

Fundamentals of Real Estate

Chapter 10: Real Estate Spatial & Capital Market Fundamentals

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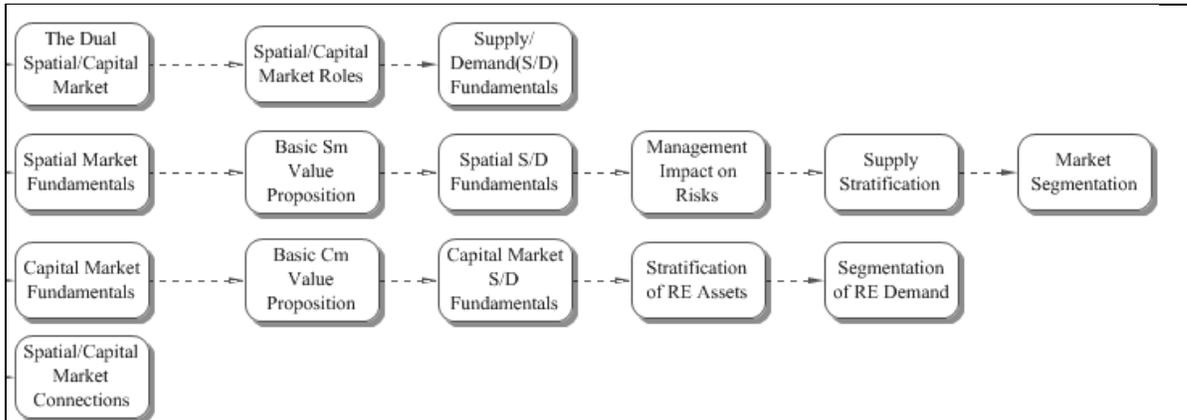
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Preview Chapter 10



Overview

Real estate operates in two distinct, but related markets: the spatial market and the capital market. The Spatial Market is driven by supply and demand (S/D) for space; the Capital Market is driven by the S/D for assets.

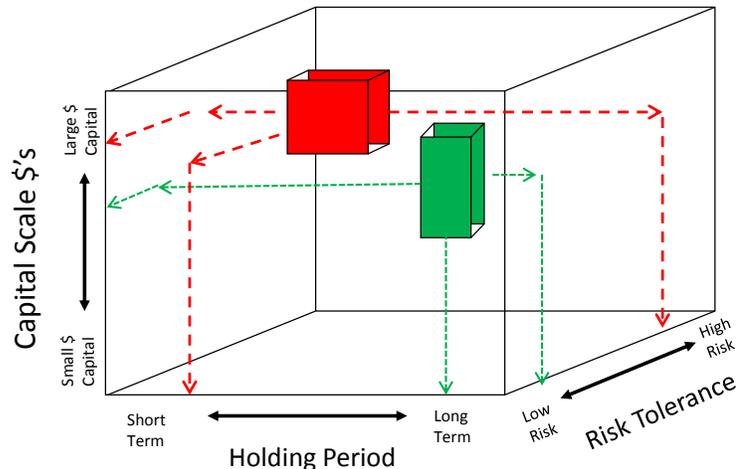
The basic value proposition of Value = Income/Rate operates in both the spatial and capital markets although the emphasis is different. In the spatial markets, S/D determines rent or income which can be converted to value. In the capital markets, the return/risk ratios and S/D interactions are used to establish returns necessary to attract capital to real estate.

While both markets respond to supply and demand forces, they have different elasticity's that affect how these forces play out in terms of value impacts. Thus, Spatial/Capital market analysis should be disaggregated by stratifying supply and segmenting demand.

What you will learn in Chapter 10

- Spatial Market
 - Basic Value proposition
 - Impact of spatial S/D on rents
 - How rents are converted to values
 - Multi-dimensional product stratification
 - Segmentation of user demand
- Capital Market
 - Basic Value proposition
 - Return/Risk relationships
 - Elasticity's of Supply Demand
 - Four Quadrant Product Mix
 - Stratification of investment products
 - Segmentation of investor demand
- Market Cycles
 - Impact of Spatial/Capital Market (Sm/Cm) elasticity's
 - Bubble pricing
 - Commoditization
 - Spatial/Capital market delinking
 - Spatial/Capital market reconnection

Segmentation of Investor Demand

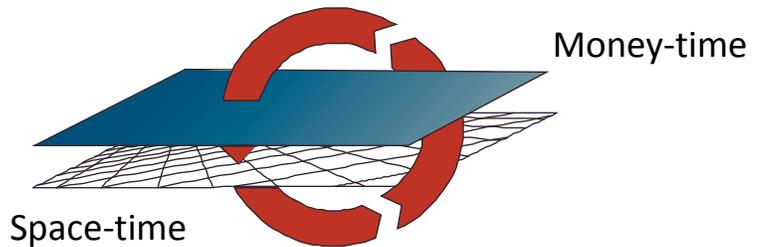


The Real Estate Markets: Spatial/Capital

Dual Spatial/Capital Markets

Dual Real Estate Market

Real estate operates in two distinct, but related markets: the spatial market and the capital market. The spatial market is driven by supply and demand for spaces. The behavioral nature of the real estate market suggests the laws of supply and demand cannot be applied



without adjustment for the unique nature of the asset class. However, the basic concept does provide a useful framework for understanding the real estate value proposition. The supply and demand principle suggests that there is an inverse relationship between the supply of an asset and the price it is likely to command in the market. When there is a shortage of supply relative to demand, the price will rise as buyers bid up prices. As the price rises above the cost to create additional assets, the market will respond by increasing production. At some point, without some constraints on production, supply will eventually exceed demand. Due to excess supply, prices will fall as sellers try to liquidate assets. At the same time, producers will decrease production which, if demand continues to grow, will ultimately lead to a shortage of product. This will cause the pattern to repeat, creating cycles of excess or shortages of supply relative to demand. On a corollary note, shifts in the level and growth in demand can create the same cyclical pattern.

Exhibit 10- 1

The behavioral nature of the real estate market suggests the laws of supply and demand cannot be applied without adjustment for the unique nature of the asset class. However, the basic concept does provide a useful framework for understanding the real estate value proposition.

The Basic Spatial Value Proposition

Since the overall real estate value proposition ultimately hinges on the spatial market, it is important to understand the spatial market value proposition. At a basic economic level, real estate value is simply the present value of the future benefits which can be calculated as:

$$\text{Value} = \frac{\text{Income}}{\text{Rate}}$$

In this case the “Value” is the value (V) of the equity position while the ‘Rate’ is the equity discount or Cap Rate (R) that is applied to the net Income (I) that is left for equity after expenses and mortgage

payments. Given the simple algebraic nature of the equation, changes in value can be easily calculated. For example, take the case of an investment in a 50,000 sf rentable shopping center that is fully occupied and generates a gross income of \$32/sf/year. Assume the operating expenses are 25% of the gross income (i.e., 75% left over for Net Income) and investors require an 8% rate of return on a project of that nature. In this case, the value of the property is:

$$\begin{aligned} \text{Value} &= (50,000\text{sf} * (\$32/\text{sf} * 75\%)) / 8\% \\ &= \$1,200,000 / 8\% \\ &= \$15,000,000 \end{aligned}$$

As noted in the $V=I/R$ equation, one of the key drivers of value is the net income (i.e., total rent after expenses) a property can generate over time. While the $V=I/R$ is often used to establish a base-line for value, it has some limitations when extended to income property. In particular, it treats the income as fixed in perpetuity and thus ignores changes in rent and expenses that often occur over time. Despite these limitations, the capitalization of income (i.e., I/R) is commonly used to establish a rough estimate of the value of a property. The two independent variables (i.e., Income and Rate) are derived from the market and are a function of the laws of supply and demand. Briefly, there is an inverse relationship between the price of a good and the quantity of the good that is consumed. This is reflected as the downward sloping line on the price/quantity graph.

The value of real estate is a function of relative balance of supply/demand forces. At any point in time, supply and demand and the nature of demand curve determines the rental levels space will command in the market... the market utility function determines where supply and demand intersect.

Spatial Supply/Demand Relationship

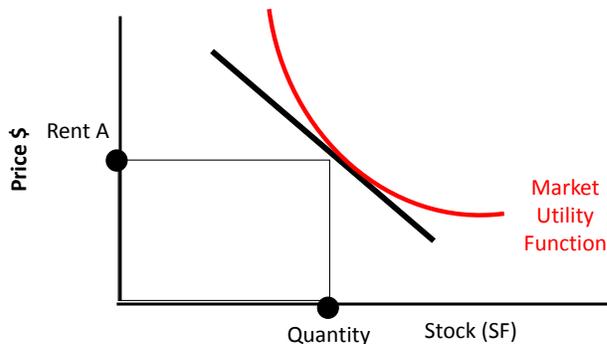


Exhibit 10-2

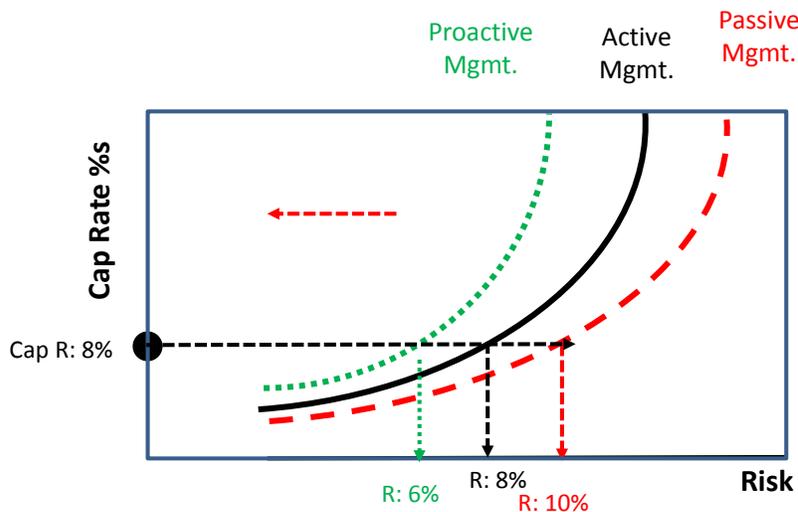
Thus, as prices rise, consumption declines while consumers shift to lower cost alternatives or curtail their consumption. On the other hand, when prices decline, consumption will tend to increase. At some point, the market's appetite for the product on the price/quantity curve is determined by the Market Utility Function. Briefly, the utility function is the indifference curve between price and quantity based on the principle of marginality which states that the consumption of added goods or the appeal of lower prices will diminish as the factors move beyond the range where the S/D line is intersected by the Market Utility Function which is denoted as the curve in Exhibit 10-2. The curve indicates the marginal level of demand in response to price; once the market's spatial requirement are satisfied changes in rent or supply will evoke limited behavioral responses. That is, once the market's appetite for space has been satisfied, decreases in price will trigger less consumption. On the other hand, at a higher price, the market will demand less space as

the market follows the principle of substitution and substitutes other resources (e.g., labor) to compensate for excess real estate costs.

Four distinguishing elements in the real estate market differentiate how the laws of supply and demand compared to other asset classes. First, the real estate market is relatively inefficient in terms of information flows. Thus, market participants whose action can affect changes in the supply of space may not be equally informed regarding the current levels of demand for space. Furthermore, predictions of future levels of demand for space are extremely complex and thus can involve a relatively high level of uncertainty. Second, the supply side of the market is relatively inelastic compared to other asset classes as well as to the demand side of the market. This inelasticity or inability to quickly respond to changes in demand is due in part to the inherent delay in developing new space. This is especially true in markets with high barriers to entry (e.g., high land costs, anti-growth policies, supply-constraints) which make development a more difficult and prolonged process. Third, the responsiveness of rent in an existing project to changes in S/D balance in the market is dampened by the existence of leases; multi-period contracts that specify the rental levels for leased space. In some cases, these leases will adjust to market rates, while in most cases the adjustments will be pre-specified and may or may not echo changes in market rent. When fixed-rate or leases with scheduled rent changes expire they will be subject to the laws of supply and demand for space and will be adjusted accordingly. However, the level of adjustment may be dampened upon expiration if the contract provides an option to renew and specifies the terms of renewal that may differ from the then-current market. Finally, the risk of an investment which helps determine the required Returns (R_r) can be affected by the level of management provided by the investor or a professional manager.

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Impact of Management Style on Return/Risk Profiles



The ability to affect the risk profile of a real estate investment is illustrated in Exhibit 10-3. The curves represent the relative Return/Risk ratio for the property under different management models. As noted, when the property is acquired the Return/Risk tradeoff is represented by the solid line; to achieve higher returns, the investor must

Exhibit 10- 3

accept higher risks along the curve. In this case an investor may target an 8% Return to justify allocating capital to a real estate investment. Assuming the investor seeks to cut costs, they may engage an inexperienced low-cost management company who performs only rudimentary functions, such as basic accounting, collection of rents and payment of expenses. In many cases, this passive management model can increase the risk of the investment, causing the risk curve to shift outward and exposing the investor to additional risk with no commensurate increase in returns. In the example, the higher risk drops the Return/Risk ratio to .8 as denoted by the red line. This can erode the value of the investment as the market demands a higher exit Cap Rate (Rc) to compensate for the added risk. This situation can be reversed if the investor proactively manages the asset to actually reduce risk causing the risk curve to shift upward. As noted in the example, as a result of improved management, the same property generates a 1.2 Return/Risk ratio. Due to its lower risk profile, the property would likely trade at a lower exit Cap Rate which would provide a boost in value. In cases where management moves beyond proactive management that transcends current best practices, the value can rise even further creating a premium that is referred to as “intangible value.”¹ While this premium is real and capable of being captured upon sale, the premium in value can quickly evaporate if a new buyer fails to apply the same level of management.

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Despite the distinguishing elements of real estate, over the long term the income and thus value of real estate is a function of relative S/D balance. Indeed, new construction must “pencil out” at the current levels of rent which helps keep the supply side of the market in a relative state of balance. That is, if there is excess supply, the proformas or forecast rents may not be sufficient to justify the development of new space. Unfortunately, due to the durable nature of space and its capital intensive nature, declines in demand will not result in a withdrawal of existing space but in increases in vacancy levels. At higher vacancy levels, owners will be forced to discount rents and offer concessions to try to increase consumption and bring the price/quantity point back into balance. On the other hand, if the market is tight and short on space, the resultant shortage of space will put upward pressure on rents as space users compete for a limited supply. At some point rents will increase to the level that justifies new construction. Thus, the quantity of space in the market tends to hover around the normative level justified by current and expected levels of demand.

Since the supply side of the market is relatively inelastic, the impact of changes in demand can have a dramatic impact on rents or prices. The impact on shifts in demand on rents is illustrated in Exhibit 10-4. The middle or black line indicates the “balanced” demand curve for space in a market which translates to a market-based net rent of \$32/sf per year.² The green or rightmost demand line indicates an increase in demand that may be attributable to the relocation of a major tenant or rapid economic and job growth.

¹ Intangible value will be discussed in more detail in the chapter on real estate appraisal.

² Net rent indicates the rent after deduction for operating expenses; it is the residual income that can be used to compensate capital for investing in the property.

Since the change in supply is relatively fixed, the demand curve shifts upward which puts pressure on prices and increasing net rents to \$40/sf/year. On the other hand, the leftmost demand curve reflects a market in a major employer(s) close operations or where a weakening economy forces companies to lay off workers and/or cut back on space. In this case, the changes are fairly dramatic causing rents to decline to \$20/sf / year.

Changes in Demand/Supply

Exhibit 10-5 illustrates how the changes in market rent triggered under the two different demand scenarios translate to an impact on value. In essence, the process reflects the $V=I/R$ paradigm. Thus, when gross rents rise from \$32 to \$40/sf/year, the impact on property value can be calculated by comparing value conclusions under the two scenarios. The same relationship holds when the market rents decline to \$20/sf/year.

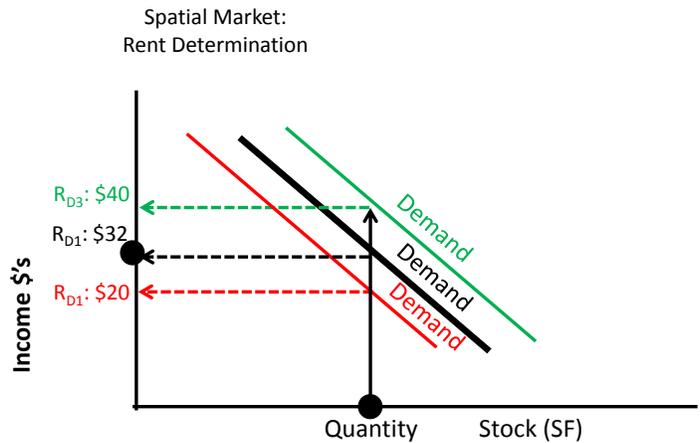


Exhibit 10- 4

Value Impacts of Changing Rents

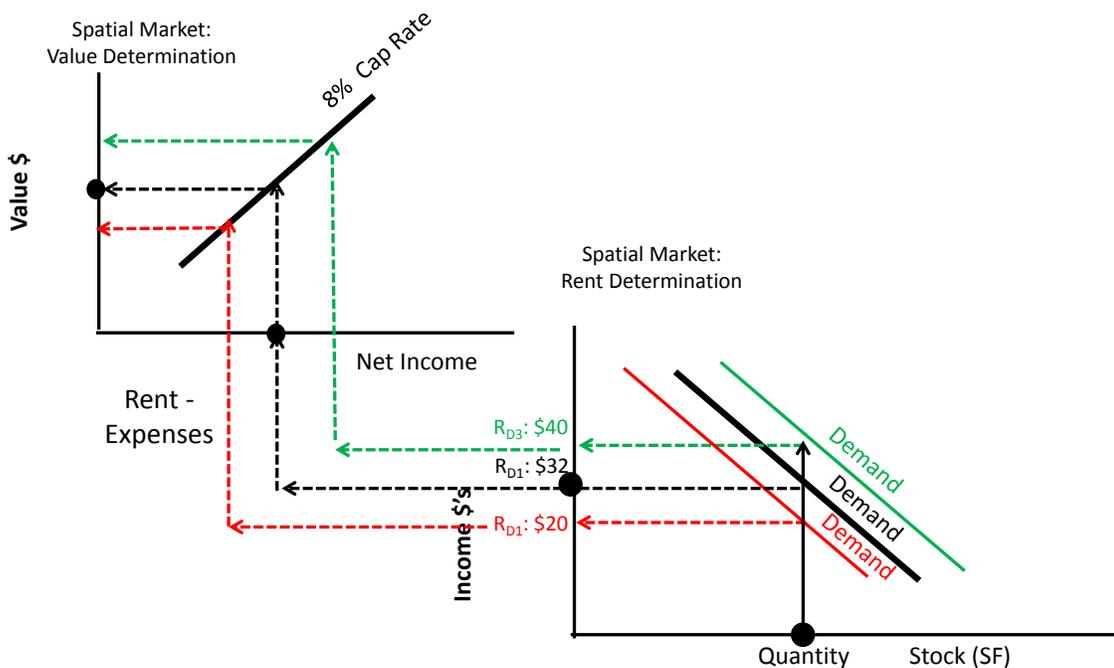


Exhibit 10- 5

Value Change via Rent Change

Assume a building has 50,000sf of net rentable space.

Furthermore, the operating expenses are 25% of gross income. In the current market, investors demand an 8% Cap Rate to compensate for the risk associated with such an investment. In the Base Case, the rent of \$32/sf/year translates to a \$15m justified value (Vj) after expenses are netted out and the resultant income is capitalized at 8%.

Variable	Base Case	Rent Increases	Rent Declines
Net rentable	50,000		
* Gross Rent/sf	\$32.00	\$40.00	\$20.00
= Gross Rent	\$1,600,000		\$1,000,000
- Expenses	25%		25%
= Net Income	\$1,200,000	\$1,500,000	\$750,000
/ Rate	8%	8%	8%
= Value Justified	\$15,000,000	\$18,750,000	\$9,375,000
Percent Change		25%	-38%

Exhibit 10- 6

Now, if the rent increases to \$40/sf/year and the expense ratio stays the same, the Vj increases to \$18.75m, a 25% increase in value. On the other hand, if rents decline to \$20/sf the Vj would decline to 48% to \$9.375m.

By algebraically manipulating the basic value equation to $R = I/V$, the rate of return in the spatial market can be extracted from the market by observing actual transactions and extracting the implicit pricing. For example, assume that the 50,000sf property was purchased for \$18.75m which was justified at the \$40/sf proforma rent but only generates \$32/sf in actual rent. If the expense ratio holds at 25%, the Net Income the project generates is the same \$1.2m as before. At that lower income level, the project generates a 6.4% rate of return (i.e., $R = I/V$ or $6.4\% = \$1.2m/\$18.75m$). If the market demanded a higher return, the Vj would decline from the initial purchase price which would create an unrealized loss in value.

The Basic Capital Market Value Proposition

The basic capital market value proposition is related to the spatial value proposition. However, in the spatial side the emphasis is placed on the income that a project is likely to generate in light of real estate fundamentals. In the capital markets, a similar value proposition is applied although emphasis shifts to capital market fundamentals. In essence, the capital markets approach real estate as a financial asset rather than a physical asset. As such, the value proposition shifts emphasis to the required rate of return (Rr) that real estate can generate as well as the attendant risk exposures associated with such investments. The Rr is a function of two key elements. First, the relative risk/return position of real estate compared to other

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asset classes with which real estate competes for capital. Second, the risk-tolerance levels of investors and the perceived risk associated with real estate investments. Thus, the value proposition is modified with the

Rr becoming an independent variable that is extracted from the market for capital. Once the rate has been established, the value of specific assets to investors can be calculated by converting the forecast income to the value.

Capital Market Risk Tolerances

Exhibit 10-7 illustrates how risk tolerance curves affect the Rr for real estate. The middle curve represents the indifference curve for typical investors who demand that returns must be commensurate with risk of a given asset. Assuming the risk for a particular type of investment is at Point A. At that level, the market requires a 5.6% return to achieve a balanced risk/return level. If risk increases to Point B, the Rr is 6.6%, a 100 basis point increase in required return. On the other hand, Risk Takers as denoted by the right-tilted indifference curve will be willing to accept a lower return in both cases, with a modest 20bp increase to 5.2% for the Point B risk exposure. On the other hand, Risk-Averse investors would require a 7% return at Point A and a 10% return at Point B. In essence, the Risk Takers would be able to outbid other players to secure the asset. Exhibit 10-8 illustrates how the Rr affect value at a given level of risk.

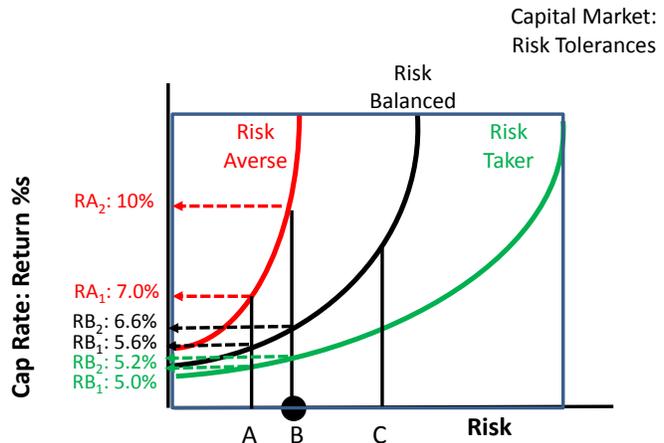


Exhibit 10-7

Capital Market Risk/Return Pricing

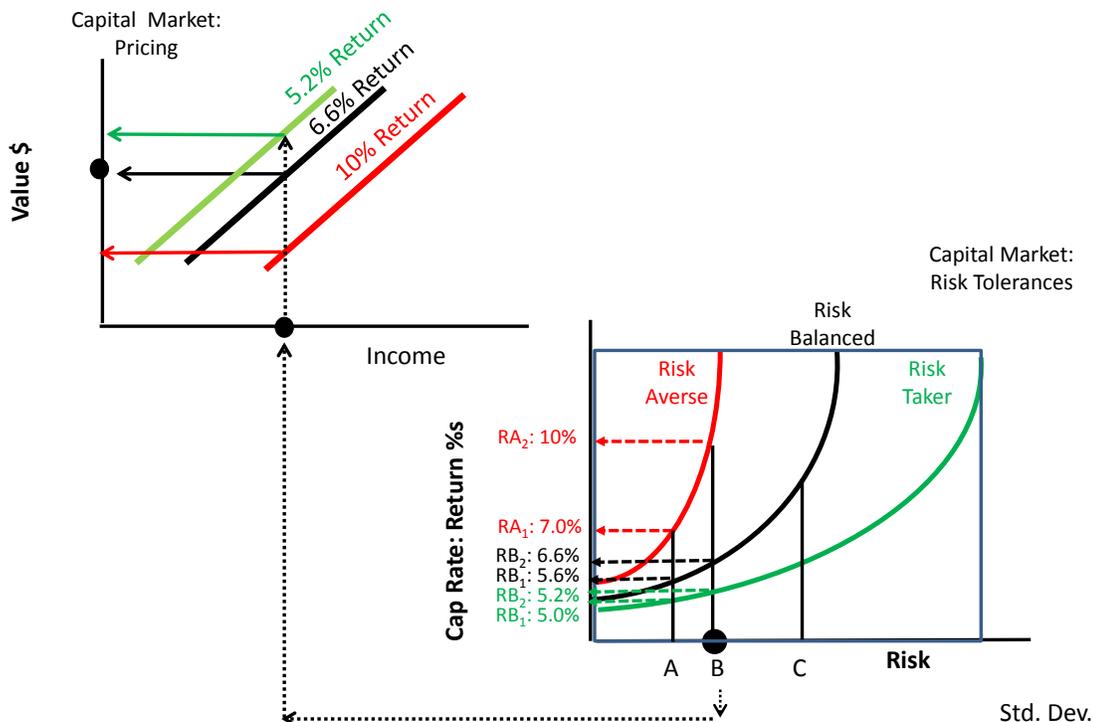


Exhibit 10-8

Value Change/Risk Tolerances

Exhibit 10-9 presents the Value for a hypothetical investment to three different classes of investors: Risk-Averse, Risk Balanced, and Risk Takers. As extracted from the risk tolerance curves, the Rr for the three investor classes results in significantly different justified values (Vj); \$17.1m, \$21.4m and \$24m, respectively. If the risk profile of the investment increases, the Rr and the Vj will also change. As noted, if risk shifted from Point A to B, the Risk Balanced investors would require a 100bp increase in return for the added risk, resulting in a 6.6% Rr and a Vj of \$18.2m; a 15.2% decline in value for the same asset. The results are even more dramatic for the Risk-Averse investors, with a 300bp increase in Rr translating to a 30% decline in value. On the other hand, the Risk-Tolerant investors would be insensitive to the change in risk, resulting in a minor 3.8% decline in Vj.

Variable	Risk-Averse	Risk Balanced	Risk Takers
Net rentable	50,000		
* Gross Rent/sf	\$32.00		
= Gross Rent	\$1,600,000		
- Expenses	25%		
= Net Income	\$1,200,000	\$1,200,000	\$1,200,000
Risk Point A			
/ Rate Point A	7.0%	5.6%	5.0%
= Value Justified	\$17,142,857	\$21,428,571	\$24,000,000
Change/Risk Level	-20.0%	0%	12.0%
Risk Point B			
/ Rate Point A	10.0%	6.6%	5.2%
= Value Justified	\$12,000,000	\$18,181,818	\$23,076,923
Change/Risk Level	-34.0%	0%	26.9%
Change Pt A/Pt B	-30.0%	-15.2%	-3.8%

Exhibit 10- 9

Spatial/Capital Market Elasticity's

Some might question whether the swings in value reflected in the previous discussion are realistic and could actually occur in the market. Unfortunately, history has proven that real estate values can be volatile, suffering from periods of oversupply and undersupply. These imbalances can occur in both the spatial and capital markets. The amplitude or speed of changes in real estate market conditions can be explained in part by differences in the elasticity's within and between the two real estate markets.

Spatial/Capital Market Bubbles

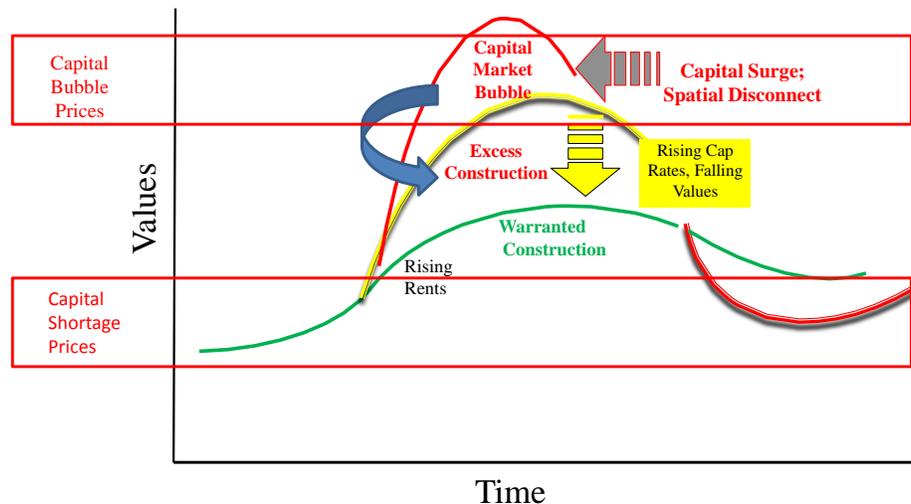


Exhibit 10- 10

Inelastic Spatial Demand

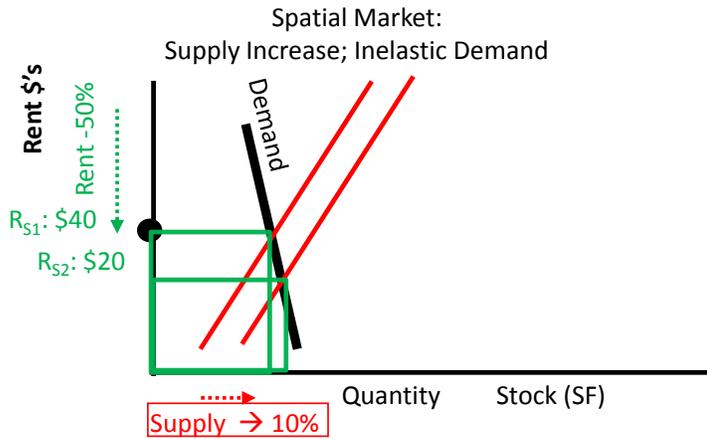


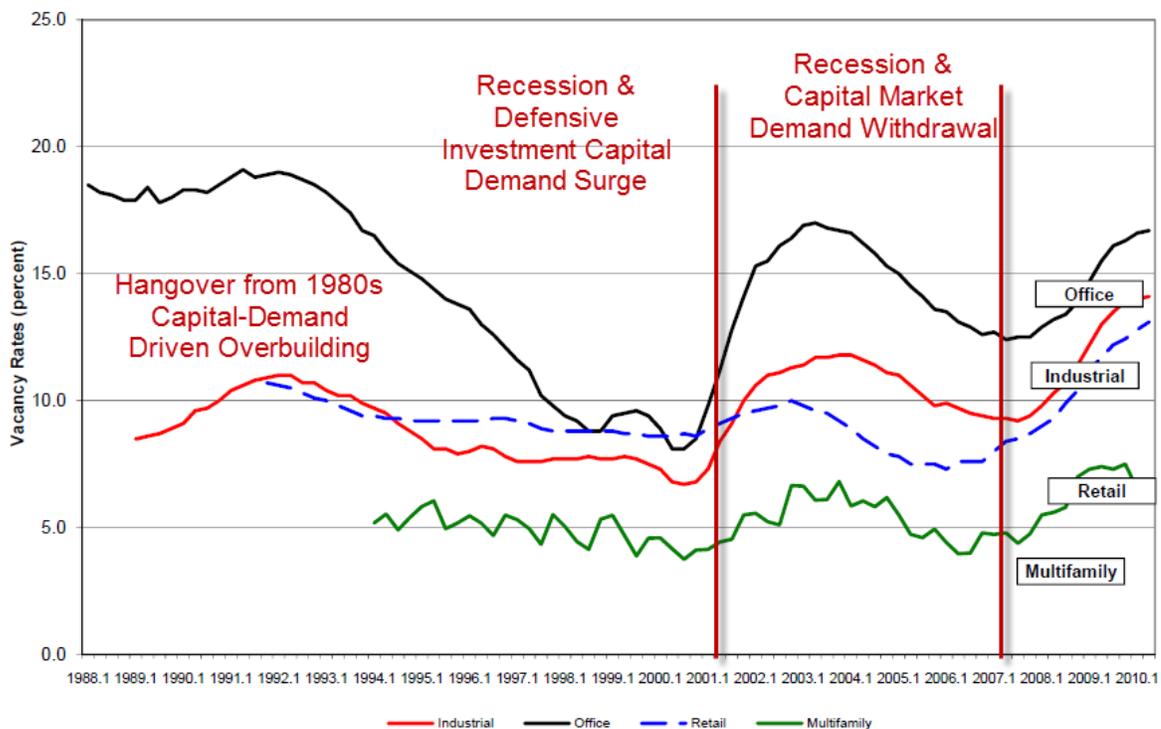
Exhibit 10-11 illustrates how a market with inelastic demand and supply responds to a change in available supply as a result of a significant increase in construction activity. As noted, due to inelastic demand the surge in construction which creates a surplus of property. This surplus causes an increase in vacancy and a decline in market rents as owners compete for tenants.

Exhibit 10- 11

The interactive effect of increasing supply and inelastic demand for space are presented in Exhibit 10-13 which

plots vacancy rates for the major property types. As noted, changes in capital flows have been fairly dramatic over the past 25 years creating lagged periods of overbuilding and underbuilding as evidenced by swings in vacancy rates as the spatial markets catch up in terms of S/D fundamentals.

Commercial Construction Activity



Source: CBRE Econometric Advisors

Exhibit 10- 12

Elastic Spatial Demand

In some markets, demand for space can be very elastic when the market is operating on the margin and very sensitive to rental levels. This phenomenon is illustrated in Exhibit 10-13 in which a seemingly modest 10% increase in rents from \$30-\$33/sf/year can trigger a significant decline in demand for space as price-sensitive tenants are forced to substitute other resources to remain solvent. Resource substitution could range from

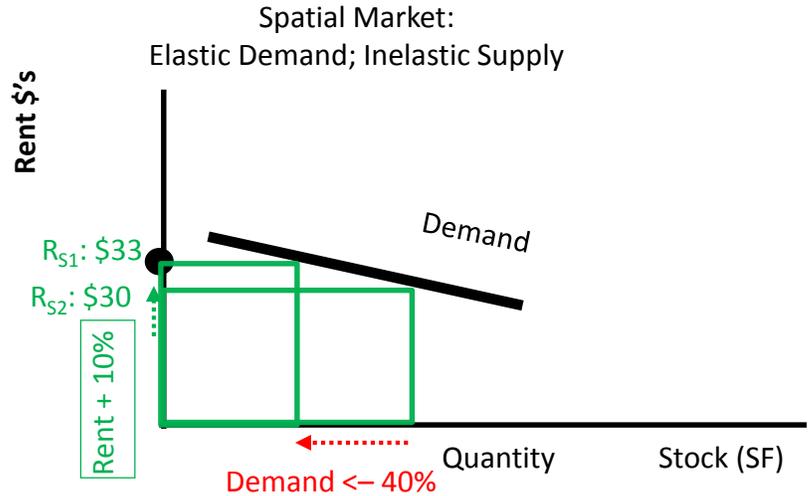


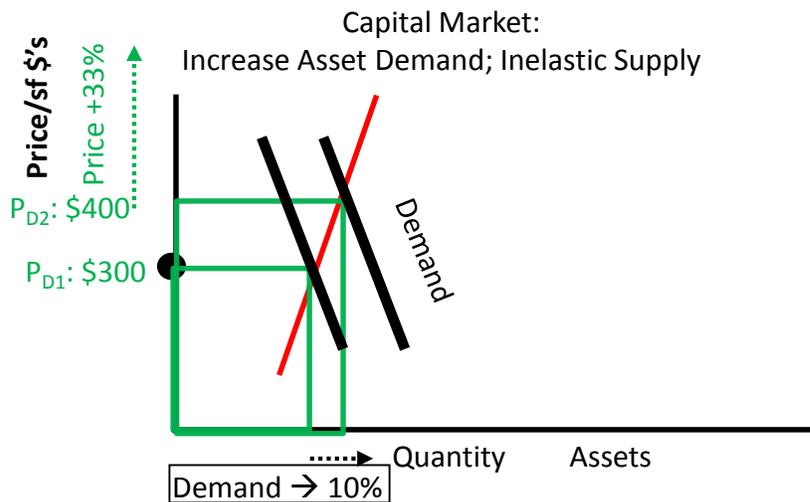
Exhibit 10- 13

investment in technology or other factors of production to increase

productivity. If increased productivity is not an option, a tenant may opt to close an unprofitable location and expand operations by relocating to lower-cost alternative markets.

The “bubble” pricing referred to in Exhibit 10-10 can be explained by looking at the elasticity’s in the capital markets. Exhibit 10-14 illustrates a situation in which the demand and supply of assets for sale is fairly inelastic as denoted by the high slope of the two curves. In this case, new players in the capital markets are drawn to real estate creating an outward shift in the demand curve. This occurred in the post-9/11 era when investors became defensive and shifted to real assets including real estate in search of security.

Capital Market Elasticity’s



Once the demand shifted, the market became a sellers’ market with excess capital competing for scarce resources. The end result was the beginning of a prolonged bull market where the almost insatiable demand for assets created upward pressure on values. This pattern became something of a self-fulfilling prophecy with investors shifting attention to the appreciation component of total returns and accepting lower income returns with Cap Rates declining.

Exhibit 10- 14

Indeed, prior to the collapse of the commercial market in 2007, Cap Rates reached all-time low records breaking the 5% threshold in a number of markets and property types. In addition to being fueled by low equity returns, the surge in commercial values was amplified by the availability of low cost, non-recourse debt which created positive leverage for investors.

In addition to excess capital flows to the asset class, investors became less sensitive to the risk side of the equation. This shift in investor behavior is illustrated in Exhibit 10-15. As noted, a decline in sensitivity to risk translates to a downward shift (i.e., decline in elasticity) of the return/risk indifference curve. Once this occurs, the increase in yield or required return will not be as responsive to a change in risk. In the

example, the risk of real estate increases from 8% to 10% for a 20% increase. Due to high elasticity, under the initial return/risk curve, the required return would rise from 6% to 9% which is a 50% increase. In the second scenario where the market has become insensitive to risk, the 20% increase in risk would only command a 10% increase in returns rising from 6% to 6.6%.

The lack of appreciation for risk –and hence the failure to price it into required return rates – during the 2001-2007 bull run in commercial real estate was attributable to several factors. First, emphasis shifted from income returns to total returns, with investors focusing more on the appreciation component. Second, new classes of investors were drawn to real estate, many of whom had little understanding of the underlying spatial fundamentals upon which the asset class depended. Third, traditional institutional investors shifted their behavioral preferences to higher return “value-add” and opportunistic investment strategies. This shift expanded the demand for assets across the quality spectrum, leading to a wave of

Capital Market: Decline in Risk Awareness

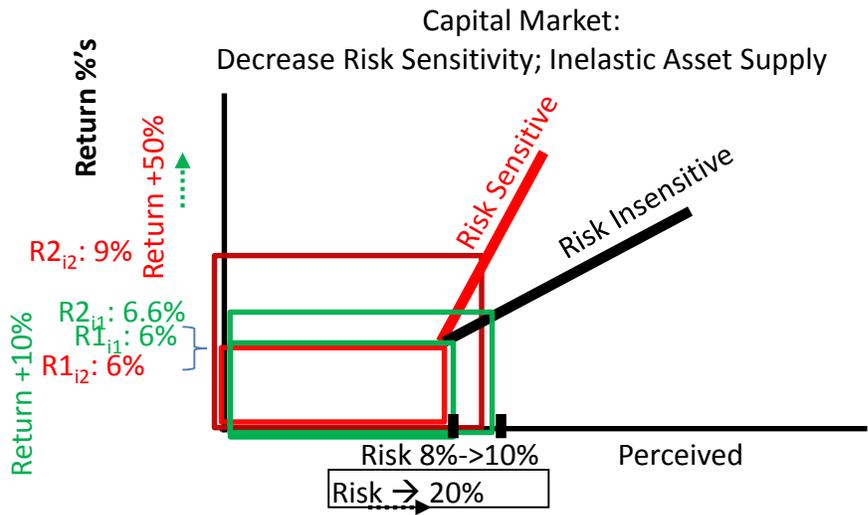


Exhibit 10- 15

The lack of appreciation for risk –and hence the failure to price it into required return rates – during the 2001-2007 bull run in commercial real estate was attributable to several factors. First, emphasis shifted from income returns to total returns... Second, new classes of investors were drawn to real estate, many of whom had little understand of the underlying spatial fundamentals... Third, traditional institutional investors shifted their behavioral preferences to higher return value-add and opportunistic investment strategies.

commoditization in which prices converged in something reminiscent of the “one size fits all” model of market behavior.

Exhibit 10-16 illustrates the “commoditization” that occurred in commercial real estate prices during the 15 years since the market recovered from the collapse of the latter 80s and early 90s. The size of the bubbles is proportionate to the property type market share of NCREIF and are positioned by the average total return/risk relationship by property type during each of the 15 year periods. As noted, during the first time period the total returns among property types differed markedly as would be expected due to different market drivers, fundamentals and elasticity’s of supply and demand. This differentiation among property types and recognition of differences in return/risk ratios all but disappeared when the recovery took off in the mid-90s. It began with a wave of opportunistic investing in which investor behavior focused on market timing and tended

to

Once the market stabilized, investor strategies shifted away from core assets to more opportunistic assets to lock in the higher returns the market had come to expect from real estate. After the market had shifted attention away from the spatial side to the capital side, momentum continued to build with real estate increasingly seen as a capital asset rather than a physical resource.

Commoditized Real Estate Prices

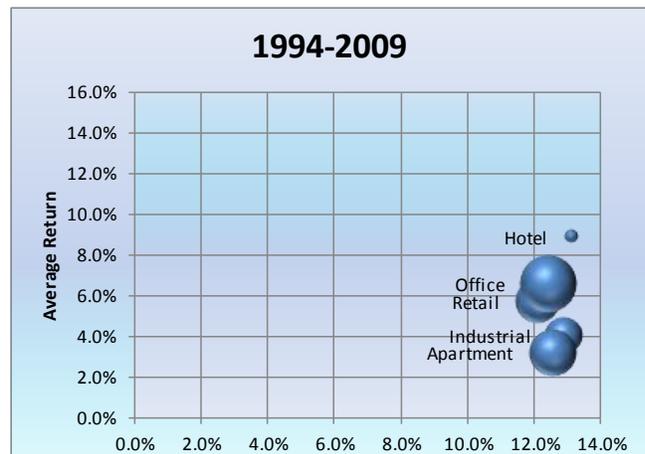
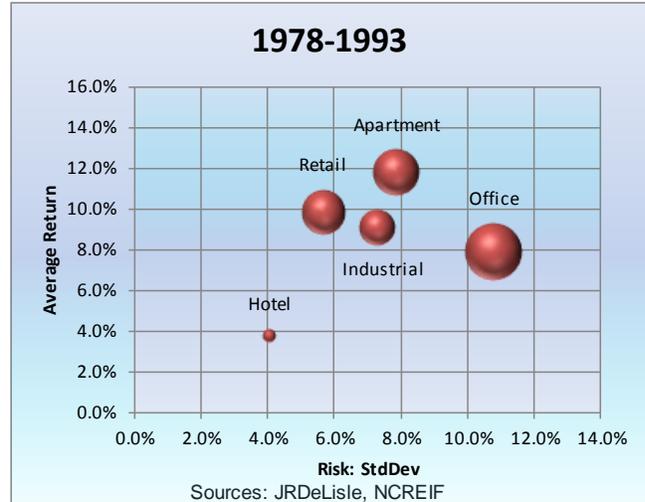


Exhibit 10- 16

treat all investments as equal, looking to a market correction for returns rather than value creation.

Once the market stabilized, investor’s strategies shifted away from core assets to more opportunistic assets to lock in the higher returns the market had come to expect from real estate. After the market had shifted attention away from the spatial side to the capital side, momentum continued to build with real estate increasingly seen as a capital asset rather than a physical resource.

Unlike some of the prior “corrections” in which spatial S/D imbalances occurred, the collapse in the commercial market that rippled through the industry in mid-2007 was caused by an abrupt contraction in capital flows to real estate as noted in Exhibit 10-18.

Large Project Transaction Volume

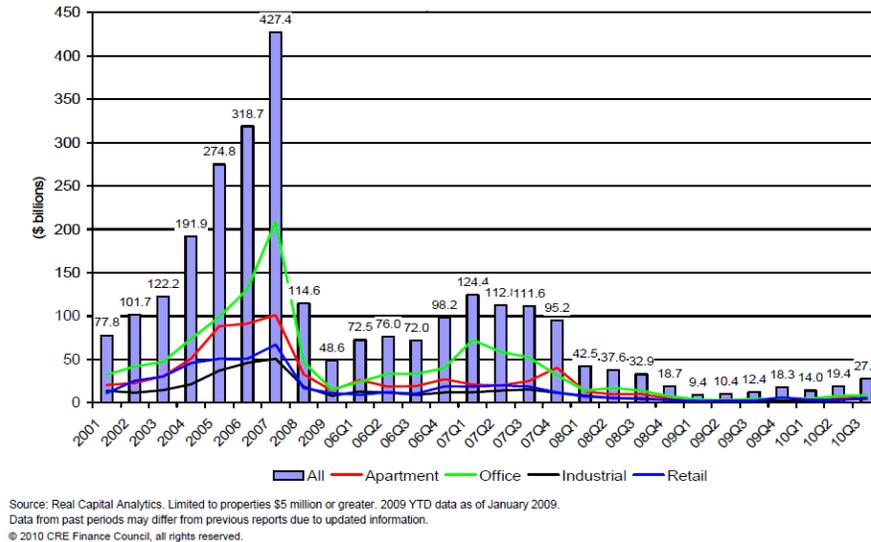


Exhibit 10- 17

Bid/Ask Spreads

The higher elasticity of demand for assets than the supply of assets left potential sellers holding the bag. At the early stages of the correction, this manifested itself in an increase in the bid/ask spread. Since sellers were not willing to dispose of assets at bargain basement prices, the transaction market quickly dried up. In the absence of buyers, prices continued to collapse which amplified the downward spiral. Unfortunately, the economic recession hit the market causing erosion in spatial market fundamentals (i.e., rents falling, vacancy rates increasing). The end result was a decline in asset prices in the range some 40-60% in value. Unfortunately, many were in denial and tried to sell

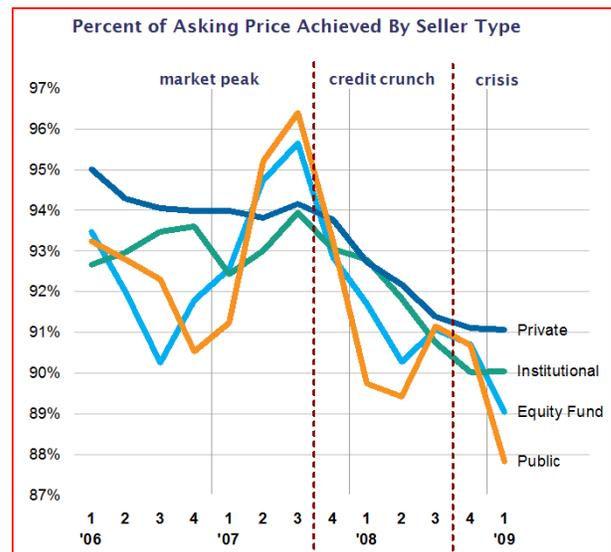


Exhibit 10- 18

property at what they believed were market values.

Since there was no demand at the other side of the table, a wide chasm in the bid-ask spread emerged, effectively shutting down the market. Over time, owners who needed to liquidate properties were forced to adopt more realistic asking prices to close the gap in bid/ask spreads. The “lessons learned” over the past five years and rapid changes in market dynamics offer testimony to the behavioral nature of the real estate market. In particular, while spatial

market fundamentals will be important over the long term, current market values (i.e., spot prices) can be dramatically affected by the capital market's expectations and behavioral responses. This argues that to be successful in real estate over the long term, one must understand the value proposition upon which the spatial market is built, as well as how that proposition extends to the capital markets.

Spatial Market: Stratification and Segmentation

Supply Side Product Stratification

To this point the discussion has explored S/D relationships in the spatial and capital markets as though there was one large market. In reality, the real estate markets are comprised of a number of components both on the supply and demand sides. In order to apply S/D concepts in a meaningful way it is important to approach the discussion in terms of stratified supply and a segmented demand.

Real Estate Product: Static, Environmental and Linkages

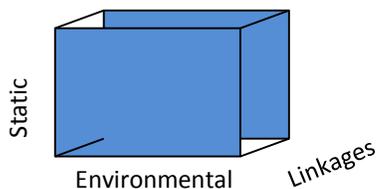


Exhibit 10- 19

When thinking about the supply side of the real estate market, it is useful to consider the three dimensions introduced earlier: static attributes, environmental attributes, and linkages (SEL). Briefly, static attributes refer to the physical dimensions of site and structure; environmental attributes refer to the context or “place” surrounding the property; and, linkages refer to the connections between the site and key uses (e.g., work, shopping, recreation, education). Thus, while each of these dimensions can

be further disaggregated, in order to tap the full dimensionality of the product construct it is important that they each be considered when exploring supply and demand. Then, depending on the nature of the property, more or less attention can be paid to each of the dimensions.

While the SEL paradigm presents useful framework for evaluating an individual project, it is too general for analysis on the supply side of the market. As noted in Exhibit 10-21, to avoid relying on too much of a generalized or commoditized approach to real estate the spatial market should be stratified into subsets or strata within which properties share some common elements. Once a property is properly assigned to a subset of the market, the supply and demand balance can be scrutinized in a more meaningful manner. For example, in the illustration the subset identified within the larger market is located in the CBD and benefits from strong linkages and accessibility. The properties are located

in fairly dense surrounding environs, benefiting from positive synergies and complementary land uses that make the places more walkable. Finally, the projects are moderate-to- large size creating economies of scale that allows developers to offer more on-site amenities. Once stratified, the relevant spatial

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supply/demand fundamentals are concentrated on the particular stratum although conditions in the larger market also create spill-over effects that should be monitored for the secondary impacts they can create.

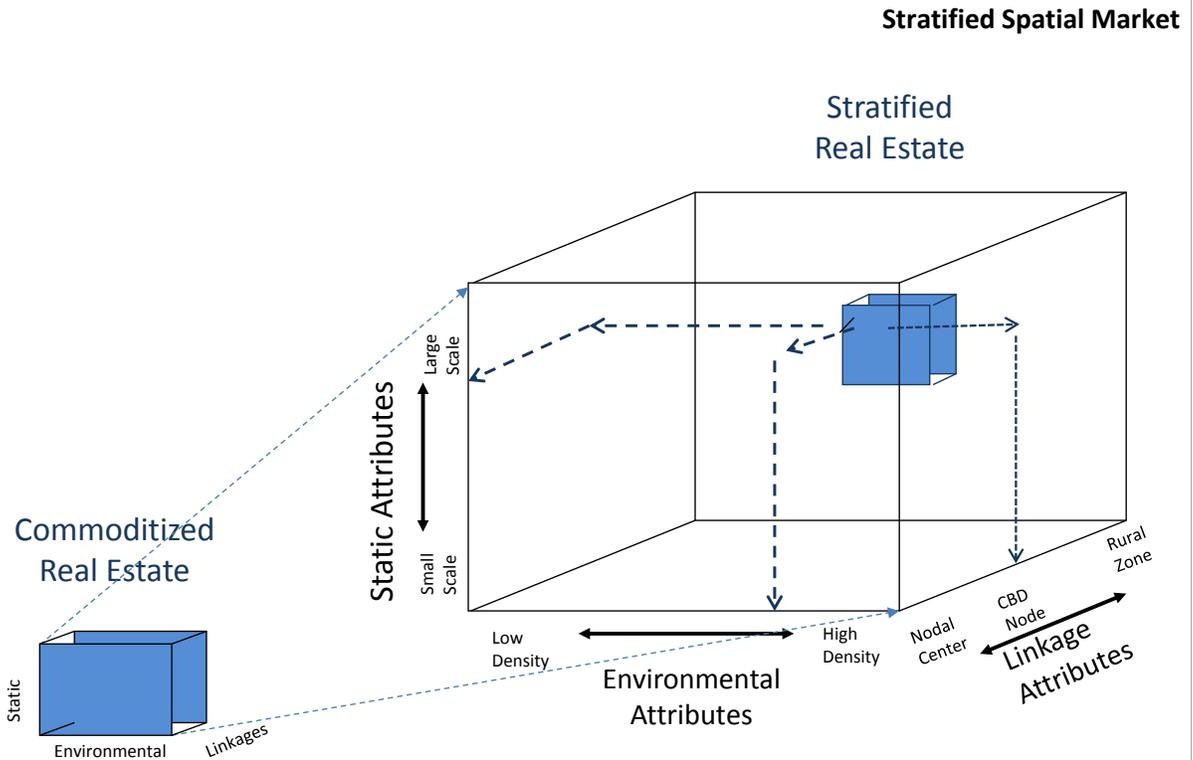


Exhibit 10- 20

In some situations it may be more appropriate to approach product stratification by moving beyond a single subset of the market. This would occur where the market considers more than one location or a combination of attributes that make them “comparable” or viable substitutes. This can occur in multi-nucleated markets where there is more than one central node that attracts users drawn to more dense urban lifestyles. An example of this would be in the Puget Sound Region of Washington where the Bellevue core has emerged as a viable urban alternative to Seattle’s CBD and Tacoma provides a lower-cost alternative. In the case of the somewhat competing but complementary central core areas of Bellevue and Seattle, the demand and supply functions should cover both markets to get a more accurate estimate of the spatial demand/supply balance for the urban portion of the market. This is particularly true since tenants and investors consider both markets when making locational and investment decisions.

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Multi-Nucleated Supply Market Aggregation

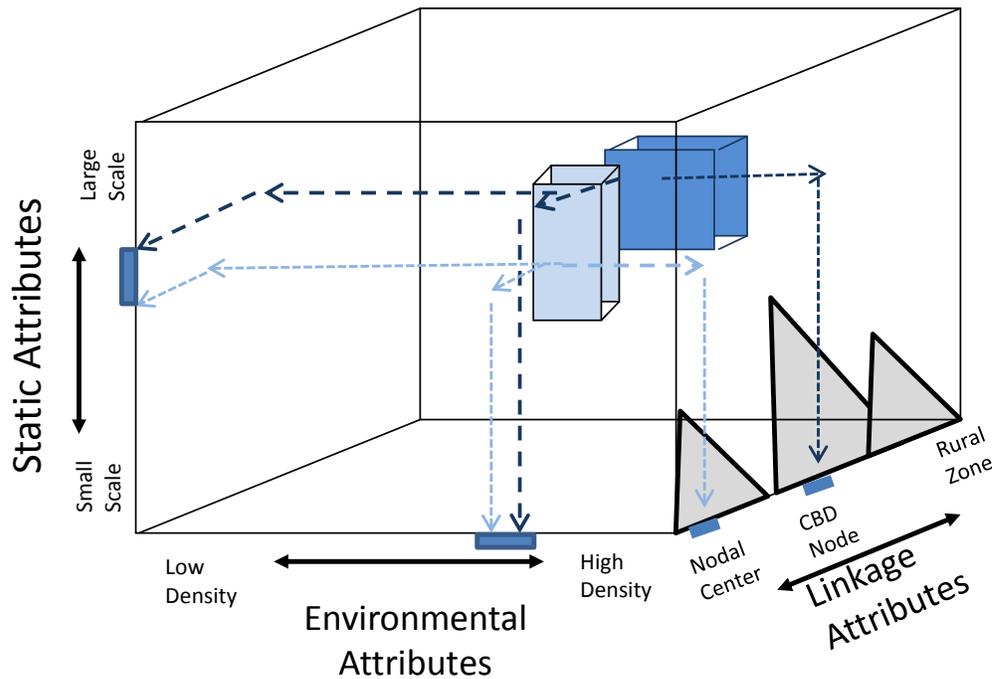


Exhibit 10- 21

The importance of creating meaningful clusters or combinations of geographically dispersed but comparable market areas can be illustrated by considering the “urban villages” that are scattered across the City of Seattle and many other urban markets. Rather than looking at each village in isolation to understand S/D balance, individual villages should be combined with comparable villages to provide a more accurate picture of the relevant spatial market.

Another example of the importance of identifying geographically dispersed clusters the competing market strata can be extracted from an analysis of the Link Light Rail expansion in the Puget Sound market. As noted in Exhibit 10-23, there are a significant number of existing and proposed light rail stations. Some developers look at each station as a unique submarket in terms of competitive supply. While such an approach makes sense in terms of traditional geographic analysis that may focus on contiguous areas, in reality the stations are bonded together by the common light rail linkage. Thus, when exploring current and proposed levels of supply,

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some of the stations should be combined to provide a more comprehensive view of the “rail-related” submarket.

The importance of combining geographically dispersed but linked rail stations is particularly important when some of the stations are in “emerging market” areas which face inherently greater risk than more established markets. This higher risk profile stems from the fact that development in mature station areas can play off of the synergies created by existing development, while in emerging market areas new development must achieve sufficient critical mass to create or “make a market.” It also renders “first to market” strategies in individual station markets even riskier than they might otherwise be since additions to the supply of properties with potentially better micro-market locations will be much greater than in the individual submarket itself. In addition to the supply side of the market, expansion of the competitive universe of stations has significant implications for evaluating S/D balance.

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Link Light Rail Stations: Current and Proposed

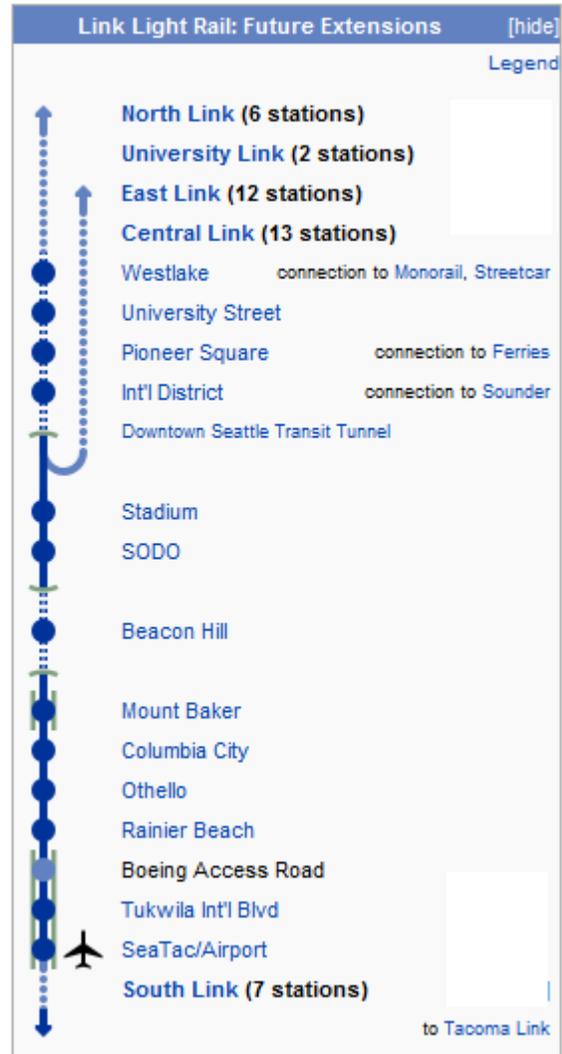


Exhibit 10- 22

For example, since expanded rail lines tend to open multiple stations over a fairly compressed time frame, additions to supply can quickly outpace an increase in demand. This is particularly true where the potential market for space in emerging markets is limited and relatively inelastic.

Demand Side Market Segmentation

Attribute Weightings by Property Type

Factors	SEL Weightings by Property Type					
	Office	Retail	Industrial	Apartment	Hotel	AVG
Static	40%	40%	30%	40%	40%	38%
Environmental	30%	20%	10%	20%	20%	20%
Linkages	30%	40%	60%	40%	40%	42%
Total	100%	100%	100%	100%	100%	100%

Factors	SEL Weightings by Retail Sub-Property Type					
	Convenience	Neighborhood	Power	Outlet	Mall	AVG
Static	20%	20%	50%	60%	50%	40%
Environmental	20%	40%	20%	10%	10%	20%
Linkages	60%	40%	30%	30%	40%	40%
Total	100%	100%	100%	100%	100%	100%

Exhibit 10- 23

In order to understand the effective demand (i.e., will and ability to pay) for a particular type of property, it is important to disaggregate the market into demand market segments. Briefly, market segmentation is the subdividing of space users into homogeneous subsets or groups which have some commonalities that translate to similarities in consumption

functions or demand for products or services. Exhibit 10-24 presents a simplified example of demand-side market segmentation. The top table illustrates the different weights or importance different potential user segments might assign to the three major factors of real estate: Static, Environmental and Linkages. As noted, the different major “food groups” will likely have different preferences depending on the nature of business activities they conduct and the drivers of value that determine their success. The lower table breaks out the retail segment of space users into sub-type categories, indicating the differences in importance to each of the three factors. As

noted, convenience center tenants place the most emphasis on linkages, including ingress and egress that makes it easy for customers to get on and off site. On the other hand, the outlet center tenants place more emphasis on the center itself, including the scale, assortment of complementary tenants, and amenities.

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This “critical mass” is important to allow tenants to benefit from the drawing power of a broad trade area rather than a narrower targeted market of consumers.

While exploring property sub-types provides some insights into segmented demand, in many cases it is important to focus on individual classes of tenants to understand the relevant demand for space. The importance of this additional level of disaggregation can be illustrated in the case of power centers where the industry has undergone several waves of consolidation. During the initial phases of power center development in the early 90s, each category (i.e., home improvement, computers, lines, pets, sports) had 3-4 retailers competing for market dominance. This created a significant increase in demand helping fuel the dramatic growth of power centers across the country. Since the retailers were competing for market share vs. unit profitability, they were more than ready to sign leases and help anchor new projects. After several years of rampant development the power center segment of the industry was oversaturated. Indeed, almost every retail category saw “wannabe category killers” forced into bankruptcy until only two or three were left standing. During this contraction, many developers were left holding the bag with empty big boxes and a dearth of replacement tenants as the “demand” proved to not be as enduring as the real estate.

The lessons learned from the shakeout in the power center segment demonstrated the importance of the retail sector --in some cases, tenant level-- segmentation of demand. The determination of how far to go with demand segmentation is based on three considerations: the segments must be measurable (i.e., capable of being quantified or measured); they must be accessible (i.e., they must be identifiable and responsive to specialized product offerings); and, they must be substantial (i.e., they must reflect sufficient numbers of space users to be meaningful).

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Capital Market: Stratification and Segmentation

Supply-Side Asset Stratification

As with the spatial side of real estate, the capital side can be stratified into distinct classes based on types of assets and segments of investors or capital providers. On the asset side of the real estate capital markets, one of the more common approaches to stratification is the Four Quadrant Asset Model. Briefly, the Four Quadrant Model creates two dichotomies of real estate assets: equity vs. debt, and private vs. public.

Four Quadrant Asset Model

	Private	Public
Equity	Individuals Partnerships, Ventures Co-investments Commingled Funds	Equity REITS Real Estate Operating Companies
Debt	Individuals Partnerships, Ventures Co-investments Commingled Funds	CMBS Mortgage REITs Banks & Thrifts Insurance Companies

On the private equity side, investors can invest directly as individuals or through co-investment through partnerships and joint ventures. Investors can also invest in real estate indirectly through various commingled funds and other vehicles. In such cases, investors are purchasing unit shares in

Exhibit 10- 24

the fund rather than acquiring the title to the real estate itself. At the time of the investment allocation, an investor receives a pro-rata share of the ownership position. The per unit value changes over time as cash flow returns are reinvested in properties and investments are bought and sold. If the fund is open-ended, when an investor withdraws they tender their units and cash out at their pro rata share of the then-current value of the fund as determined by aggregate appraised value. If the fund is closed-end, the investors get a pro rata share of the net sales proceeds from liquidation of the underlying assets. As noted in Exhibit 10-26, the equity products in the NCREIF universe available to institutional investors have significantly different return/risk profiles due to product differentiation.³

Commingled Fund Return & Dispersion by Style

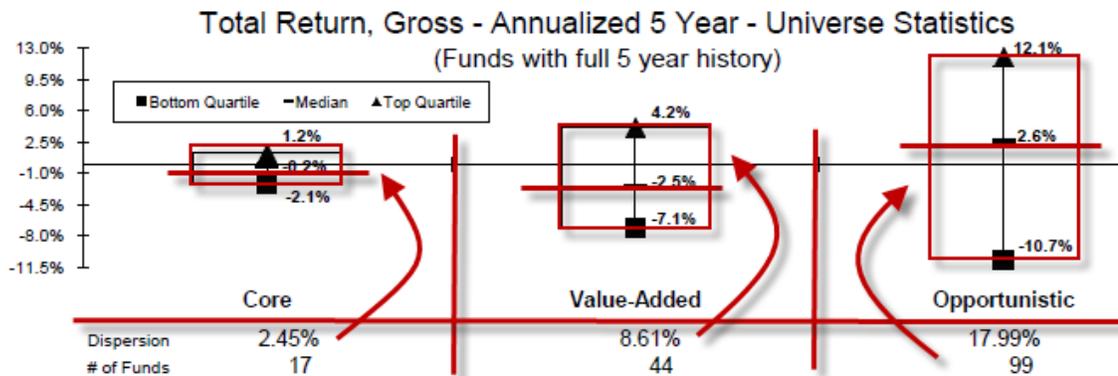


Exhibit 10- 25

On the private equity side of the capital markets, investors have a number of “debt products” in which to invest in search of real estate-related returns. A similar market operates on the private debt side of the capital market, with assets being directly acquired by individuals, partnerships or joint ventures, or by asset exposure gained by investing in commingled funds. They can also be indirectly acquired by

³ These products represent the fund classification for products tracked by the National Council of Real Estate Investment Fiduciaries (NCREIF); for detail go to www.ncreif.org

investing in stocks or specialized products offered by traditional financial intermediaries including banks, thrifts and insurance companies.

On the public equity side, asset exposure can be captured by investing in Real Estate Investment Trusts (REITs) and Real Estate Operating Companies (REOCs) which provide an indirect play. Finally, exposure to public debt can be achieved by investing in CMBS, Mortgage REITs or other specialized companies. It should be noted that the public side of the real estate capital market is relatively new, having emerged as a viable market force in the aftermath of the market collapse in the latter 80s and early 90s. Although enabling REIT legislation was passed in 1967, the industry had a low market cap, under \$10 billion, and was thinly traded through 1993. That changed dramatically after the Taubman Company filed its Initial Public Offering (IPO) in 1993.⁴ The use of the UP-REIT structure in which private property owners could contribute properties to a REIT in exchange for partnership units revitalized the REIT industry and was a critical component to the recapitalization of the real estate market.

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Equity REIT Market Cap

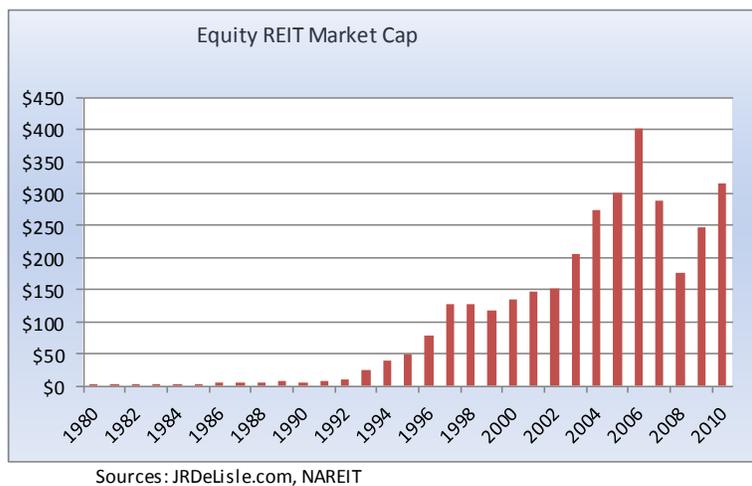


Exhibit 10- 26

Over the next several years the market exploded with other large privately held real estate companies facing the prospects of bankruptcy quickly following suit. This created a new demand curve for real estate assets, with REITs being able to step into the capital void and buying assets accretively. That is, they were able to buy assets at a higher return than they were required to pay out in dividends; thus, the more they bought the more share prices increased. While opportunity for

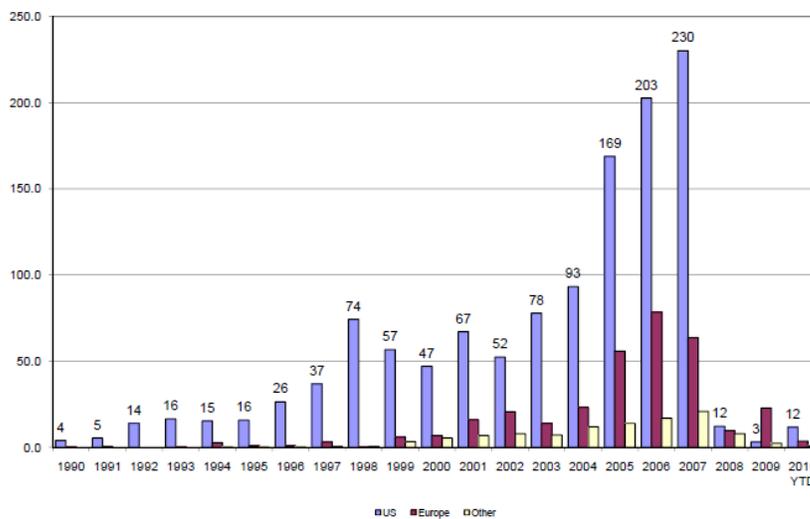
the Cap Rate play evaporated when the private market side came back in, the industry had achieved significant momentum that propelled them out of the small cap stock category and legitimized them

⁴ The Taubman Company --a privately held California-based company founded by Alfred Taubman-- had developed a large portfolio of successful high-end malls that had gotten caught in the capital crunch along with other major players.

among other stocks. Over the next decade, REITs grew to a \$300+/- billion plus industry creating a permanent source of capital and increasing capital flows to the asset class.

Around the same time as the REIT resurgence began, enabling legislation was passed to allow the launch of the Commercial Mortgage-Backed Securities (CMBS) industry. Briefly, CMBS investments were patterned after the success of the Resolution Trust Corporation (RTC), the government agency that was created to help recapitalize the debt side of the real estate capital market. Once the RTC took over the distressed assets from failed Savings and Loans and other financial companies, they pooled and packaged seized assets for sale to the market. Rather than selling the mortgages outright, the RTC created different tranches of securities which were guaranteed by the government to reduce risk and sold to the public to raise capital and offset losses.

CMBS Issuance: 1990-2010⁵



Source: Commercial Mortgage Alert. See Exhibit 1 for underlying data.
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Although the RTC was successful and eventually wound down, the infrastructure, fees and profits it had created for Wall Street had become institutionalized. At the same time, the Main Street side of the industry what attracted by the opportunity to access more capital. Thus, both sides of the real estate market launched intense lobbying efforts that ultimately led to the creation of the modern

Exhibit 10- 27 CMBS industry.

In a relatively short time, CMBS had become a major component of the real estate capital market and created a supply of new real estate based assets. The competition for loans drove rates down which, when coupled with the decline in Cap Rates, helped create the surge in prices. The readily availability of capital also led to an increase in construction activity. When the recession hit, delinquency rates began to rise and the capital spigot froze up, effectively shutting down the CMBS industry and creating a dramatic contraction in supply of new assets.

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⁵ Source: <http://www.crefc.org/IndustryResources.aspx?id=13086>

While CMBS investments are often presented as generic securities, in reality the CMBS products are decomposed into a number of distinct strata with different return/risk profiles. In essence, the capital structure of a CMBS is an inverted pyramid with the riskiest portions making up the least amount of capital and the lowest risk the bulk of capital. In this case, the unrated or riskiest piece is only 4% of the capital, followed by the lower risk non-investment grade (16%) and lowest risk investment grade (80%). The risk components consist of two major elements: default risk, and prepayment risk. The default risks include the probability of loss (i.e., credit risk) and the severity of loss. As noted, the tranches that fall into the investment grade pool face the lowest credit risk and will be the last loss piece, after the lower-rated tranches absorb the losses. In terms of prepayment and maturity risk, the higher graded slices are the first to be paid when individual mortgages are paid off and thus have the shortest maturity. At the other end, the unrated slice is the last to receive capital distributions and has the longest maturity or duration.

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CMBS Tranches: Risk Exposures

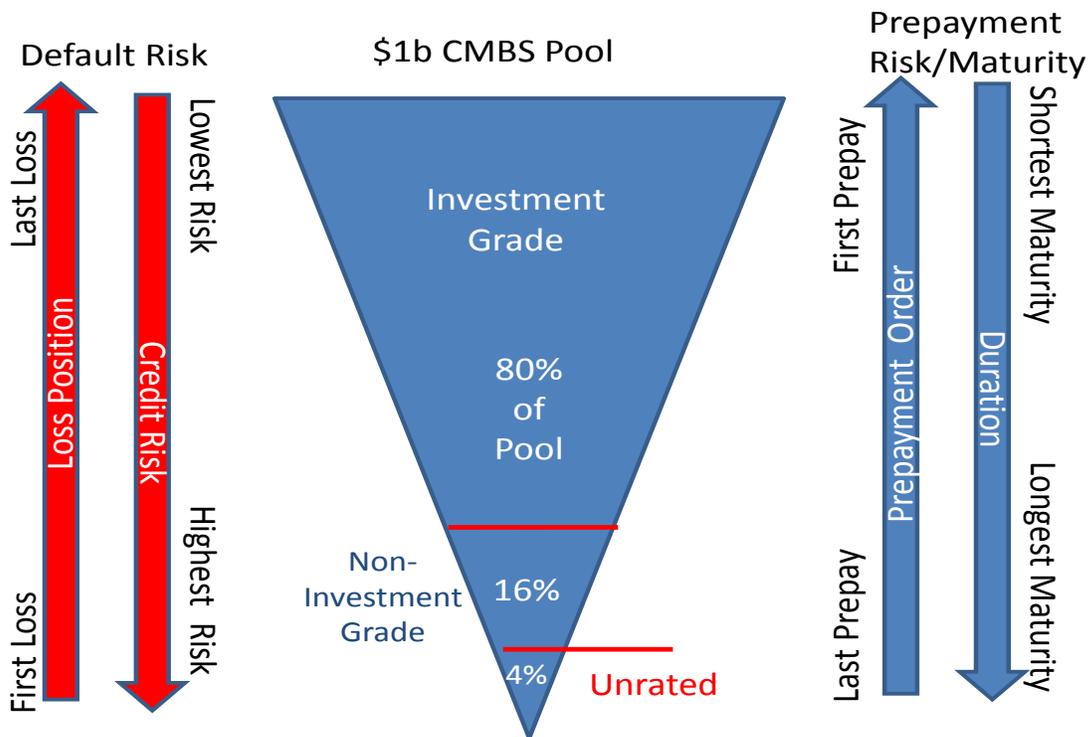


Exhibit 10- 28

The details underlying the decomposition of a typical CMBS pool is presented in Exhibit 10-30 which illustrates the structure of a hypothetical \$1.0 billion pool of commercial mortgages. As noted, the securities are grouped into distinct tranches within the three major classes: investment grade, non-investment grade, and unrated. As one moves down the pyramid toward the riskier tranches, the spreads over some safe index widens. In this case, the 10-year Treasuries which serve as the base are at 5% and the cumulative loan-to-value (LV) ratio for the pool is 85%. Thus, the safest tranche (i.e., Aaa/AAA rated) has a 90bp spread which translates to a 5.9% yield (i.e., 5% + .9%). The total share of the pie is 20% for \$200m which translates to an effective LV exposure of 17% (i.e., 20%/85%) leaving some 83% cushion between the tranche and the value of the property. The non-investment grade slice of B/B enjoys a 450bp spread which translates to 9.5% yield with an effective LV exposure of 82%. Finally, the unrated slice consists of 4% of the total and provides a 900bp spread for a 14% yield with a LV exposure of 85% if values hold. The total weighted interest rate charge to the borrower is 6.83% with yields for the tranches ranging from 5.9% to 14%.

CMBS Return/Risk Decomposition

\$1.0 billion Pool	Investment Grade							Wgtd Rate Share
	Rating	Basis Point Spread	Share	Dollars (millions)	Cum Share	Effective LV	Yield	
	Aaa/AAA	90	20%	\$200	20%	17%	5.9%	1.18%
	Aa/AA	120	35%	\$350	55%	47%	6.2%	2.17%
	A/A	130	15%	\$150	70%	60%	6.3%	0.95%
	Baa2/BBB	150	10%	\$100	80%	68%	6.5%	0.65%
	Subtotal	\$800						
	Non-Investment Grade							
	Ba/BB	250	10%	\$100	90%	77%	7.5%	0.75%
	B/B	450	6%	\$60	96%	82%	9.5%	0.57%
	Subtotal	\$160						
	Unrated Junk							
		900	4%	\$40	100%	85%	14.0%	0.56%
	Total	100%		\$1,000				6.83%

Exhibit 10- 29

Since the ultimate security for the CMBS pool is the underlying real estate, the fates of the capital and spatial markets are tied.

Unfortunately, many investors do not focus on real estate fundamentals of supply and demand in a proactive way, but merely observe delinquency and loss ratios for the CMBS industry in a reactive manner.

In essence, CMBS issuers take a wholesale loan portfolio and disaggregate it into retail pieces creating an instantaneous supply of new investment products from a fixed pool of real estate mortgages. Since the ultimate security for the CMBS pool is the underlying real estate, the fates of the capital and spatial markets are tied. Unfortunately, many investors do not focus on real estate fundamentals of supply and demand in a proactive way, but merely observe delinquency and loss ratios for the CMBS industry in a reactive manner. Similarly, as long as the issuers

can place the securities, they are in the fee business and have been able to manage risk by “transfer.” Thus, when the market turns as it did in 2007 the demand for CMBS almost instantaneously evaporated.

Demand Side Investor Segmentation

The demand side of the asset market is much more elastic in terms of speed of change and the magnitude of change. This shift can be triggered by changes in the market’s relative outlook for various asset classes which can cause shifts in allocations to real estate in institutional portfolios. Given the magnitude of institutional capital invested in real estate, these changes can have a dramatic effect on the demand for real estate assets. In an analogous manner to the spatial market, the asset demand side of the capital market can be segmented into meaningful groups. In terms of institutional players, demand can be segmented into low-risk core investors, moderate risk value-add investors, and higher risk opportunistic investors. These players are served by advisory and money management firms who form funds to respond to investor behavior. Exhibit 10-31 presents the major classification of real estate funds that comprise the NCREIF universe of properties. As noted, in terms of investment strategy and style institutional investor demand has manifested itself in three distinct but related types of funds: open-end and diversified core funds; open-end and closed-end value-add funds; and, opportunistic funds. Interestingly, in the 1980s institutional investor demand focused almost exclusively on open-end core funds which dominated the private equity market with over 90% share. That share was significantly eroded over the ensuing 20 year, with investor demand shifting first to value-add and then to opportunistic styles.

Private Institutional Funds

Balance Sheet and Other (\$ millions)

Active Funds As of 6/30/2010	Core			Value-Added			Opportunistic
	All Core	Open-end	NFI-ODCE	All Value-Added	Open-end	Closed-end	All Opportunistic ⁽²⁾
Gross Real Estate Assets	77,228	77,228	73,292	57,867	24,734	33,133	176,386
Net Assets	53,069	53,069	50,752	23,068	10,680	12,388	52,605
Cash %	5.6%	5.6%	5.2%	10.0%	11.1%	8.9%	8.1%
Leverage%	31.4%	31.4%	30.7%	56.4%	55.8%	57.0%	63.8%
Contributions (Qtrly activity)	1,534	1,534	1,532	1,072	639	432	2,266
Distributions (Qtrly activity)	2,091	2,091	2,044	189	87	103	327
Managers	18	18	16	39	10	34	81
Funds	19	19	16	79	14	65	182
Prior Qtr. Fund Count	20	20	16	72	15	57	168

Exhibit 10- 30

The shift behavior of institutional investor behavior and the lack of reminders of the importance of risk in a bull market led to the emergence of a new class of investor. Unlike the first generation of institutional investors who placed emphasis on real estate fundamentals of supply and demand, this new class of investors approached real estate as a commodity that could be easily bought and sold. They seemed to ignore the fact that real estate returns and risks are ultimately determined by the laws of supply and demand for space and that there are significant differences in risks among different real estate types, locations and markets. This behavior came to an abrupt halt when the market collapsed in mid-2007. Since that time institutional investors and others have been forcefully reminded of the importance of the spatial market, with some traditional investors who had gotten caught in the over-exuberance of the times moving back to their more traditional, risk-averse styles and investment behavior.

The demand side of capital markets is fairly diverse, with an array of potential players. A number of classification systems could be developed to help determine how they can be grouped into segments for more meaningful analysis of asset supply/demand. Exhibit 10-32 illustrates one approach that can be used to demonstrate how asset demand can be segmented based on investor behavior and style. Briefly, the cube reflects a three-dimensional system for classifying investors based on: capital scale or size, expected holding period, and risk-tolerances. The right-most box represents the segment of traditional institutional investors who tend to focus on larger assets and portfolios, adopt long-term hold strategies, and have low risk tolerances. On the other hand, the left box represents more opportunistic investors who may also focus on larger assets, but have short holding periods to allow them to increase returns by flipping assets and are more risk-takers in pursuit of higher returns. Obviously, the two demand segments will have different appetites for real estate and will thus tend to compete with others in the same segment than across segments. Thus, when exploring the asset supply/demand proposition, it is important that the demand side be decomposed into relevant segments. Once these segments have been created attention can shift to the capital they control and how they are likely to deploy it on acquiring or disposing of real estate assets.

Capital Market Segmentation

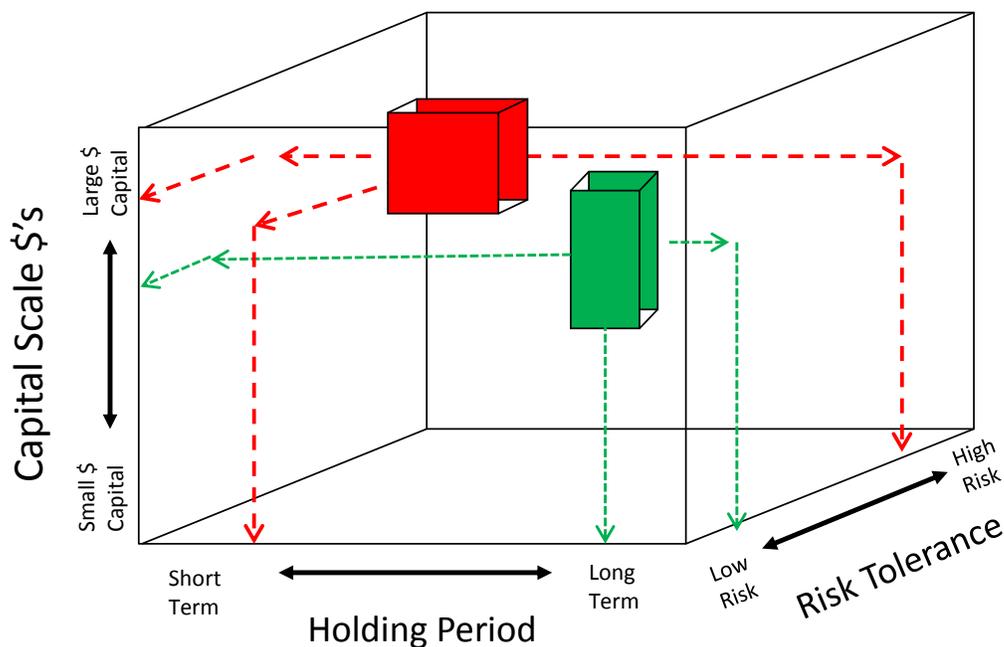


Exhibit 10- 31

Spatial/Capital Market Reconnection

Regardless of investor awareness and behavior, the spatial and capital markets are inherently intertwined. However, this relationship is dynamic and can shift rather dramatically depending on the relative differences in the elasticity's of supply and demand. This creates some complexity and uncertainty around the real estate value proposition. However, it explains the periodic "bubbles" that may occur in the commercial real estate market. Over the long haul, the values (aka prices) in the spatial and capital markets should converge since ultimately it is the underlying real estate that provides the real asset base upon which the markets depend. In general real estate values depend more heavily on the spatial side of

the market in terms of the demand and supply for space and less heavily on the capital markets in terms of the demand and supply for assets. While there are no precise estimates of the relative importance of the two markets in the overall value proposition, a ratio of 70% to 80% spatial and 20% to 30% capital is a reasonable long-term estimate. During bull and bust periods, this ratio can be reversed, creating the bubble price premiums at the top end and the capital shortage price drag at the bottom end.

The rebalancing of the relationship between the spatial and capital market fundamentals can create significant wealth transfers between owners and buyers. This is especially true for those who are under pressure to buy or sell assets. This transfer can occur despite underlying spatial proposition which may not be affected. The exception is the lagged impact that changes in capital flows that will affect construction activity. For example, after the inflection or turning point has been reached at the end of a bull run, capital will tighten up and new construction will languish. On the other hand, after a market begins to recover from a bust, capital will begin to flow into the asset class supporting a new wave of construction until the market ultimately comes back into balance. Unfortunately, due to the inefficiency in the market and the lack of transparency, it is difficult to

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This commercial property bubble was reversed when the “asset market” for real estate quickly collapsed. Some of the collapse in value was attributable to changes in spatial market fundamentals (i.e., rents falling, vacancy increasing) while the real driver was changes in the “asset market” as potential buyers pulled back with the resultant spike in cap rates creating a wide chasm in the bid-ask spread which effectively down shut the market.

determine when the market has returned to balance, leading to phases of excesses and shortages of supply hovering around the equilibrium point. This situation is further complicated by the significant time it can take to bring new product to market, and the inability to turn off the supply process when the market begins to turn. In this environment, investors must be able to develop a forward-looking eye that allows them to understand where the spatial and asset markets are in the cycles. Without such dual vision, an investor may well violate the old adage of “buy low and sell high,” especially if they are operating on a thin margin of safety and do not have the resources or wherewithal to survive downturns, some of which may be deep and fairly prolonged. To avoid such risks, investors must monitor both of the markets for possible signals as to how real estate values are likely to change going forward.

Summary Chapter 10

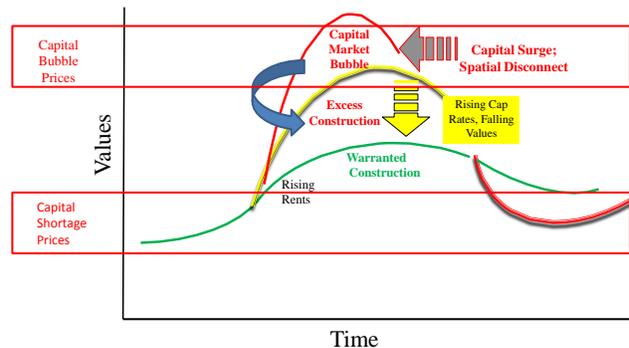
- **Dual Real Estate Markets.** The real estate market is comprised of two distinct but related markets: the Spatial Market; and, the Capital Market.
- **Spatial Market Fundamentals**
 - The basic value proposition in the Sm is: **Value = Income/Rate**
 - The income is dependent on the supply and demand for space.
 - Income can be converted to market value by discounting it by a market-based rate of return.
 - In general, the supply side of the real estate market is fairly inelastic due to lags in entitlements and inherent production times.
 - The demand side is relatively inelastic with the exception of tenant relocations in or out of a market or dramatic changes in economic conditions that affect space users.
- **Capital Market Fundamentals**
 - Real estate competes with other asset classes for asset allocations
 - The value proposition in the Cm establishes returns as an independent variable, extracting required returns from investor behavior
 - The supply of real estate assets has exploded with the proliferation of private commingled products including core, value-add and opportunistic.
 - The demand for assets can be segmented on the basis of style, scale and strategy.
 - The demand for real estate assets is relatively elastic and impacted by the entry or exit of investors.
 - The capital market is ultimately dependent on the spatial markets which provides the collateral base upon which the markets operate.
 - When the Spatial/Capital markets are out of sync the industry is imbalanced. /Cm can result in wealth transfer.

Concepts

- Spatial Market (Sm)
- Real estate as a physical resource
- Laws of Supply and Demand (S/D)
- Demand elasticity/inelasticity
- Discontinuous Demand shifts
- Supply inelasticity
- Dimensionality of real estate
- Product stratification
- Static, Environmental and Linkages stratification attributes
- Multi-nucleated, multi-modal market structure
- Substitution theory
- Space user demand segmentation
- Capital flows to real estate
- Real estate as an asset
- Stratification of real estate asset supply
- Scale, holding period & risk stratification attributes
- Segmentation of capital market demand
- Capital market investment style shifts
- Market cycles
- Pricing bubbles
- Bid/ask spreads
- Four Quadrant Model
- Commingled Funds
- Equity REITs
- Market Cap
- CMBS products

Levels of Risk in Real Estate

There are three major categories of risks, with the highest order risks those that expose the enterprise itself. However, it should be noted that the higher order risks are all predicated on satisfactory performance on lower level, property risks.



Section 3: Chapter 11 Next