Market Snapshot

Industrial Market Snapshot

Overview

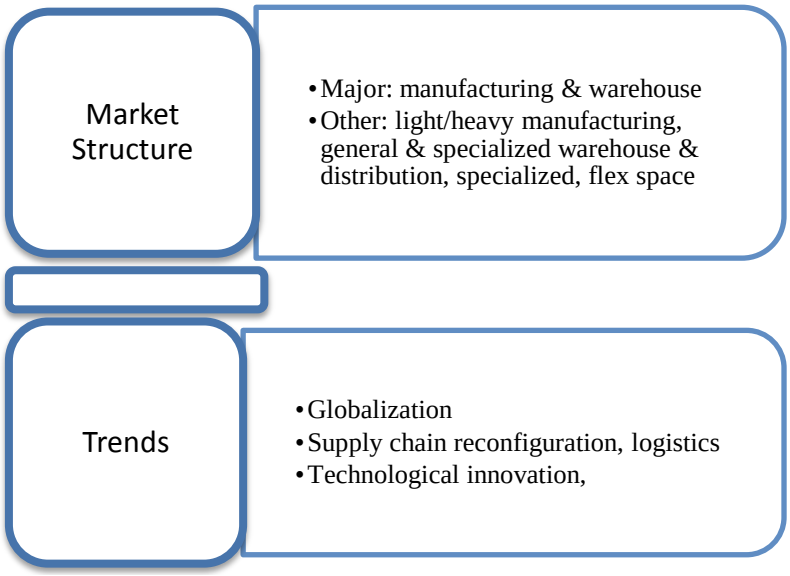


Exhibit 8- 94

In an institutional context, the term "industrial" is something of a misnomer. That is, rather than merely referring to industrial properties it more accurately describes warehouse and distribution properties. This is not to ignore the importance of manufacturing facilities but to note that most such facilities are owner-occupied. This is due in part to the customized nature of many manufacturing facilities, as well as some of the environment issues and other risks they entail. The space-time component of warehouse facilities has taken on much greater stratification than in the past, creating specialized needs for some users that require 30'plus clear height ceilings, super-flat floors, cross-dock loading and other design features needed to accommodate an increasingly global and dynamic logistical network. There are also a diversity of tenants for warehouse facilities ranging from retailers seeking major distribution centers for distributed nodes, to freight forwarders and others helping accelerate the flow of goods and cut down the time goods are actually stored in one place.

The space-time component of warehouse facilities has taken on much greater stratification than in the past, creating specialized needs for some users that require 30'plus clear height ceilings, super-flat floors, cross-dock loading and other design features needed to accommodate an increasingly global and dynamic logistical network.

Warehouse and distribution centers are two related but distinct properties, differing more on the activities they house than on static attributes of design or features or on locational preferences. In the early 80s, some viewed warehouse investments as a bond. That is, an investment tied to a big, fungible box that could accommodate a range of users. This situation has dramatically changed along with the maturing of the industry and the emergence of new supply chains, logistical models, replenishment systems, and technological innovations.

Institutional Industrial Investment

Private Market Value and Market Share

Value		Number		Average Value
Market Value	Share	Number	Share	Value
$ 34,587,804,099	15%	2,144	35%	$ 16,132,371

Exhibit 8- 95

As of mid-2010 industrial investments comprise 15% of the NCREIF index for total $34.6 billion. Due to smaller average size of individual assets ($16.5 million) the market share in terms of number of properties was much higher at 35% of properties in the index.

Public Industrial Market Cap and Market Share

NAREIT Classification	Number of REITs		NAREIT Imputed Industrial Market Cap ($ 000s)				Average Market Cap
	Number	Share	Total Market Cap *	Industrial Share **	Imputed Market Cap	Share of Total NAREIT	
Industrial	8	7%	12,271,383	100%	$ 12,271,383	4%	$ 1,533,923
Mixed	6	5%	8,198,356	50%	$ 4,099,178	1%	$ 1,366,393
Diversified	7	6%	19,228,554	20%	$ 3,845,711	1%	$ 2,746,936
Self-Storage	4	4%	19,782,500	100%	$ 19,782,500	7%	$ 4,945,625
Total	25	23%	$ 59,480,793		$ 39,998,772	14%	$ 2,379,232

Exhibit 8- 96

On the public side of the market the imputed market cap of industrial REITs measured in terms of stock prices was around $40 billion (14% market share of the REIT universe). As noted the public market includes self-storage REITs which are not isolated in the NCREIF index. In addition, the mixed property type and diversified REITs contain some industrial assets. In the mixed category it was assumed that 50% were actually industrial properties while in the diversified category a 20% market share was assumed.

Industrial Drivers of Value

… changes in distribution modes, replenishment and have had a significant impact on the location, design and linkages requirements of various users of industrial properties.

The demand for industrial/warehouse properties is driven by two basic categories of space users: manufacturers and distributors. These two demand segments are affected by domestic and global forces that affect the nature and scope of import and export activities. In addition changes in distribution modes, replenishment, and supply chain management have had a significant impact on the location, design and linkages requirements of various users of industrial properties. Changes in production and assembly models can also have significant impact on demand for manufacturing facilities. Finally, given the cyclical nature of the industry, demand is significantly affected by economic conditions that affect the demand for goods. On the supply side, the production function for industrial facilities is more elastic due to the nature of design and construction requirements. However, with the introduction of new technologies such as robotics, RFID and the reconfiguration of supply chains, a number of existing facilities have been rendered functionally obsolescent creating the demand for new product. In a number of markets developers have faced barriers to entry as the supply of undeveloped but

entitled land has been exhausted and communities have been reluctant to designate additional properties to accommodate industrial uses. This is especially true in suburban areas where emphasis has been placed on redevelopment of industrial and other brownfield districts to accommodate greater density and regenerate and revitalize infill locations. In terms of investment performance industrial properties have typically provided competitive risk-adjusted returns relative to other property types. This is especially in established distribution nodes where land costs and availability have made it difficult to respond to the demand for additional facilities.

Industrial Drivers of Value

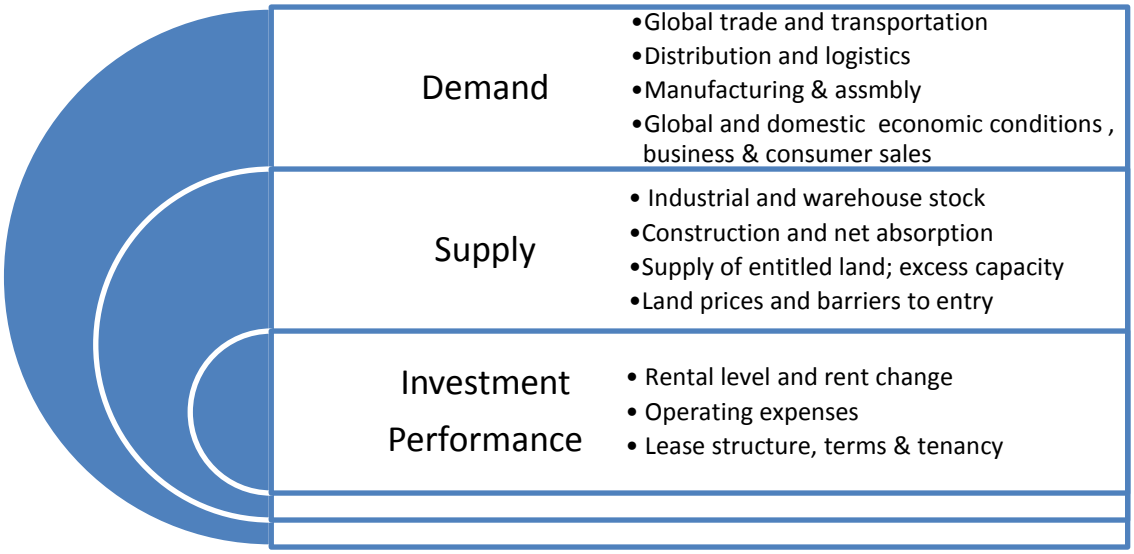


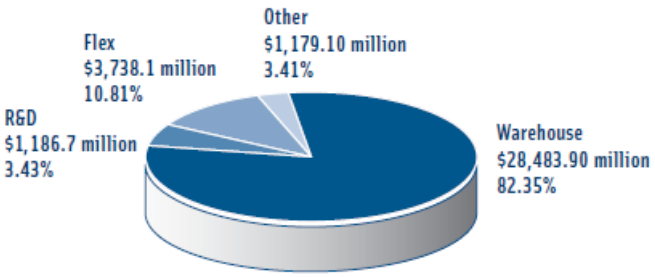
Exhibit 8- 97

Industrial Market Structure

The NCREIF industrial portfolio consists of over 2,100 industrial properties and more than 1,700 warehouse properties. In addition to those categories that includes some 300 flex properties, 54 R&D properties, and another 60 unspecified industrial facilities. The total market value is around $35 billion led by warehouse properties which comprise over 80% of the total.

Private Industrial Market Structure

Industrial NCREIF Market Structure



Industrial Properties	2,144
Warehouse Properties	1,731
R&D Properties	54
Flex Properties	300
Other Properties	59
Total Market Value	$34,587.8M

Exhibit 8- 98

Industrial Areas, Districts and Parks

Industrial Areas: Some Non-Industrial Uses

Exhibit 8- 99

In hierarchical zoning codes, industrial facilities are among the lowest food chain items based on the assumption that they are least vulnerable to negative externalities from surrounding uses. While this perception has changed over time the structural impact of such policies on the urban form continues to endure. As such, industrial and warehouse facilities are typically located in three types of urban settings: industrial areas, industrial districts, and industrial parks.

The initial category consisted of industrialized areas which are located along railroad corridors in urban areas of older cities. These industrial areas complied with zoning codes that focused on individual parcels rather than the area as a whole. As such, development patterns and land uses were often inconsistent and at times incompatible creating congestion and straining infrastructure capacity. This is especially true for road and highway access which came after the initial industrial areas of older towns were established. Industrial districts are defined as geographic areas that are dominated by industrial uses as determined by zoning codes. In addition to land use and density constraints industrial districts are often subject to a number of regulations designed to avoid congestion and excessive strain on infrastructure.

Industrial Areas, Districts and Parks

Industrial Areas

- Older urban areas containing a number of industrial facilities
- May include a mix of other commercial uses
- Typically located along railroad corridors
- High density with multilevel concrete buildings
- High lot coverage prone to congestion.

Industrial Districts

- Geographic areas dominated by industrial uses
- Specially designated with appropriate zoning
- May include ancillary uses
- Owned and operated by individual landowners
- Typically must adhere to special requirements for traffic circulation

Industrial Parks

- Speciallydesigned areas ayed out according to some master plan
- Emphasis placed on creating an efficient environment for industrial uses
- Contain a mixture of complementary uses blending production, distribution and R&D
- Centralized management to ensure integrity of design and operation over time

Exhibit 8- 100

Industrial Parks

Exhibit 8- 101

Industrial parks are specially designated or master-planned projects designed to create a harmonious environment for industrial related land uses. Rather than relying on individual land use decisions industrial parks are often subject to design, landscaping, open space and other requirements to create a deeper sense of community among the land users. In addition to imposing construction and design criteria industrial parks are often governed by a set of covenants that are designed to ensure that the sense of place and the overall quality of the built environment is retained over time.

Industrial Property Classification

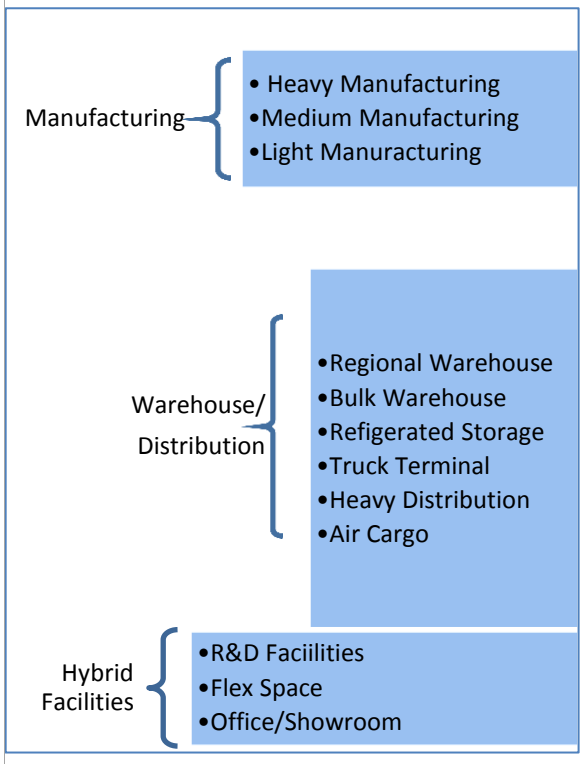


Exhibit 8- 102

Manufacturing, Warehouse/Distribution and Hybrid Facilities

In addition to a classification based on location industrial properties can be subdivided into three major categories. The first category consists of manufacturing facilities which range from light to heavy manufacturing. The second category consists of warehouse and distribution facilities. The commonality among these types of facilities is in their design for storage of various commodities or products. They can also be distinguished by mode of transit ranging from truck to air cargo. The third class of industrial facilities consist of hybrid properties which tend to offer flexible options for spatial utilization or serve multiple needs as in the case of office/showroom facilities. In some cases these types of facilities may fall under the office category especially when they include office/showroom for R&D facilities that may be targeted to certain sectors such as biotechnology or medical sciences.

Manufacturing Space Stratification

Heavy Manufacturing	Medium Manufacturing	Light Manufacturing
		
• Concept: specialized space • Size varies from moderate to large • Space customized to type of manufacturing activity; often high ceilings and open floors • Requires significant infrastructure • Locational preference tied to availability of labor	• Concept: fungible space that serves generic needs • Size varies from moderate to larger, especially for assembly • Space fairly generic with some specialized needs • Moderate Infrastructure requirements unless specialized • Location tied to labor and access	• Concept: general purpose space that can be repurposed and/or modified • Size varies frmo small to moderate • Space is generic with large open spaces for flexible productiion and assembly • Low infrastructure requriements • Labor important in location

Exhibit 8- 103

Availability of affordable labor, raw commodities, infrastructure and other factors of production coupled with access to transportation and shipping routes as well as moderate land costs with favorable zoning are important factors in determining the location of heavy manufacturing plants.

There are a number of types of manufacturing facilities depending on the intensity of production, processing or assembly they support. At one end of the continuum are heavy manufacturing facilities that are typically specialized properties designed to support intense production activities. Sizes may vary from moderate to large depending on the nature of products being processed. Availability of affordable labor, raw commodities, infrastructure and other factors of production coupled with access to transportation and shipping routes as well as moderate land costs with favorable zoning are important factors in determining the location of heavy manufacturing plants. Such facilities often have high infrastructure requirements and may generate negative externalities in terms of emissions or noise. There are often restricted to certain areas where the negative externalities won't adversely affect surrounding land uses. They can also be located in freestanding locations or in industrial zones. Due to their unique nature and potentially high risks associated with environmental issues heavy manufacturing facilities are often owner-occupied.

Medium and light manufacturing facilities are more generic and fungible in they can often be repurposed the major investment. The size may vary depending on the nature of production. Design is often fairly generic with emphasis on flexibility and open space. Infrastructure requirements related to utilities and other resources range from low to moderate depending on the type of manufacturing they entail. Access to

labor is often an important component to locational decisions. These facilities are often located in industrial parks or regions but due to the low risk of negative externalities may also be located in freestanding facilities especially in rural areas where access to low-cost labor and distribution reduce operating costs.

Warehouse Market Stratification

Warehouse Market Stratification

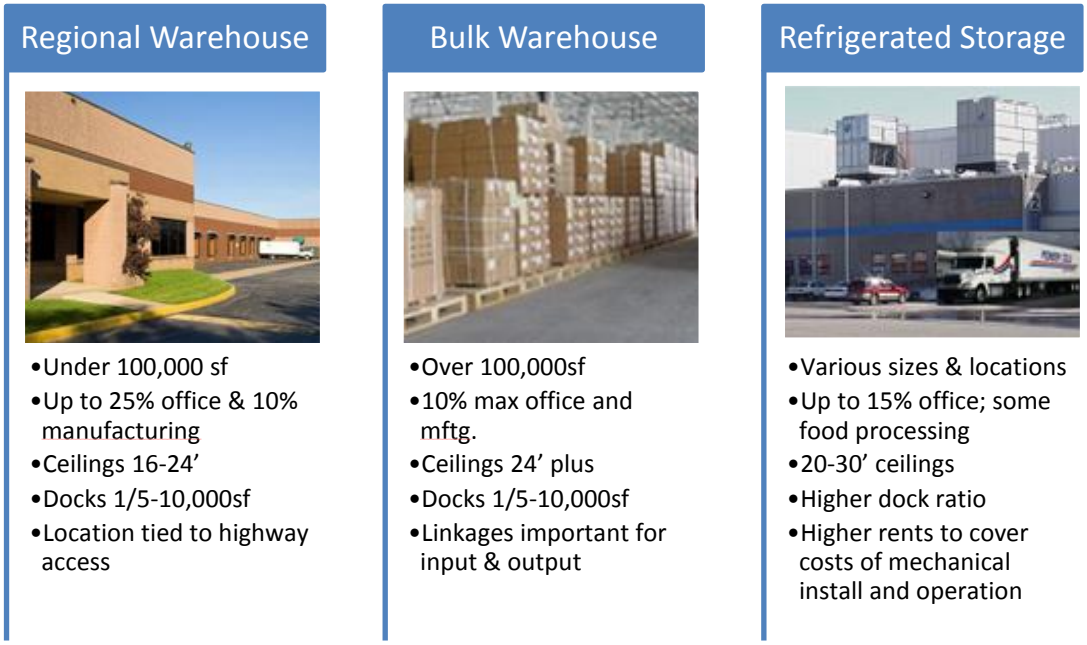


Exhibit 8- 104

Warehouses provide a variety of open and covered spaces.[39] Open storage space consists of improved or unimproved areas not contained by a roofed structure designated for storing raw materials, components or finished products. Items stored in such spaces are not susceptible to weather damage or have been packaged to provide protection against the elements. Covered storage spaces consist of the designated areas in and enclosed structure that are primarily used for storing products or materials. Warehouses as a whole are generally fungible, although there are a number of specialized features depending on the types of products they house. For example, some facilities feature refrigerated spaces to house perishable goods, wet tanks for storing bulk liquids and dry storage spaces for long-term storage under controlled humidity and temperature conditions. Other

Warehouses and distribution facilities are generally fungible, although there are a number of specialized features depending on the types of products they house. For example, some facilities feature refrigerated spaces to house perishable goods, wet tanks for storing bulk liquids and dry storage spaces for long-term storage under controlled humidity and temperature conditions.

[39] For more info on storage, see: www.opm.gov/fedclass/gs2030.pdf

facilities are specifically designed as flammable storage warehouses for storing highly combustible items (e.g., oil-based paint and alcohol). There are also some warehouses that are secure buildings which allow for safely storing sensitive items (e.g., medical supplies, controlled substances, classified equipment, and products or materials with a high street value.

Distribution Centers

Distribution Facility Stratification

Truck Terminal/Freight

- Concept: multimodal, cross-dock
- Up to 100,000sf
- 5% office, no manufacturing
- Ceilings 12-16'
- Docks 1/500sf
- High level of trailer parking
- Due to reliance on trucks, access to highways is a key locational criterion

Heavy Distribution

- Concept: stocks goods to be redistributed to manufacturers, retailers or customers
- Large over 100,000sf
- Max 5% office, no manufacturing
- 24' plus ceilings
- Docks under 1/5,000
- Depending on the degree of automation, access to low cost labor may be important to location

Air Cargo

- Concept: support fast, efficient distribution of moderate weight/high value goods
- Up to 100,000sf,
- 10% office, no mftg.
- Ceilings up to 30'
- Docks 1/5,000
- Location on tarmak or in close proximity to support speed of input-output
- Limited competition; potential monopoly or oligopoly

Exhibit 8- 105

Distribution centers are moderate to large-size warehouse-type buildings that temporarily house products and/or components that will be re-distributed to manufacturers, wholesalers, retailers or consumers. Depending on the role they play in the supply chain, occupants can provide a variety of services including taking, processing, and fulfilling orders. Users may offer an integrated array of fulfillment services ranging from warehousing, picking, packaging, and shipping a customer's order by a third party. They may also be engaged in freight forwarding, responding to orders and queue requirements from customers as part of an extended supply chain. Activity in distribution centers may also require specialized design to accommodate high through-put cross-dock shipping, as well as some storage associated with bulk container/package breakdown, warehousing repackaging or shipping.

Activity in distribution centers may also require specialized design to accommodate high through-put cross-dock shipping, as well as some storage associated with bulk container/package breakdown, warehousing repackaging or shipping.

Sea-Tac Air Cargo Facilities

Air cargo facilities may be located on the tarmac or maybe located in close proximity. These properties allow direct plane to warehouse or sorting connections but properties off tarmac require some short-term shuttle or distribution system to connect cargo arriving by plane to storage or distribution facilities.

Exhibit 8- 106

Specialty Industrial Market Stratification

R&D Facilities

- Concept: laboratory setting; condusive to research
- Size varies
- Office, storage and processing space
- May be partially multi-level
- Often located in corporate campus or research parks
- Rents higher than industrial to justify specialization

Flex Space

- Concept: chamelion like space; reconfigurable to 100% office
- Size: varies as does mix of uses within building
- Often located in industrial or business parks but also freestanding
- Rent sbetween industrial and office; moderate

Office/Showroom

- Concept: hybrid; mixed office-retail
- Size varies
- Flexible allocation
- Office/showroom mix varies
- Typically located in industrial parks
- Rents between retail and office

Exhibit 8- 107

Industrial/Warehouse Demand

Demand for industrial/warehouse properties varies by type of property and how it is being utilized in either the production, distribution, or storage processes. Given the cyclical nature of manufacturing and distribution, changes in productivity can have a significant impact on the demand for properties. Advances in technology, production processes, globalization and logistical models have a dramatic impact on the structure of the industry and prospects for real estate demand. In order to gain some insights into future demand it is useful to take a brief look at the structure of the manufacturing industry.

Manufacturing Industries[40]

Aerospace product & parts

- Transport aircraft is the largest segment of the nonmilitary; aircraft range from small to large wide-body jets
- Computer-aided design and changes in assembly and production have revolutionized the industry
- The industry employs about half 1 million workers with about 3100 establishments

Chemical, except drugs

- Includes chemicals, synthetics,agricultural, paints, coatings, adhesives, cleaning and other chemicals
- Nanotechnology is creating change as this is the movement away from plastic containers and bags
- The industry employs over 560,000 workers; employment is forecast to declinerapidly

Computer & electronic products

- Produces computers, peripherals communications and other products; for homes, businesses & government
- About a third of jobs are in professional occupations and another third in production
- Technological innovation and rapid change characterize industry
- Employment is projected to decline rapidly over the next decade

Food manufacturing

- The industry connects farmers and agriculture producers with consumers
- A third of employees are in animal processing and 20% in bakeries; over 50% are in production
- About 1.5 million workers in the industry with no growth forecast

Machinery manufacturing

- Includes agricultural, metalworking, HVAC, industrial, commercial service, engines and other machinery
- The industry employs about 1.2 million with a moderate decline forecast

Motor vehicle & parts

- Industry includes autos, SUVs, vans and trucks, large trucks buses trailers and motor homes
- In 2008 over 9000 establishments the majority in parts manufacturing
- Includes some 877,000 employees with the dramatic decline forecast

Pharmaceutical and medicine manufacturing

- The industry producesa wide variety of medicinal and health related products
- Includes some 2500 establishmentsmany with special requirements for R&D and manufacturing
- Industry employs almost 300,000 workers with moderate increase forecast

Printing

- Industry prints text and images on paper, metal, glass, apparel and other materials
- undergoing significant changes in technology; some 600,000 workers with significant decline forecast

Steel manufacturing

- Some produce steel by melting ore, scrap metal and other materials; others produce finished goods
- Industry continuing to change due to intense global competition; some hundred 60,000 jobs with decline forecast

Textile, textile product and apparel

- iIdustry processes fiber and fabric in fabric and clothing other textile products
- iIdustry highly competitive especially global; some 500,000 employees with forecast 50% loss

Exhibit 8- 108

[40] For more detail, see: http://www.bls.gov/oco/cg/cg1002.htm

Global Supply Chain Management

In addition to globalization, technological innovations and changes in logistical models have made supply chains more dynamic, creating changes in the demand for industrial and distribution/warehouse facilities.

The demand for distribution and warehouse facilities is tied to the production and flow of commodities both in the US and globally. Managing the movement of goods is generally referred to as supply chain management. The supply chain is an interactive link connecting producers to consumers. Over the past several decades, the supply chain has become increasingly global, with a network of imports and exports connecting countries. In addition to globalization, technological innovations and changes in logistical models have made supply chains more dynamic, creating changes in the demand for industrial and distribution/warehouse facilities. These changes have manifested themselves in static attributes related to design, features and scale, as well as locational attributes and connectivity requirements. To understand these forces, it is important to pierce beneath the surface to better understand what is being transported, as well as how, when and why it is being transported at a segmented level.

Supply Chain Management

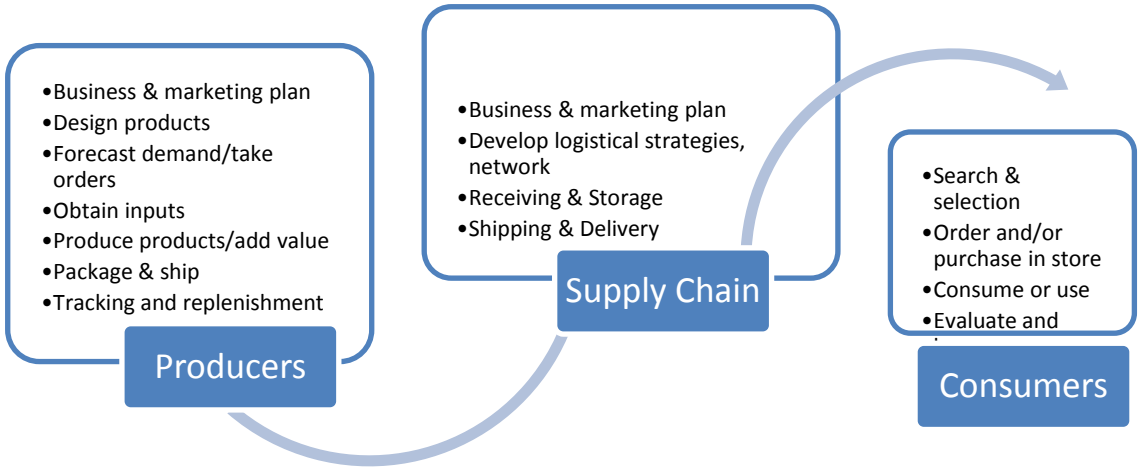


Exhibit 8- 109

Logistics is a major driving force of the economy. As a result of improved efficiencies and technological innovations, logistical costs as a share of GDP have fallen from an 18% share in 1980 to 10% in 2007. Even in its leaner format, the industry accounted for over 11 million workers employed by 675,000 in the state motor carriers, some 2,200 pipeline operators and 767 Marine vessel companies. In terms of infrastructure, the US has almost 4 million miles of highways, 100,000 miles of Class 1 rail lines, 26,000 miles of navigable channels and 161,000 miles of pipelines. The broad scope, growing complexity and dynamic nature of supply chain management is evidenced by the 212 page compendium of terms compiled by the Council of Supply Chain Managers (CSCM).[41]

[41] For individual terms, see: http://cscmp.org/digital/glossary/glossary.asp

Transportation & Warehousing Industries

Companies in the transportation and warehousing industries provide a linkage between manufacturers or suppliers of finished goods and consumers or businesses who consume products as well as businesses to purchase intermediate goods for final assembly.[42] In 2008, the industry employed over 2 million workers. Most of the employees work in smaller firms with fewer than five workers. Truck drivers comprise almost half of all jobs and accounts for another 25% of jobs.. The balance of the jobs was comprised of administrative support, management, and equipment maintenance and repair. Transportation firms provide a number of services including pickup, transportation, storage, sorting and delivery. The industry can be subdivided into two major categories: general trucking firms and specialized freight trucking firms.

Companies in the transportation and warehousing industries provide a linkage between manufacturers or suppliers of finished goods and consumers or businesses who consume products as well as businesses to purchase intermediate goods for final assembly.

Classification of Trucking and Warehousing Companies

General freight trucking

- Provide road and highway shipping of general commodities via trucking
- Local trucking companies operate within a greater metropolitan area
- Long-distance trucking companies connect distant areas & may extend into Canada and Mexico
- Market Structure: 30,000 local and 41,000 long-distance establishments

Specialized freight trucking

- Provide transportation of freight that require specialized equipment;
- Demand for speciialized handling may the attributed to size, weight, shape or other attributes
- Equipment may include flatbeds, tankers, refrigerated trailers for other special purpose
- Includes moving/relocation companies carrying household, institutional and commercial goods

Warehousing and storage companies

- Provide warehouse and storage facilities for general and specialized goods (e.g., refrigerated).
- Some 15,000 establishments assume responsibility for security and protection of goods
- Some provide logistical support (e.g., labeling, inventory management, repacking, and delivery)

Exhibit 8- 110

[42] For more detail, see: http://www.bls.gov/oco/cg/cgs021.htm

Interstate and Intrastate[43]

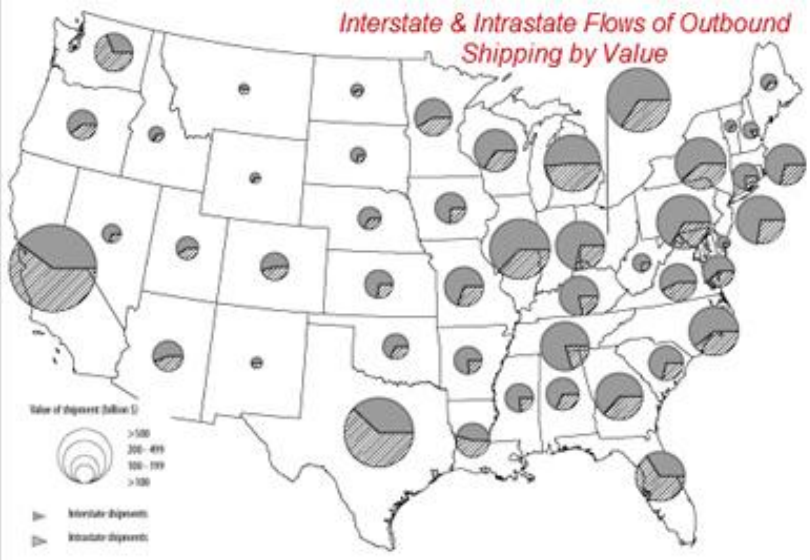


Exhibit 8- 111

In many cases, the majority of outbound shipping activity originating at various sources is shipped beyond state lines. However, in-state shipping is still a significant portion of activity. As such, the demand for industrial facilities is affected by a combination of factors that influence supply chains and consumption. As might be expected, commodities and products arriving at ports or other nodes are often shipped through to other locations. This creates something of a hub-and-spoke system that is best accomodated by multimodal shipping models.

Mode of Transportation

The demand for warehousing and storage facilities is significantly affected by the mode of transport of goods. As of 2007, the dominant mode of transit in terms of value of shipments was truck which comprised 71% of all modes. In terms of town miles, trucking was still the major mode of transit with 40% market share while rail transit, which carried bulkier commodities and goods, contributed another 37%. For rail transit, this is dramatically ahead of its market share of value 3%. To the specialized nature of partial and courier transit the sector comprised some 13% of value but only 1% of ton miles shipped.

Shipping Value, Tonnage & Ton-Miles

Table 1: U.S. Value, Tonnage, and Ton-Miles of Shipments by Mode of Transport, Percent of Total: 2007

Transportation mode	Value (million $)	Percent of total	Tons (thousands)	Percent of total	Ton–miles (millions)	Percent of total
All modes	11,831,503	100	13,016,610	100	3,490,806	100
Truck	8,363,657	71	8,957,687	69	1,390,102	40
Rail	387,567	3	1,928,530	15	1,294,921	37
Water	106,905	1	423,282	3	175,973	5
Air (includes truck to/from airport)	209,611	2	3,525	–	4,014	–
Pipeline	487,140	4	774,732	6	NA	NA
Parcel, USPS, or courier	1,597,931	13	36,029	–	29,535	1
Multiple modes	340,953	3	590,510	5	460,233	13
Other and unknown modes	337,739	3	302,315	2	47,964	1

NOTES: A percent below 0.5% is marked by a dash (–) in the table. NA = not available due to high sampling variability or poor response quality.
SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, 2007 Commodity Flow Survey, preliminary data table 1, December 2008.

Exhibit 8- 112

[43] For source, see: Michael Margreta, Chester Ford, and M. Adhi Dipo, U.S. Freight on the Move, RITA Bureau of Transportation Statistics, 2009.

Truck Shipping

Truck Traffic

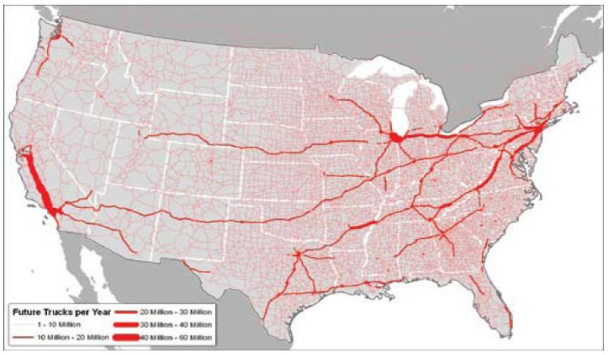


Exhibit 8- 113

In terms of logistics infrastructure the US has some 4 million miles of highways. Over two-thirds of shipping by value and tonnage in the US is moved by truck, followed by rail and water. The public roads that connect major intermodal freight terminals with highway arterials and interstates are designated as freight connectors. While container traffic and port volumes have dramatically increased, these connectors have become restrictors creating bottlenecks and landside congestion. To address these concerns, a number of innovations and policy changes are being considered including radio frequency identification devices (RFID) on containers to position specific containers in queue, virtual container yards, congestion pricing, inland ports, extended business hours, truck-only lanes, and on-dock rail access.[44]

Rail Traffic

Rail Lines in US

Exhibit 8- 114

The US has some 162,000 miles of privately owned track of which about 100,000 is considered Class I rail. After years of downsizing, the freight rail industry has invested heavily in infrastructure to accommodate intermodal freight rail (i.e., containers or trailers from ports by rail). These investments have included intermodal freight cars, raising bridges to allow double-stack containers, additional track and advanced communication systems.

Air Cargo

The air cargo industry is a small but significant segment of the overall airline industry. According to BLS statistics in 2008 there were over 20 air cargo carriers. Cargo is transported by air either in the holds of passenger planes or designated cargo aircraft. In terms of scope of operations cargo carriers provide transport from airport to airport and are not engaged in pickup or delivery of parcels. The air cargo industry is facing a number of challenges related to concerns over security, rising costs and industry shakeout related to economic conditions affecting demand and high fuel prices all of which affect the bottom line.

[44] For more details, see: http://www.bts.gov/publications/americas_container_ports/2009/html/spotlight_01.html

Water Transportation

The CMTS is charged with creating a safe secure and integrated network that ensures a free-flowing, seamless and reliable movement of people and commerce while ensuring environmental harmony.

In the US Marine Transportation System (MTS) is under the direction of the Committee on Marine Transportation (CMTS) that was established to address some of the challenges the system faces. The CMTS is charged with creating a safe, secure, and integrated network that ensures a free-flowing, seamless and reliable movement of people and commerce while delivering environmental harmony. The MTS consists of a system of channels and waterways that deliver cargo to final destinations or to connections of highways, railways and pipelines. In 2006, the MTS transported around 44% by value and 78% by weight of all US international trade. Due to continued globalization shipping, volumes are projected to increase dramatically. The Department of Transportation (DOT) predicts over the next decade the value of freight carried by water will increase by 43 percent domestically and 67 percent internationally. The MTS is facing a number of challenges related to capacity (e.g., chokepoints, and inadequate intermodal connections) and an aging infrastructure that will not be able to handle additional capacity without significant investment.[45] The situation is further complicated by going concern over safety and security that is putting additional strain on limited budgets. Finally, recognition of the importance of environmental and the inherent linkage between water transportation and environmentally sensitive areas makes environmental stewardship more important than in the past.

The water transportation industry is comprised of two industry groups: one for deep-sea, coastal and Great Lakes; and one for inland water transportation.[46] The distinguishing factors between the two categories relate to their areas of operation and differences in equipment used transport cargo. The deep-sea freight transportation industry is comprised of establishments providing deep-sea transportation of cargo to or from foreign ports. On the other hand the coastal and Great Lakes freight transportation industry is comprised of establishments transporting cargo in coastal waters, on the Great Lakes system or the deep seas between ports of the US and its islands possessions.

Inland Waterways and Ports in

Exhibit 8- 115

The inland water freight industry is comprised of establishments providing water transportation of cargo on lakes, rivers, or in other coastal waterways with the exception of the Great Lakes system. In terms of inland waterways, the US has 26,000 miles of navigable channels. Companies operating in the land and water transportation industry perform a variety of activities including canal barge operations, the freight transportation on inland waters, intracoastal transportation, river freight

[45] See: http://www.cmts.gov/nationalstrategy.htm
[46] For a complete classification, see: http://www.census.gov/epcd/naics02/def/NDEF483.HTM#N48321

transportation, and towing services on inland waters. The inland water transportation industry includes some 2500 enterprises employing over 20,000 workers.[47] The bulk of inland water freight is transported along shallow draft channels.

Ports and Containerized Shipping

Exports from Top Economies to the US[48]

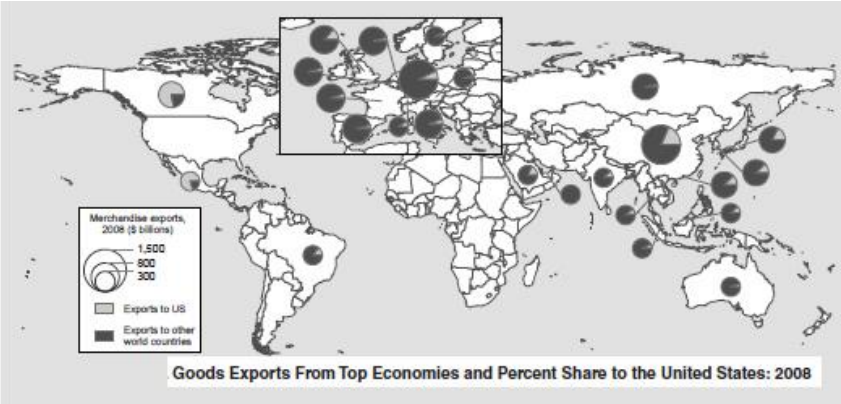


Exhibit 8- 116

The US receives imports from an array of countries around the world. As noted, due in part to the North American Free Trade Agreement (NAFTA), the US receives the bulk of exports that are shipped from Canada and Mexico. While the US is still a major destination, the development of the global economy has reduced its dominance over other world countries. That said, the US remains an important player in the global market, comprising a significant share of exports from a number of countries.

Global Exports by Top Economies

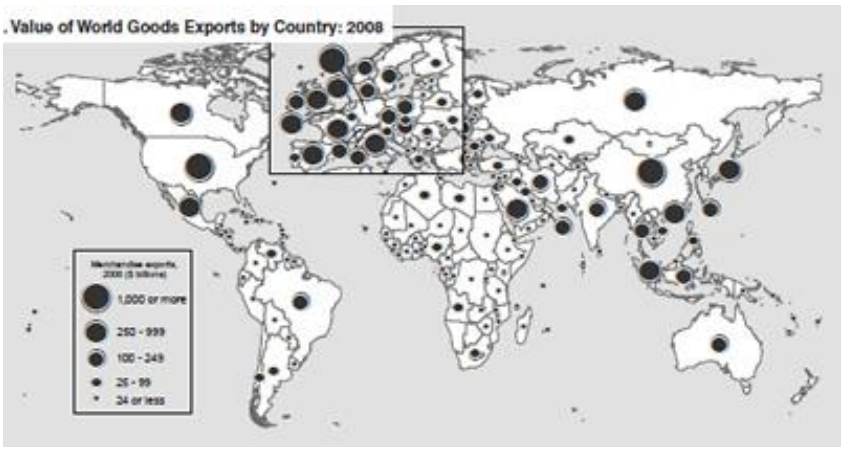


Exhibit 8- 117

In addition to its import business, the US also is a major producer of exports to other nations.The bulk of these exports to countries other than Canada and Mexico are distributed by ships, although some are shipped via air. The production of export goods is scattered across the country creating a demand for transportation and warehousing facilities to accommodate components as well as final products. Given different consumption functions among producing and consuming countries, imports and exports from source to destination are typically not in harmony. This creates trade imbalances among countries as well as challenges in balancing infrastructure capacity and equipment utilization.

[47] Source: http://www.ibisworld.com/industry/default.aspx?indid=1144

[48] ___, Freight Transportation: Global Highlights, U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, 2010.

Top 25 US Container Ports[49]

Exhibit 8- 118

As might be expected, imports are the dominant source of freight passing through the major ports in the US. Indeed, around 50% of imports arrive at US ports in containers. On the other hand, exports are also a significant component container traffic flowing out of the US. Thus, the distribution network must be capable of handling the constant ebb and flow of import/export activity, with demand driven in large part by the global economy.

Containerized Shipping

Exhibit 8- 119

In addition to looking at the total value and tonnage of shipping activity, in order to determine what type of product is needed at various locations, it is important to look at the type of goods that are flowing through the various shipping points. For example, while shipping vessel activity levels are interesting much of what is shipped does not translate to demend for distribution and warehouse space, especially when the cargo consists of agricultural products and raw materials. Thus it is important to segment shipping tonnage to understand real estate implications.

Commodity Flow by Type

SCTG code[1]	Commodity description	Value[2] (million $)
	All commodities	11,831,503
35	Electronic and other electrical equipment	1,040,585
43	Mixed freight	974,634
36	Motorized and other vehicles (including parts)	828,359
17	Gasoline and aviation turbine fuel	793,713
21	Pharmaceutical products	778,370
34	Machinery	631,390
40	Miscellaneous manufactured products	507,717
07	Other prepared foodstuffs and fats and oils	489,767
24	Plastics and rubber	488,100
32	Base metal in primary or semifinished forms	479,557
30	Textiles, leather, and articles of textiles or leather	466,156
18	Fuel oils	402,578
33	Articles of base metal	380,789
23	Chemical products and preparations, NEC[3]	344,096
19	Coal and petroleum products, NEC[3]	298,433

[1] Based on 2-digit code for Standard Classification of Transported Goods (SCTG).
[2] Horizontal lines and color codes are used within the table to group the commodities. Commodities within the same group, or the same color code, cannot be determined to be different statistically from one another. However, from top to bottom, a change in grouping, or a change in color, denotes a statistical decrease in level of value, based on statistical significance testing at the 95% confidence level.
[3] NEC = not elsewhere classified.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, 2007 Commodity Flow Survey, preliminary data table 6, December 2008.

Exhibit 8- 120

Segmentation of Industrial Demand

In addition to looking at the total value and tonnage of shipping activity, to determine what type of product is needed at various locations, it is important to look at the type of goods that are flowing through the various shipping points. For example, while shipping vessel activity levels are interesting much of what is shipped does not translate to demend for distribution and warehouse space, especially commodities and raw materials.

[49] For more information, see: http://www.bts.gov/publications/americas_container_ports/2009/html/figure_08.html

Segmentation of Vessels

Vessel Calls at U.S. Ports, Top Ten Ports, 2009

Tanker		Container		Dry Bulk	
Houston	3,905	LA/LB	2,442	New Orleans	2,031
New Orleans	1,474	New York	2,319	Columbia R.	1,379
New York	1,296	San Francisco	1,859	Houston	580
Philadelphia	1,140	Savannah	1,714	Virginia Ports	547
LA/LB	1,096	Virginia Ports	1,615	San Francisco	479
Texas City	971	Charleston	1,312	LA/LB	388
Port Arthur	931	Houston	931	Mobile	310
Corpus Christi	736	Seattle	676	Baltimore	267
San Francisco	735	Pt. Everglades	597	Tampa	254
Freeport, TX	561	Miami	591	New York	221
Top 10	12,845	Top 10	14,056	Top 10	6,456
All Ports	19,641	All Ports	18,206	All Ports	8,587
Ro-Ro		**Gas**		**General**	
Baltimore	675	Houston	144	Houston	389
Jacksonville	555	New Orleans	84	Philadelphia	389
New York	494	Tampa	76	New Orleans	271
Tacoma	295	Boston	61	Columbia R.	185
Charleston	261	Elba Is.	52	Mobile	182
Miami	251	Freeport, TX	36	LA/LB	163
LA/LB	223	Philadelphia	30	San Juan, P.R.	163
Brunswick	215	Cove Point	25	Port Arthur	119
San Juan, P.R.	168	San Francisco	23	Port Hueneme	109
Houston	165	Lake Charles	20	New York	97
Top 10	3,302	Top 10	551	Top 10	2,067
All Ports	4,951	All Ports	704	All Ports	3,336
Combo		**All Types**			
Houston	39	Houston	6,153		
Corpus Christi	33	New York	4,430		
Virginia Ports	13	LA/LB	4,312		
New Orleans	12	New Orleans	4,226		
Mobile	11	San Francisco	3,275		
Portland, ME	10	Virginia Ports	2,502		
Columbia R.	4	Savannah	2,219		
Freeport, TX	2	Philadelphia	2,171		
Honolulu	2	Columbia R.	1,925		
LOOP	2	Charleston	1,865		
Top 10	128	Top 10	33,078		
All Ports	135	All Ports	55,560		

Exhibit 8- 121

Where:[50]

Tanker – Petroleum tankers and chemical tankers.
Product: 10,000–69,999 DWT.
Crude: >=70,000 DWT.
Container – Fully-cellular containerships, and refrigerated container carriers.
Dry Bulk Carrier – Bulk vessels, bulk containerships, cement carriers, ore carriers, and wood-chip carriers.
Ro-Ro – Roll-on/roll-off vessels, ro-ro containerships, and vehicle carriers.
Gas Carrier – LNG carriers, LNG/LPG carriers, and LPG carriers.
Combination Carrier (Combo) – Ore/bulk/oil carriers and bulk/oil carriers.
General Cargo – General cargo carriers, partial containerships, refrigerated ships, barge carriers, and livestock carriers.

Destination of LOS Container[51]

In some major markets a portion of containers are opened to accommodate local consumption. However even in the most populous ports a significant portion of container cargo is shipped to other locations. These containers may be opened after final destination or at some intermediate node where they are subdivided and repackaged for delivery to smaller markets. The transportation of such freight is often multimodal including trucks, rail and in some cases inland water transport.

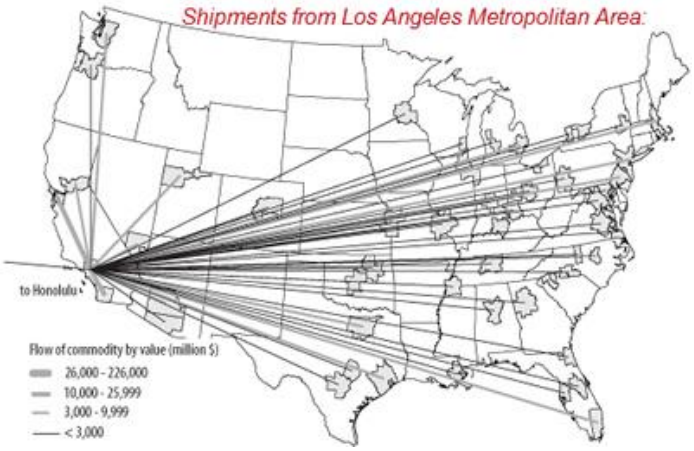


Exhibit 8- 122

Multimodal Freight Transportation

Multimodal freight transportation has emerged as a critical component of supply chain management. The trend toward larger container ships coupled with the use of truck trailers, double stack container trains and

[50] ___, Vessel Calls Snapshot, 2009, U.S. Department of Transportation Maritime Administration. To get statistics, go to: http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm
[51] ___, Vessel Calls Snapshot, 2009, U.S. Department of Transportation Maritime Administration. To get statistics, go to: http://www.marad.dot.gov/library_landing_page/data_and_statistics/Data_and_Statistics.htm

larger containers have also changed the demand (space requirements) for distribution and warehouse facilities. These trends are expected to continue and put more pressure on transportation infrastructure.

Multimodal Freight Transportation[52]

Mode of transportation	2007 value (million $)	2007 tons (thousands)	2007 ton–miles[1] (millions)	2007 average miles
Multiple modes	1,938,884	626,539	489,767	915
Parcel, USPS or courier	1,597,931	36,029	29,535	914
Truck and rail	197,748	213,411	188,547	1,053
Truck and water	31,112	74,421	48,870	1,347
Rail and water	7,744	44,979	30,444	2,608
Other multiple modes	104,350	257,698	192,372	2,190
Other and unknown modes	337,739	302,315	47,964	149

Exhibit 8- 123

Container to Truck

In addition to increased freight volume, the emphasis on more efficient and leaner supply chains by companies competing in the global arena has affected the demand for warehouse by putting more emphasis on facilities located closer to intermodal nodes as well as the development of new value-added warehouse operations. The ability to respond to growing needs and growing pressure on an already stressed infrastructure will have a material effect on the transportation industry and the broader economy.

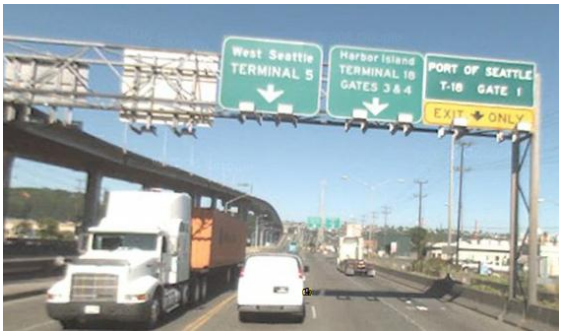


Exhibit 8- 124

[52] For details, see:
http://www.bts.gov/publications/transportation_statistics_annual_report/2008/html/chapter_01/table_01_03_01.html

Container Traffic and Industrial Absorption[53]

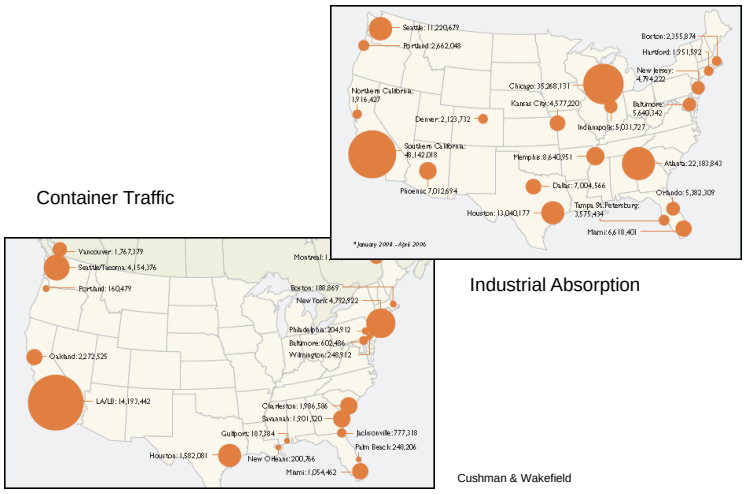


Exhibit 8- 125

As the saying goes, "the proof is in the pudding." As noted, the absorption of industrial space is positively correlated with shipping volume and with intermodal linkages. Thus, by exploring fundamentals of supply and demand, it is possible to select investments likely to benefit from changing market dynamics affecting both current and future levels of demand.

Top 3pl Decision Support Tool[54]

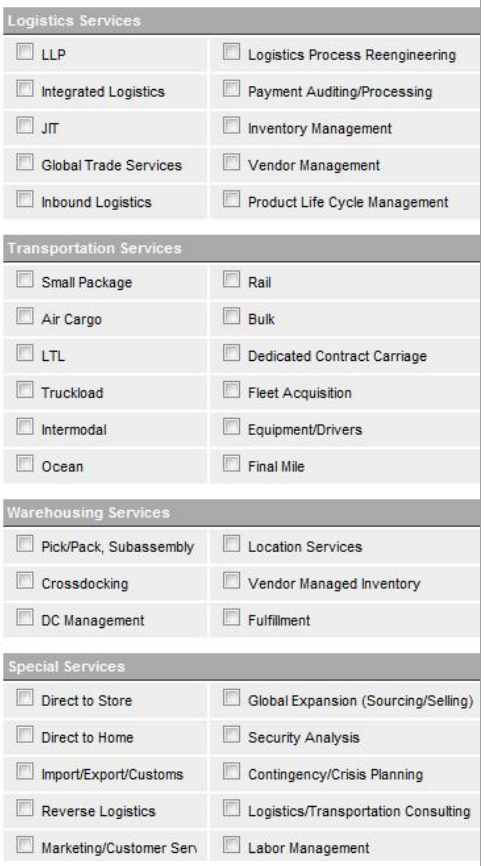


Exhibit 8- 126

Third-Party Logistics (3PL or 3pl) Industry

The demand for warehouse and distribution facilities has been materially impacted by the emergence of the Third-Party Logistics industry. Briefly, the 3PL industry provides outsourced logistics services for manufacturers, retailers and other distributors. Companies provide a range of integrated logistical services to customers inlcuding transportation, warehousing, cross-docking shipping, inventory management, unpacking and repackaging, and freight forwarding. The Council on Supply Chain Management (CSCM) defines Third Party Logistics Providers as:

A firm which provides multiple logistics services for use by customers. Preferably, these services are integrated, or "bundled" together by the provider. These firms facilitate the movement of parts and materials from suppliers to manufacturers, and finished products from manufacturers to distributors and retailers. Among the services which they provide are transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding.[55]

Advances in technology and competitive forces are expected to lead to a number of innovations that affect the exact type of real estate needed to fulfill the industries requirements.

---

[53] ___, Cushman & Wakefield special report.
[54] For more information see: http://www.inboundlogistics.com/3pl/3pl100_v2.shtml
[55] See: http://cscmp.org/digital/glossary/glossary.asp

Industrial Performance

Industrial/warehouse properties make up around 50% of the private institutional industry. Of that, over 82% are in the general warehouse category followed by industrial flex space. Despite longer-term leases since peaking in 2006, warehouse properties did not avoid the property losses felt by commercial real estate in general. In 2009 annual returns were -18%; dragged down by deterioration in market fundamentals which led to increase vacancy and reduced rents. For the last 10 years industrial properties have provided around an 8% annualized return. Interestingly, warehouse returns over the past decade were lower than long-term averages while the standard deviation was significantly higher. This can be attributed to a number of factors have affected the market including continued demand for assets which drove down cap rates in spite of weakening economic conditions.

Private Market NCREIF Warehouse Returns

Warehouse 4Q09 Market Snapshot

Value *	Industrial %	Number	2009 Sales
$29,162	81%	1,758	$872

* $ millions

Indexed Total Returns

	10 Year	78-'09
Current from 100	203	1,439

Warehouse Total Returns					
Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	'78-'09
-2.5%	-8.0%	-18.1%	-3.1%	7.9%	9.4%
		Standard Deviation		11.4%	8.0%
		Return/Risk Ratio		0.69	1.18

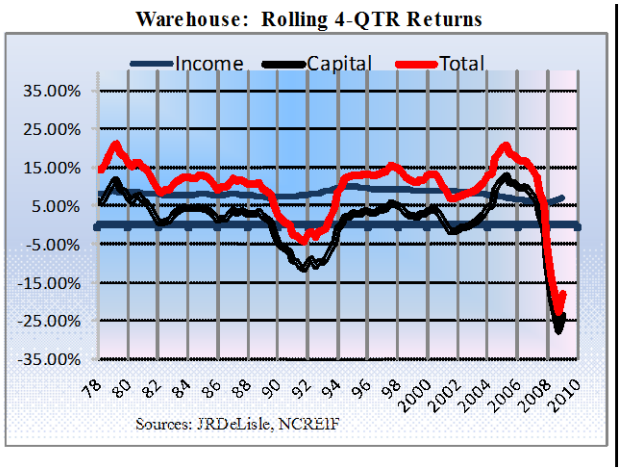


Exhibit 8- 127

In general industrial flex properties have a higher risk profile than their more stable warehouse counterparts. Interestingly, flex properties had slightly higher return and a better return to risk ratio than their warehouse counterparts over the past decade. However due to differences in market fundamentals of the long-term returns were much lower while risk was higher.

Private Market NCREIF Industrial Flex Returns

Industrial Flex 4Q09 Market Snapshot

Value *	Industrial %	Number	2009 Sales
$3,987	11%	324	$210

* $ millions

Indexed Total Returns

	10 Year	1987-'09 *
Current from 100	210	482

* 1978-'86 not available

Industrial Flex Total Returns					
Quarterly		Annualized Returns			
4Q09	4Q08	1 year	3 year	10 year	1987-'09 *
-3.7%	-7.9%	-16.4%	-2.4%	8.4%	5.8%
		Standard Deviation		11.8%	8.9%
		Return/Risk Ratio		0.71	0.65

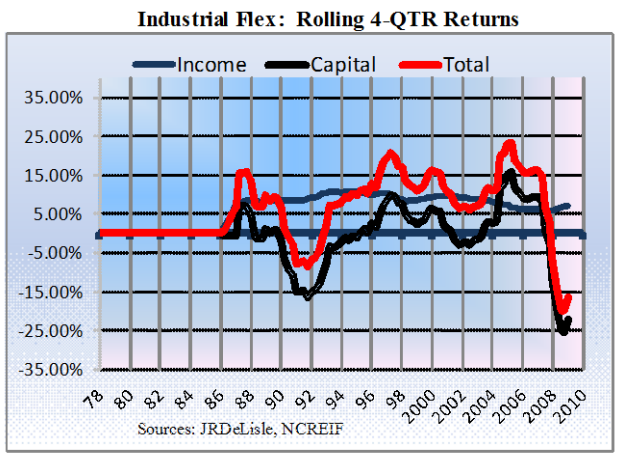
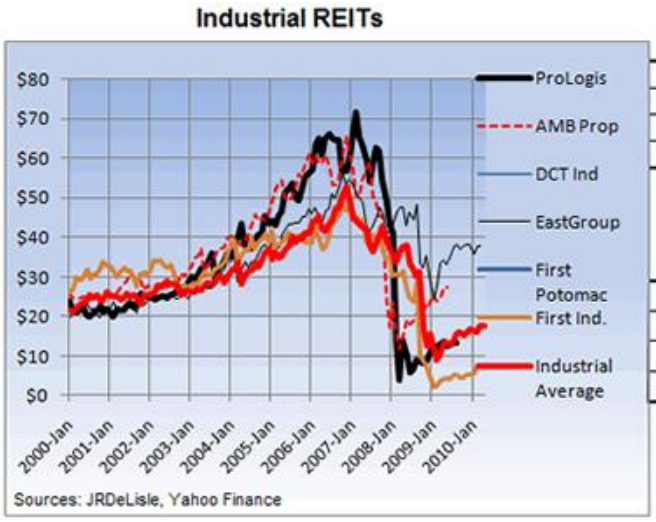


Exhibit 8- 128

On the public side of the industrial market, returns as measured by closing stock prices are more reflective of the overall economy than that of the private side of the market. In general industrial REITs enjoyed a seven year run through 2007 before hitting the wall and experiencing a dramatic decline as the economy went into recession. Since bottoming out in early 2009 industrial REITs have made a moderate recovery although some have said better than others.

Public Industrial REIT Stock Prices **(through April 1, 2010)**



ProLogis (PLD)		Avg $ Closing Price		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$13.43	$9.11	$11.36	$33.95	$34.06	
% Change	47.4%	18.2%	-60.4%	-60.6%	2.0%
		Std Dev	$25.01	$17.67	27.0%
		** StdDev/Avg	0.74	0.52	-
		Index Value: Dec 1999 = 100			70.46

AMB Prop (AMB)		Avg $ Closing Price		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$27.24	$19.09	$22.71	$37.52	$36.05	
% Change	42.7%	19.9%	-27.4%	-24.4%	0.7%
		Std Dev	$17.72	$13.61	9.4%
		** StdDev/Avg	0.47	0.38	-
		Index Value: Dec 1999 = 100			133.27

First Potomac (FPO)		Avg $ Closing Price		Starts in:	2003-Oct
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$14.83	$9.79	$11.89	$14.83	$19.99	
% Change	51.5%	24.8%	0.0%	-25.8%	38.1%
		** StdDev/Avg	$4.98	$6.75	332.3%
		AVG/Risk	0.34	0.34	-
		Index Value 100 Start:		2003-Oct	83.09

DCT Ind (DCT)		Avg $ Closing Price		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$5.23	$4.42	$4.81	$7.03	$7.49	
% Change	18.3%	8.7%	-25.7%	-30.2%	-2.3%
		** StdDev/Avg	$2.73	$2.94	13.6%
		AVG/Risk	0.39	0.39	-
		Index Value: Dec 1999 = 100			56.18

First Ind. (FR)		Avg $ Closing Price		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$7.71	$3.77	$5.16	$19.55	$30.47	
% Change	104.5%	49.5%	-60.6%	-74.7%	0.0%
		Std Dev	$15.38	$12.03	12.4%
		** StdDev/Avg	0.79	0.39	-
		Index Value: Dec 1999 = 100			28.56

EastGroup (EGP)		Avg $ Closing Price		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$37.70	$33.61	$36.46	$39.82	$34.86	
% Change	12.2%	3.4%	-5.3%	8.1%	0.8%
		Std Dev	$6.33	$10.00	6.7%
		** StdDev/Avg	0.16	0.29	-
		Index Value: Dec 1999 = 100			197.18

Industrial Average		* Avg $ Closing Prices		10 year Averages	
2010-Apr	2009-Mar	1 year	3 year	Stock Price	% Change
$17.69	$13.30	$15.40	$25.45	$30.24	
% Change	33.0%	14.9%	-30.5%	-41.5%	0.3%
		Std Dev	$11.77	$9.72	8.5%
		** StdDev/Avg	0.46	0.32	-
		Index Value: Dec 1999 = 100			82.6

* Unweighted Stock Prices
** Std Dev/Avg = Coefficient of Variation
Closing Prices as of April 1, 2010
Sources: JRDeLisle, YahooFinance.com

Bubbles Sized by Current Stock Price

Source: JRDeLisle

Exhibit 8- 129

Industrial/warehouse trends

As with other property types, a number of key trends are occurring in the industrial and warehouse industries. These trends are leading to a number of changes and the need to develop more proactive spatial solutions for developers, investors, and space users alike. Clearly, the industrial sector is facing more dynamic pressures than in the past as these trends play out and new ones emerge.

Globalization

- Continued globalization and economic alignment creates demand for more capacity
- Shifting locational preferences and more volatile demand /supply adds risk to existing facilities

Increasing Scale of Shipping and Operations

- Increasing size of container vessels and containers
- Increased emphasis on capacity and distribution to deliver to more fragmented customers

Supply Chain Reconfiguration & Redesign

- Shifting demand associated with emergence of new supply chain and logsitical models
- Greater emphasis on replenishment and lean supply chains
- Increased need for flexiblity to respond to changing demand, economic conditions and new technologies and innovations

Third Part Logistics

- Continued growth of 3PL and other value-add services to capture best practice solutions
- Greater emphasis on consulting and other support to improve supply chain

Technological Innovation

- Growth of automated systems & robotics in for material handling
- Widespread adoption of RFID, GPS, smart systems and other technological advances
- More mechanized conveyor systems and other equipment to support larger scale facilities

Capacity and Infrastructure Barriers

- Chokepoints will inhibit troughput, especially in urban ports and marketswith traffic congestion
- Aging infrastructure and inadequte maintenance will reduce efficiency
- Poltical/planning models may restrict urban land and increase operating costs

Rising Security and Safety Concerns

- Continued concern over terrorism and bombs
- Concern over disruptions to supply chain due to bottlenecks, infrastructure failure, accidents and natural or manmade events
- Rising concern over security of food chain
- Heightened concern over need to protect resources against a number of dangerous materials
- Greater emphasis on controlling drug traffic, illegal immigration, and invasive species
- Increases in severe weather patterns leading to accidents and disruption of shppping

Environmental Concerns

- Adoption of SmartWay Transport Partnerships and other programs to optimize shipping
- Experimentation with solar, wind and other off-grid power generation
- Increased tension among federal and state and local jurisdictions on priorites and programs
- Pressure to recapture recreational uses and displace commercial/industrial in urban areas
- Concern over oil spills, discharges and other pollution

Summary Chapter 8

- **Product Stratification.** The commercial real estate market can be subdivided into major property type categories including office, retail, industrial, apartment and hotel. While interesting, to understand each of the markets for these property types, it is necessary to decompose or stratify them into more homogeneous categories.
- **Market Segmentation.** On the demand side, the market can be subdivided into a number of discrete categories which share commonalities with others in the same segment, and are meaningfully different among other segments.
- **Goodness-of-Fit**. By matching stratified products with segmented consumers of space, the market can create more effective, enabling real estate solutions that can improve the satisfaction of individual space users and in the aggregate, improve the quality of the build environment.
- **Demand Forecasting.** At an aggregate level, employment and population growth can be used to establish broad forecasts of demand. However, in allocating that demand among the property types and subtypes, it is important to understand the nature of activity that growth will stimulate, as well as how that translates to effective demand.
- **Drivers of Value.** It is important to understand the underlying value proposition for each of the major property types and subtypes as well as how those drivers have changed and are likely to change over time.
- **Primary and Ancillary Demand.** It is important to monitor primary demand by space users actually paying the rent and running establishments as well as by secondary demand that supports those operations.
- **Trends.** Market observers should keep a close eye on a number of trends affect all property types (e.g., globalization, technological innovation) as well as trends that will affect specific property types and property niches.

Concepts

- Supply/Demand Fundamentals
- Proformas
- Enterprise solvency
- Risk/Return
- Goodness-of-fit
- Product stratification
- Market segmentation
- Private and public institutional investment
- Market share
- Market cap
- Establishments
- Standard Occupational Classification
- NAICS
- Location quotients
- Industry sectors
- New vs. replacement jobs
- Biotechnology
- Corporate Social Responsibility
- Sustainable real estate
- Logistics
- Supply Chain Management
- Globalization
- Branding
- Primary demand
- Secondary demand
- Third Party Logistics
- Multimodal shipping
- Mode of shipping
- Sustainability

Product Stratification and Market Segmentation