THE IMPACT OF SUPPLY CHANGES ON REAL NET OPERATING INCOME: THE MULTI-FAMILY PERSPECTIVE

Because of major changes affecting mortgage lenders and constraints on new construction, investment in multi-family residential properties is becoming increasingly attractive.

by Richard T. Garrigan, CRE, and Joseph L. Pagliari, Jr.

The boom and bust nature of new construction during most of the previous two decades has been due primarily to excessive swings in the amount of equity and debt capital that has flowed into all types of real estate. The unsought but inevitable effect has been steady erosion in the performance of real estate equity investments. This article examines the multi-family property sector by first considering the major forces that have influenced real estate equity investment and significantly expanded multi-family residential mortgage debt. It then explores the statistical relationship between supply increments and inflation-adjusted net operating income, emphasizing the negative impact of excessive supply. The article concludes with a discussion of the potential course of future equity and debt capital flows and their impact on multi-family residential investments.

Dynamic Market Relationships

Real estate markets reflect the constantly changing interaction between supply and demand. Although demand-side changes are fairly continuous and represent trends in various socioeconomic characteristics, supply-side changes tend to occur in lumpy increments, with new construction often being primarily a function of capital market forces that ignore the dynamics of underlying demand. During the past 20 or so years, boom periods of excessive capital investment have caused additions in supply that overwhelmed actual demand, leading to a decline in effective rents (adjusted by rental concessions) and occupancy levels which adversely affected net operating income. Bust times have caused new construction to contract sharply, enabling slow but steady increases in demand to catch up with excessive supply. Eventually, a tight market was created that was followed by a new boom cycle.

Historical Capital Market Flows—General

Many debt and equity investors have presumed that real estate would provide inflation-indexed net operating income and that future levels of inflation would be high. These presumptions have led to the specious but ensnaring conclusion that steadily inflating income eventually would justify their investment. Real estate equity investors also have been motivated by the twin delusions that their investments would provide a tax shelter as well as fixed capital costs. Too often, however, the future—when

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net income catches up with front-end capital costs and rewards investors with positive, real cash flows—never arrives. The problem is that real estate equity investors pay too little attention to inadequate present levels of rental productivity. Absent the economic discipline imposed by sufficient rents at the outset, the forces of supply are not constrained, and oversupply becomes a general condition in the market. In order to assess these impacts, it is useful to employ a macro-approach that is not typically found in the micro-perspective of the market analyst. In the material below, a macro-approach first examines major influences upon real estate equity investments and then evaluates selective characteristics of multi-family residential mortgage debt.

Historical Capital Market Flows—Real Estate Equity

From the perspective of the individual investor, a confluence of major events in the early 1980s dramatically increased the relative attractiveness of real estate equity investments, particularly those in multi-family residential properties. These factors included the institution of major changes in federal income tax and securities laws, the creation of staged pay-ins of investments in limited partnerships, and a lack of suitable investment alternatives.

Federal Tax Law

Various tax reform measures incorporated into the Economic Recovery Tax Act of 1981, the Tax Equity and Fiscal Responsibility Act of 1982 and the Deficit Reduction Act of 1984 increased the attractiveness of real estate equities by making the following changes to the Internal Revenue Code:

- the top marginal tax rate decreased from 70% to 50%;
- the capital gains exclusion increased from 50% to 60%, in effect reducing the top capital gains tax rate from 35% to 20%; and
- depreciable lives for real property fell from between 35 and 50 years to between 15 and 19 years and depreciation was accelerated on all property, not just on new construction.

For a leveraged individual investor in real estate equities, the result was to increase the after-tax rate of return to a figure higher than the pre-tax return. Furthermore, these changes led to a "tails I win, heads you lose" mentality in that, on paper at least, the decreased capital gains rate meant that investors had to pay the government a substantially smaller share of any gain from a successful investment. Conversely, if the investment was unsuccessful, the investor could shelter other sources of income with paper losses generated by accelerated depreciation over a shorter depreciable life. Although these deductions eventually would be recaptured, they generally would be taxed at 20%.

Securities Law

Prior to April 1982, Rule 146 under the Federal Securities Act of 1933 could be used by syndicators looking to privately place the equity requirement of a real estate investment. Thereafter, with the promulgation of Regulation D, syndicators had considerably less difficulty in complying with federal securities laws. Among its beneficial impacts, Regulation D:

- increased the number of limited partners to 35 non-accredited investors and an unlimited number of accredited investors (previously, there was a total limit of 35 investors);
- eliminated the need to prequalify (in terms of suitability, sophistication and net worth) an investor before making an offer. Investors had to be qualified before making a sale, which gave syndicators much more leeway in locating investors and attorneys who could opine adequately on the securities offering;
- clarified the amount of disclosure required for different types and sizes of offerings; and
- led to a concerted effort by state securities regulators to adopt a fairly uniform set of "blue sky" laws that facilitated inter-state offerings.

Of course, the option of a public offering (in contrast to a private placement) existed before and after the introduction of Regulation D. Generally speaking, however, the large front-end costs associated with a public offering could be justified economically only by a very large equity offering. Thus, Regulation D substantially increased the ability of syndicators to raise funds for limited partnerships for offerings that previously would have been uneconomical.

Staged Pay-Ins

One of the more innovative but less heralded financing changes of the 1980s was the creation of a new financing technology that permitted equity investors to contribute their capital in installments over a defined period—generally, four to six years. Initially, these deferred equity payments were financed by letters of credit obtained by investors from their own banking sources. Subsequently, these letters of credit were replaced with a more efficient technology: investors' notes evidencing their obligation to pay their deferred capital contributions were bonded through a surety company; the bonded notes then were sold as securitized assets, and the net proceeds were used to fund the real estate acquisition. Investors now were able to time their payments so their expected tax deductions would be a multiple of their staged capital contributions. In theory, for high-tax bracket investors, the staged pay-in meant that Uncle Sam was writing the check.

Investment Alternatives

The investor looking for alternatives to real estate had few comforting options in the early 1980s. The five years before 1982 (the effective date of the Economic Recovery Tax Act of 1981) saw[1]:

- a dramatic rise in inflation, with the average annual increase running approximately 10.1%;
- a corresponding decline in the value of long-term, fixed-income securities, with the average annual change in total return at approximately <0.7%>; and

TABLE 1

Amount and Percentage of Multi-Family Residential Mortgage Debt by Type of Lender for Selected Years

	1975		1980		1985		1989	
Type of Lender:	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Commercial banks	$ 5,915	5.9%	$ 12,924	9.4%	$ 23,373	10.9%	$ 36,994	12.1%
Savings institutions	39,339	39.1	54,200	39.5	89,739	41.8	108,534	35.3
Life insurance companies	19,629	19.5	19,514	14.2	19,894	9.3	26,646	8.7
Federal & related agencies	12,315	12.2	14,884	10.9	12,170	5.7	23,593	7.7
Mortgage pools & trusts	1,263	1.3	8,267	6.0	13,445	6.3	27,586	9.0
All others	22,140	22.0	27,345	19.9	55,849	26.0	83,299	27.2
Total	$100,601	100.0%	$137,134	100.0%	$214,470	100.0%	$306,652	100.0%

Sources: Federal Reserve Bulletin *(December, 1978): A41*
Federal Reserve Bulletin *(December, 1983): A39*
Federal Reserve Bulletin *(December, 1988): A39*
Federal Reserve Bulletin *(July, 1990): A38*

- an unrewarding stock market, for which the average annual change in total return was about 9.6%—less than the inflation rate; for two years (1977 and 1986), the annual return was negative.

In summary, with stocks and bonds in the doldrums, it took little convincing to make real estate equities the investment darling of the early 1980s. The amount of annual real estate limited partnership investment increased dramatically for all property types, from less than $1 billion in 1978 to more than $10 billion in 1984.[2] With this huge infusion of equity capital, the economy by the mid-1980s was witnessing an unparalleled increase in real estate values and construction as developers cashed in on the newly created demand for real estate holdings. Much of this equity investment was in limited partnerships that invested in multi-family residential properties.

Historical Capital Market Flows—Multi-Family Mortgage Debt

The demand for mortgage debt derives from the desire of equity investors to leverage their real estate holdings. As shown in Table 1 and Figure 1, from 1975 to 1989, the amount of mortgage debt used to finance multi-family residential properties grew from $100.6 billion to over $306.6 billion, an increase of slightly more than 200%. Multi-family residential mortgage loans for the years ending 1975, 1980, 1985 and 1989 were grouped by six types of lenders: commercial banks, savings institutions, life insurance companies, federal and related agencies, mortgage pools and trusts, and all others. The activities of each of these lenders now will be discussed.

Commercial Banks

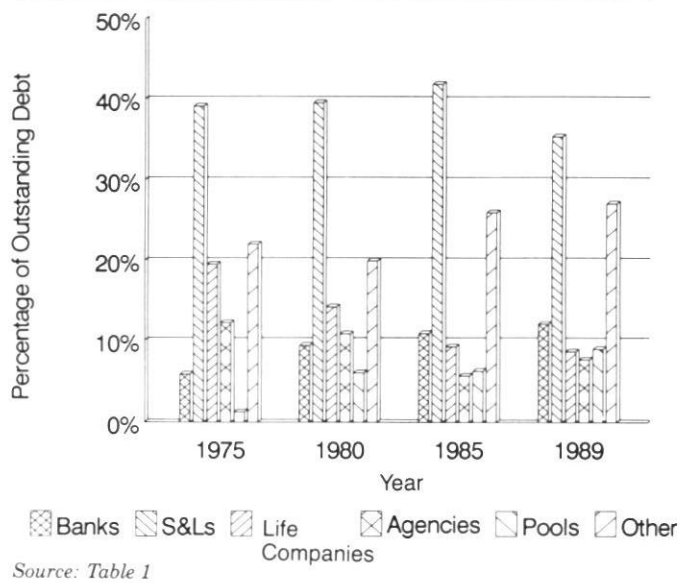
Commercial banks have long been the major source of construction financing for large (including, more recently, multi-family residential) development projects. Since the early 1980s, however, income-property loans financed by commercial banks often have taken on a more permanent character through the use of miniperms having terms of, say, five to seven years. With this change in lending practice, commercial banks have become a more significant force in multi-family residential property financing. As Table 1 shows, between the end of 1975 and the end of 1989, bank-financed multi-family residential mortgage loans grew from $5.9 billion to $36.9 billion. This growth was accompanied by a doubling of banks' mortgage market share from 5.9% to 12.1%.

Savings Institutions

Table 1 and Figure 1 also reveal that savings institutions have long held the largest market share for multi-family residential property loans. In part, this role can be viewed as an extension of their specialization as predominantly single-family residential property lenders. The Garn-St. Germain Act of 1982 liberalized income-property lending and enhanced the deposit-gathering capabilities of these institutions. As a result, huge amounts of funds flowed into multi-family residential mortgage loans. In just five

FIGURE 1

Percentage of Multi-Family Mortgage Debt by Type of Lender for Selected Years



Source: Table 1

years (1980 to 1985), multi-family residential loans financed by these institutions grew from $54.2 billion to $89.7 billion, an increase of over $35 billion. However, since other lenders were also funneling increased amounts of mortgage debt into this market, the savings institutions' market share grew modestly from 39.1% in 1975 and 39.5% in 1980 to 41.8% in 1985. By 1989, the growth in multi-family residential mortgage lending by these institutions had slowed considerably; 1989's $108.5 billion in debt represented a sharply reduced 35.3% market share.

Life Insurance Companies

Multi-family residential mortgage lending by life insurance companies contrasts dramatically with that of commercial banks and savings institutions. From 1975 through 1985, the amount of multi-family residential mortgage lending by life insurance companies remained stable, at slightly less than $20 billion, due primarily to the failure of many multi-family residential properties to meet these firms' stringent underwriting requirements. Between 1985 and 1989, however, life insurance companies increased their funding of multi-family residential loans to $26.6 billion. Market share nonetheless continued to drop to 8.7%, substantially below the 19.5% market share recorded in 1975.

Federal and Related Agencies/Mortgage Pools And Trusts

The multi-family residential mortgage lending activities of federal and related agencies as direct lenders and those represented by mortgage pools and trusts (primarily mortgage-backed securities) involve principally the same institutions—the Government National Mortgage Association (GNMA), Federal National Mortgage Association (FNMA), Federal Home Loan Mortgage Association (FHLMC) and Farmers Home Administration (FHA). As shown in Table 1, the relative importance of these sources of funds underwent a remarkable shift between 1975 and 1989. The amount of multi-family residential mortgage loans directly financed by federal and related agencies increased from $12.3 billion to $23.5 billion, but market share declined from 12.2% to 7.7%. In contrast, the multi-family residential securitization represented by mortgage pools and trusts grew phenomenally from $1.2 billion to $27.5 billion, and market share expanded from 1.3% to 9%.

All Other Lenders

The share of multi-family residential mortgage loans financed by all other lenders grew irregularly from 22% in 1975 to 27.2% in 1989. This catch-all category of lenders includes individuals, specialized finance companies (including credit companies), real estate investment trusts (REITs), pension funds, mortgage bankers and state and local credit agencies. In 1975, REITs, especially the construction and development type, were an important source of multi-family residential loans; in fact, these firms' lending activities were a principal cause of the

TABLE 2

Net Operating Income per Square Foot, Inflation as Measured by the Consumer Price Index and Real Net Operating Income Per Square Foot

	NOI		Inflation		Real NOI	
Year	Amount	Change	Index	Change	Amount	Change
1975	$1.21		53.8		$1.21	
1976	$1.27	4.96%	56.9	5.76%	$1.20	–0.76%
1977	$1.41	11.02%	60.6	6.50%	$1.25	4.24%
1978	$1.52	7.80%	65.2	7.59%	$1.25	0.20%
1979	$1.66	9.21%	72.6	11.35%	$1.23	–1.92%
1980	$1.81	9.04%	82.4	13.50%	$1.18	–3.93%
1981	$2.00	10.50%	90.9	10.32%	$1.18	0.16%
1982	$2.24	12.00%	96.5	6.16%	$1.25	5.50%
1983	$2.33	4.02%	99.6	3.21%	$1.26	0.78%
1984	$2.44	4.72%	103.9	4.32%	$1.26	0.39%
1985	$2.44	0.00%	107.6	3.56%	$1.22	–3.44%
1986	$2.48	1.64%	109.6	1.86%	$1.22	–0.22%
1987	$2.47	–0.40%	113.6	3.65%	$1.17	–3.91%
1988	$2.62	6.07%	118.3	4.14%	$1.19	1.86%
1989	$2.73	4.20%	124.0	4.82%	$1.18	–0.59%
Average		6.06%		6.20%		–0.12%
Standard deviation		3.87%		3.27%		2.67%
Annual growth	5.98%		6.15%		–0.15%	

Sources: Income/Expense Analysis Conventional Apartments, 1990 Edition *(Chicago: Institute of Real Estate Management), Table 20, Garden Buildings, p. 18.*

Statistical Abstract of the United States 1990 *(Washington: Bureau of the Census, 1990), Table No. 762, Consumer Price Indexes, p. 471 and U.S. Bureau of Labor Statistics.*

TABLE 3

Number and Percentage Change in Multi-Family Housing Starts and Moving Averages for the Years 1975 through 1989

	Multi-Family Housing Starts				
			Moving Averages		
Year	Number	Change	2–Year	3–Year	4–Year
1975	223.0	–45.07%			
1976	157.0	–29.60%	–37.34%		
1977	196.0	24.84%	– 2.38%	–16.61%	
1978	229.0	16.84%	20.84%	4.03%	– 8.25%
1979	241.0	5.24%	11.04%	15.64%	4.33%
1980	196.1	–18.63%	– 6.70%	1.15%	7.07%
1981	135.3	–31.00%	–24.82%	–14.80%	– 6.89%
1982	117.0	–13.53%	–22.27%	–21.05%	–14.48%
1983	191.5	63.68%	25.07%	6.38%	0.13%
1984	313.2	63.55%	63.61%	37.90%	20.67%
1985	365.2	16.60%	40.08%	47.94%	32.58%
1986	407.6	11.61%	14.11%	30.59%	38.86%
1987	345.6	–15.21%	– 1.80%	4.33%	19.14%
1988	284.5	–17.68%	–16.45%	– 7.09%	– 1.17%
1989	N.A.	N.A.	N.A.	N.A.	N.A.
Average	227.1	5.48%	4.50%	6.80%	7.67%
Standard deviation	105.8	29.18%	26.16%	20.34%	15.96%

Source: Statistical Abstract of the United States 1990; *Table No. 1269, New Apartments Completed and Rented in Three Months, p. 718. For structures of more than 4 units, privately financed, non-subsidized, unfurnished apartments. Measured in thousands.*

apartment glut at that time. By the end of 1989, however, REITs were but a modest source of such loans. By then, state and local credit agencies had become the most important lenders in this category, accounting for $43.1 billion[3] or more than half the amount attributed to all other lenders.

Analysis of the Multi-Family Market

Attention is now focused upon the multi-family residential market. Although excessive supply has had an impact on all major sectors of the real estate market, fluctuations in newly constructed multi-family residential units have been especially dramatic. The material below analyzes the rental productivity of these properties by determining the impact from changes in the level of new construction on changes in the net operating income of multi-family properties. This analysis first separately examines the demand and supply components of the multi-family residential rental sector and then statistically studies the relationship between supply and demand.

Demand-Side Considerations

Table 2 estimates the demand for multi-family housing by examining the level of net operating income generated by these properties from 1975 through 1989. The net operating income (as opposed to rental rates) over time captures not only rental levels but also vacancy rates, bad debt losses and operating expenses. Real estate essentially is a cash flow business; thus, the ability of rental and occupancy rates to keep pace with increasing operating expenses is critical. For purposes of this analysis, per-square-foot figures are utilized as a common base.[4] From these net operating income (NOI) data, nominal increases that are solely attributable to inflation are stripped out. These have been measured by the annual percentage change in the consumer price index (CPI). The result is the percentage change in the real (i.e., inflation-adjusted) NOI per square foot as shown in Table 2.

Notwithstanding the variability in the yearly figures (as indicated by their standard deviation), the data in Table 2 show that real NOI has substantially kept pace with inflation; real NOI in 1989 was $1.18 per square foot as compared to $1.21 in 1975. Alternatively stated, the nominal NOI increase to $2.73 per square foot reflects approximately 97% of the increase in CPI during this period. The table also shows that the annual growth in nominal NOI was 5.98% in comparison to 6.15% for the CPI during this period.

Interestingly, the Institute of Real Estate Management (IREM) reported that actual revenue collections increased by 5.66% between 1975 and 1989, a level of increase greater than the 5.33% rate reported for operating expenses over this same period.[5] Since operating expenses represented approximately 50% of revenue collections, NOI increased faster than revenues and at a rate approaching the increase in the CPI.

Supply-Side Considerations

Table 3 presents data pertaining to multi-family housing starts for the years 1975 through 1988. Over this 14-year period, new starts ranged from a low of

approximately 117,000 units to a high of approximately 408,000 units. The yearly starts averaged approximately 227,000 units, and the standard deviation from this average was a relatively high 106,000 units.

To a large degree, the impact of new additions on overall supply is cumulative. Consequently, Table 3 not only reflects the percentage change in housing starts in comparison to the level of starts for the previous year, it also depicts moving averages for the level of starts over two-year, three-year and four-year periods. The percentage change data for both the level of starts and those for the moving averages (along with the standard deviations for these data) reflect the high degree of volatility in the construction of multi-family properties.

Supply And Demand Interaction

Table 4 integrates selected demand data from Table 2 and selected supply data from Table 3 to reveal that the degree of variability in real NOI is far less than that shown for housing starts. The housing start data incorporated in the table are the two-year moving average data which have been lagged one year to allow for the effects of supply additions on net operating income.

A closer examination of the data shows a strong inverse relationship between real NOI and the lagged two-year moving average of housing starts. A year-by-year review of the data, which are graphically displayed in Figure 2, shows that this inverse relationship exists in every year but two, 1984 and 1989. In all other years, when the two-year moving average of multi-family housing starts declined, real NOI per square foot increased the following year. The converse was also true; when starts increased, real NOI decreased.

TABLE 4

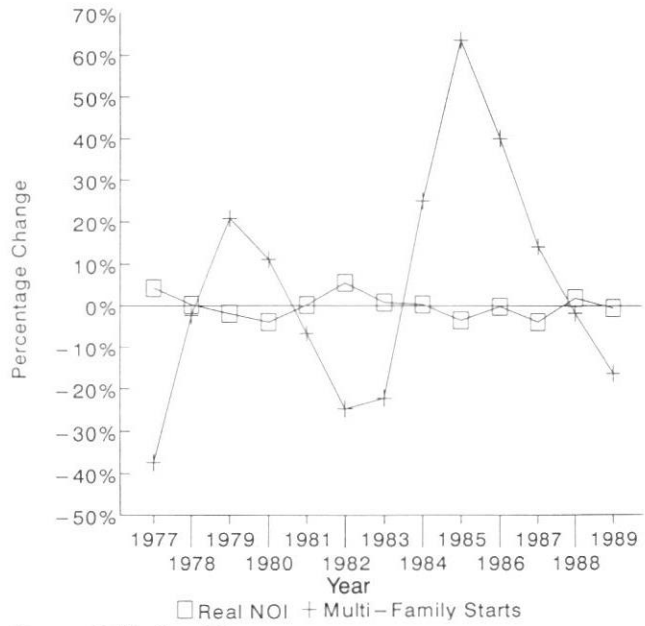
Real NOI and Lagged, 2-Year Moving Average in Multi-Family Housing Starts

Year	Real NOI	2-Year Moving Average (Lagged 1 Year)
1977	4.24%	–37.34%
1978	0.20%	– 2.38%
1979	–1.92%	20.84%
1980	–3.93%	11.04%
1981	0.16%	– 6.70%
1982	5.50%	–24.82%
1983	0.78%	–22.27%
1984	0.39%	25.07%
1985	–3.44%	63.61%
1986	–0.22%	40.08%
1987	–3.91%	14.11%
1988	1.86%	– 1.80%
1989	–0.59%	–16.45%

Sources: Tables 2 and 3

FIGURE 2

Relationship of Real NOI to Multi-Family Housing Starts for the Years 1977 to 1989



Sources: Tables 2 and 3

Statistical Approach

Clearly, there seems to be a time-delayed, inverse relationship between changes in supply and their effect on real NOI. The challenge is to find whether such a relationship is statistically significant.

In order to examine this relationship from a statistical point of view, a simple regression equation (using the ordinary, least-squares approach) is utilized. The nature of this process is to mathematically determine the line that provides the best fit to the data—i.e., one that minimizes the sum of the squared deviations between the regression line and the observations. The equation used to examine how the independent variable (supply, designated as x) affects the dependent variable (real NOI, designated as y) is specified as follows:

$$y = a + bx + e$$

where:

- y = the annual percentage change in real NOI per square foot for the current year,
- a = a constant,
- b = a coefficient that modifies x,
- x = the two-year moving average of the annual percentage change in multi-family housing starts lagged by one year, and
- e = an error term.

The result of the regression analysis is the following observed historical relationship:

$$y = 0.27\% - .069\ (x)$$

This relationship states that real NOI per square foot for any given year is expected to increase by 0.27% over the prior year, less .069 of the lagged, rolling two-year average of the percentage change in multi-family housing starts. For example, a two-year moving average of multi-family starts concluded in the prior year at a 10% increase suggests a 0.42% decline in real NOI per square feet in the current year:

$$y = 0.27\% - .069\ (10.0\%) = <0.42>\%$$

Viewed from a different perspective, any increase in the two-year moving average of the adjusted multi-family housing starts in excess of approximately 3.9% suggests a real decline in NOI per square foot in the current year:

$$y = 0.27\% - .069\ (3.913\%) = 0.0\%$$

The 3.9% "baseline" estimate is comparable in magnitude to the 3.1% real growth in GNP over this time period,[6] suggesting that the percentage change in housing starts in excess of what the inflation-adjusted economy generates may be unsustainable by the multi-family sector.

Before continuing, it is important to examine the statistical system of checks and balances through the following key parameters:

$r^2 = 45.9\%$

x coefficients:
standard error = 2.3%
t-statistic = 3.05%

In simple terms, these parameters indicate that new construction accounts for approximately 46% of the variation in real NOI.[7] This degree of explanation seems satisfactory, given that this model does not attempt to incorporate various demand-side variables (such as population size, household formations, household size, household income, age distribution and affordability of owner-occupied housing). Additionally, the error estimates (as measured by the standard error and the t-statistic) associated with the x coefficient suggest that the regression equation should be viewed as statistically meaningful. Assuming that the variables are normally distributed, there is a confidence level of 98% associated with the equation's explanatory value.

From the above data, one may judge that new construction activity has accounted for about 46% of the change in real cash flow as measured by NOI per square foot. This is close to what one may intuitively suspect, based on the assumption that demand and supply each contribute about 50%. During periods of significant levels of new construction, the potential for negative real cash flow is substantial, thereby jeopardizing the real yields investors expect from their investments. Conversely, prolonged periods of declining construction have the effect of substantially increasing real yields.

Caveat: Local Market Considerations

It should be stressed that macro-based analyses deal with averages; thus, their use and application require care. Before applying the equation developed in this article to a particular submarket, a critical examination of local supply and demand forces is essential.[8] If possible, it would be preferable to use similar statistics for the local market in evaluating the impact of excess supply upon real NOI. Moreover, the multi-family residential sector by its very nature is extremely management intensive; at the same time, it is understaffed by qualified asset and property managers. Consequently, economic analysis of the type incorporated in this article must be evaluated in a context that also focuses upon the effectiveness with which individual properties are being managed.

Future Capital Market Flows—General

Quite obviously, the flow of debt and equity capital into new construction is a critical element in gauging a property's future ability to generate cash flows that meet or exceed inflationary increases. Moreover, one of the ways to uncover superior investment opportunities is to identify markets that have favorable demographic trends and constraints against future additions to supply.

The multi-family residential sector of the real estate industry is entering a phase during which such investment potential may develop in numerous local markets. On a broad scale, recent additions to supply have slowed markedly; major capital market forces suggest that this trend will continue.

Future Capital Market Flows—Real Estate Equity

The confluence of major events in the early 1990s, unlike the early 1980s, has dramatically decreased the relative attractiveness of real estate equity investments. These factors include:

Tax Law

Without question, the most important change on the individual investor landscape has been the Tax Reform Act of 1986 (TRA '86). It included the following provisions:

- the top marginal tax rate effectively declined to 28%;
- the capital gains exclusion was eliminated;
- depreciable lives were lengthened; and
- most importantly, individual investors were no longer able to offset losses generated by their real estate investments against other sources of income.

Perhaps the best way to gauge the impact of these changes is to consider an individual investor's after-tax annual rate of return before and after TRA '86. For example, assuming 71% leverage, the investor's after-tax return under a pre-TRA '86 tax structure would have been 19.8% per annum, using a 40% tax bracket (rather than 50%, which was the highest marginal tax bracket). Using a 28% tax bracket under a TRA '86 tax structure, the after-tax return would decline to 11.9%.[9]

The draconian impacts of this change also are seen in the precipitous decline in annual real estate limited partnership investment. From a high of approximately $10 billion in 1984, the market plummeted to approximately $0.6 billion in 1989.[10]

Securities Law And Staged Pay-Ins

While there have been no substantive adverse changes in the relevant securities law over the past decade, a tremendous decline has occurred in the financing of staged pay-in capital contributions. This decline clearly is a function of individuals' reluctance to invest in real estate equities as well as insurance companies' and banks' concerns about falling real estate values.

Investment Alternatives

Very importantly, the recent performance of available investment alternatives, unlike the early 1980s, makes many different types of investment opportunities attractive to the individual investor. For instance, for the five-year period ending in 1990:[11]

- inflation averaged 4.1% per annum (an approximate 60% reduction from a little less than a decade earlier);
- fixed-income securities, in large part reflecting a decline in the inflation rate, averaged a total return of 10.8%; and
- despite the steep decline in October, 1987, stocks averaged a total return of 13.2% per annum.

Individuals and institutions therefore have a much broader array of apparently soundly performing investment alternatives.

Obviously, much of the luster of real estate equity investments has been effectively removed for the individual investor because of the changes to the tax codes; it is as if the interest income on municipal bonds suddenly was declared to be no longer exempt from federal taxation. While much of the slack in individual investor demand has been taken up by pension fund investment, the acquisitions made by these institutional investors most often take the form of Class A/trophy properties. Such properties represent only a small portion of the total apartment market.

Future Capital Market Flows—Multi-Family Mortgage Debt

Just as fundamental changes are having an impact on real estate equity markets, major influences are affecting the potential supply of mortgage debt for multi-family residential properties. In considering the future, recall that over the last 15 years, the market share of multi-family residential mortgage loans held by commercial banks increased, while that held by the savings institutions, life insurance companies and federal-related agencies as direct lenders declined. Mortgage-backed securities became a much more important source of funds, as did funds provided by all other lenders.

What roles are these sources likely to play in the future? Commercial banks, in order to rectify concerns about their capital adequacy, are cutting back on income-property lending. Thus, both commercial and multi-family residential mortgage loans from these lenders will be more difficult to obtain, while those that are funded will be subject to much more stringent underwriting than in the past.[12] Among other outcomes, the fundings from commercial banks also will be at lower loan-to-value ratios, necessitating added investor/borrower equity capital.

Savings institutions, in part because of major capital deficiencies, will continue to decline in importance as a source of multi-family residential mortgage loans. New capital requirements, as a result of The Financial Institutions Reform, Recovery and Enforcement Act of 1989, not only limit what may be included as capital but also generally restrict loans to one borrower to 15-25% of capital in contrast to the former limit of 100%. Furthermore, capital investments in real estate development subsidiaries must be deducted from capital. This requirement will significantly curtail the activities of development joint ventures, including those that otherwise would develop multi-family residential properties.

Life insurance companies also are being influenced by the deleterious circumstances affecting the quality of income-property loans held by commercial banks. During the last decade, these firms heavily depended on funds raised through guaranteed investment contracts (GICs) for their investments in commercial mortgage loans as well as their acquisitions of non-investment grade, non-mortgage debt. Whether GICs will continue to be so readily available is open to question. In any event, life insurance companies will likely focus on refinancing existing mortgage debt for much of the coming decade. A major reversal of this industry's declining importance as a source of multi-family residential mortgage debt is therefore unlikely during the 1990s.

Table 1 illustrates the remarkable shift from direct multi-family residential lending by federal and related agencies to mortgage pools and trusts. Recently, however, there has been much turbulence in this sector of the market. Problems associated with both the FHA §221(d)(4) and §223(f) programs have resulted in substantial reductions in the levels of GNMA-guaranteed multi-family residential mortgage-backed securities being issued. Major reductions in multi-family residential mortgage funding by FHLMC also have occurred because of defaults and other loan quality problems. Indeed, of the federal and related agencies, only FNMA remains a significant source of securitized mortgage funds in the multi-family residential market, especially for larger properties. Moreover, its participation in the market place is associated with greater underwriting stringencies, thereby reducing the availability of capital.

The all-other-lender category in recent years has been dominated by state and local credit agencies. This role will lessen in the future because of the virtual elimination of the potential for using tax-exempt revenue bonds to finance multi-family residential properties. While not likely to supplant

the role played by state and local credit agencies, pension funds, REITs and other specialized finance companies including credit companies may emerge as more important lenders. These less regulated institutions have the flexibility that banks and savings institutions lack. Their roles largely will be determined by the prospective yields available on mortgage debt used to finance multi-family residential properties.

When all these forces are considered, it appears that a major structural change has occurred. The prospect of another debt-financed boom is unlikely.

Conclusions

Clearly, if new construction continues to abate, notwithstanding a slowdown in demand, a major window of opportunity for multi-family property investment is at hand. The capital-driven investment environment prevalent for much of the last generation (going back to the REITs in the 1970s followed by the syndicators, S&Ls and commercial banks in the 1980s) lacked a braking mechanism; inevitably, boom and bust cycles occurred. However, given the new stricter capital requirements for both S&Ls and commercial banks, coupled with more stringent mortgage loan underwriting and the mass exodus of the individual investor, multi-family property investments are becoming attractive. More importantly, a prolonged period of decreased construction portends strong rates of increase for rental rates and real NOI. Greater constraints placed on new construction should, in time, restore the financial attributes of real estate equities in providing both a hedge against inflation and stable, high risk-adjusted rates of return.

The capital market contractions likely will have a favorable impact on the ability of apartments to generate real increases in NOI. However, one key to uncovering superior long-term investments is to identify the situations that have additional barriers (i.e., beyond the capital market forces), to future competition. These constraints often take the form of restrictions imposed by local municipalities with an aversion to multi-family development (based on slow/no-growth policies, a bias against high-densities, "not in my backyard" thinking, or other perceived self-interests which outweigh the incremental tax revenue generated by the development). Or they involve prohibitive land costs that preclude multi-family property development. Communities that substantially restrict new construction and/or possess prohibitively high-priced land will create a scarcity of supply that will be favorable to existing properties and those few that are newly developed.

New construction, albeit on a much reduced scale, nevertheless will occur in growing markets. The key to achieving enhanced productivity and favorable increases in real NOI is to find those localities where the barriers to new construction are high enough to keep demand and supply in equilibrium once the capital markets recover.

NOTES

1. Ibbotson, Roger G. and Brinson, Gary P. *Investment Markets: Gaining the Performance Advantage* (New York: McGraw-Hill, Inc., 1987) pp. 75, 131, 157.
2. *Real Estate Capital Flows – 1989*, prepared by The Roulac Group of Deloitte & Touche for Equitable Real Estate Investment Management, Inc., pp. 28-29.
3. "Survey of mortgage lending activity 1989," U.S. Department of Housing and Urban Development Office of Public Affairs News Release HUD No. 90-43 (April 23, 1990) Table 1.
4. Two limitations pertaining to the use of per square foot data should be noted. First, per square foot rental rates typically increase as the square footage within apartment units decreases, and the general construction trend has been toward smaller units. Second, the composition of the database changes over time. Existing properties are aging, and new developments (presumably at a higher, on average, NOI per square foot) are added to the database. This changing composition suggests that not all properties, particularly older properties, have enjoyed the rate of NOI increases indicated in the table.
5. See the 1990 edition of the *Income/Expense Analysis Conventional Apartments* (Chicago: Institute of Real Estate Management, 1990) p. 18.
6. According to the *Statistical Abstract of the United States, 1990* (Washington: Bureau of the Census, 1990), the average annual compounded growth in the gross national product (as measured in constant 1988 dollars) over the time period of 1975 to 1988 was 3.13% per annum. See Table No. 690, p. 425.
7. It should be noted that the authors also analyzed the possibility of replacing the independent variable with either the percentage of multi-family housing starts to the then total existing apartment stock or the aggregate annual vacancy rate. Neither approach had the explanatory power of the independent variable used here.
8. As an example of regional difference with regard to rental rates, see Louargand, Marc A. "Apartment earnings and regional economic diversification," Massachusetts Institute of Technology Center for Real Estate Development, Working Paper FP #4 (June, 1989).
9. Lillard, John S. "Overview of the real estate market," in *Real Estate: Valuation Techniques and Portfolio Management* (Chicago: The Institute of Chartered Financial Analysts, 1989) p.11.
10. Roulac, Stephen E. and Dimick, Neil F. "Real estate capital markets undergo fundamental changes," *Real Estate Finance Journal* (Winter, 1991) p. 13.
11. Zipser, Andy. "Consider the alternatives: comparing the performance of 16 different investments," *Barron's* (May 20, 1991) p. 12.
12. Roulac and Dimick, p. 8.