REAL ESTATE DEVELOPMENT: INVESTMENT RISKS AND REWARDS

The results of a 20-year research project are discussed as to the value of investing pension fund dollars in developmental real estate. The risk factors and bottom line are studied and evaluated.

by Joseph W. O'Connor

How does a developer create value in a property? What are the profit margins and what are the risks? The following article answers these questions based on the author's 20-year statistical, investment study of the risks and rewards of a large real estate portfolio containing over $2 billion in developmental properties.

Development investment strategy can be segmented into six distinct stages. The first stage, *planning and design*, includes supply and demand considerations, a market analysis and some pro forma representation of expected performance. For example, if a building is constructed within a market with certain supply/demand considerations, can a profit be expected? Does this project have a reasonable return on its cost? Can the investor protect his/her costs and risks?

The second phase involves obtaining the necessary *regulatory approvals*. In some markets, such as Houston, this is a period of weeks; while in others, like Boston, it can be a period of years or longer. Next are the elements of *financing, construction, leasing* and *operation*. Most investors only get involved in the operational phase of real estate investing when they buy completed, leased buildings at a 9% cash yield. Certain institutional investors however, integrate backward along this development line; they're willing to take more risks in different real estate markets at varying times to increase returns. For example, given the present strength of industrial real estate markets in many areas of the United States, investors are willing to assume leasing risks more readily for industrial property. Developmental investors manage

risk by underwriting different positions in selected markets at varying points in time dependent on an analysis of the supply/demand equation, the development risks and the available profit margins.

Cash Yields

When a real estate investor projects yields, he/she considers three critical factors: cash-on-cash yield, the effect of inflation and/or economic growth on the property's income stream and the property's projected residual value. Inflation of rents and cash flow is largely outside

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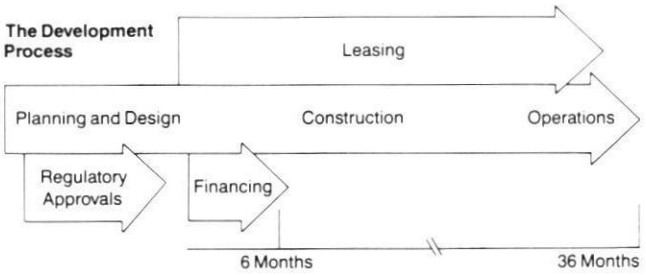
EXHIBIT 1

The Development Process



the control of individual investors. Similarly, residual value is usually controlled by changes in inflation and reproduction costs. Cash-on-cash yield however, is more readily controlled utilizing different investment strategies, and it is this area where developmental real estate advisors can have the most significant impact.

EXHIBIT 2

EXPECTED NOMINAL RETURNS

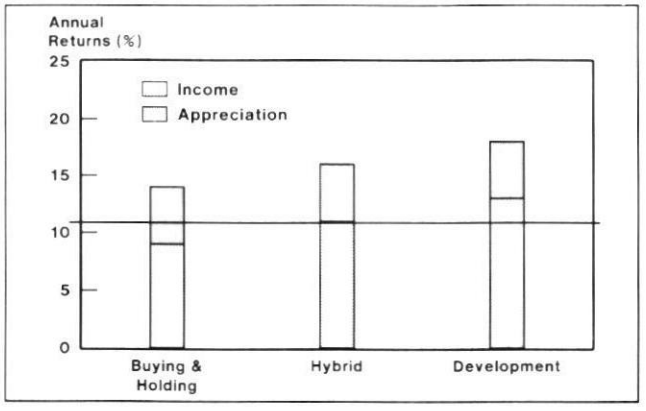
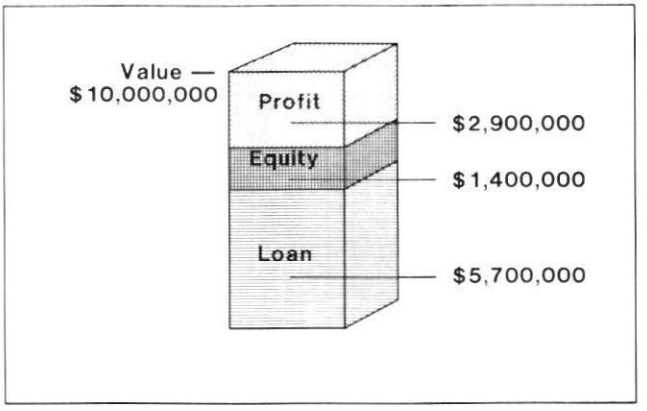


Exhibit 2 illustrates three strategies employed by investors in today's real estate marketplace. The first strategy, buy and hold, invests in completed, fully leased income producing property on an unleveraged basis. The lower segment represents the expected first year cash yield and indicates that an unleveraged property investment in today's market should have a 9% cash yield. Given a 5% inflation expectation, a 13–14% discounted yield could be projected. The second strategy employs a hybrid real estate investment structure where the investor assumes some lease-up risk and has a higher cash yield, maybe 10½ or 11%, and a discounted yield of 14–16%. The third strategy, real estate development, would have a 12.5 or 13% annual cash yield and a discounted yield before leverage of about 17 or 18%.

EXHIBIT 3

IMPUTED DEVELOPMENT PROFIT



A typical profile for a $10 million development commitment is shown in Exhibit 3. Here a completed, fully leased office building with a 9% cash yield would have a value of about $10 million in the marketplace. However, based on current development profit margins, the actual cost of developing that asset over 18–24 months would be about $7.1 million. This indicates you can build at a 12½% cash yield and sell at a 9% cash yield; the difference provides a very substantial profit margin.

This exhibit also illustrates that many developmental investors use outside leverage to enhance returns. In this particular example, $1.4 million of equity is used to build a $10 million building which should have about $2.5–3 million of developmental profit when completed and leased. When assessing financial risk in developmental situations, it's important to note that an investor can forsake a profit of $2.5 million before starting to impair invested capital.

Development Risk In A Large Real Estate Portfolio

Currently there are two theories concerning the risks in real estate development. The first is that a long-term developmental investment program is made up of spectacular successes and failures. In other words, development is a roll of the dice. The second is conveyed by most real estate developers—that the high profit margins in real estate development always cover the developmental risk in new investments.

In order to quantify where developmental investing falls in the risk spectrum, the following portfolio, developed over a period of almost 20 years, is cited. This portfolio represents 40 development projects, about $2 billion of assets and 23,000,000 sq. ft. of space developed since 1967. This study analyzes the volatility of returns in that portfolio. How variable were the critical risk components of each project? Was the uncertainty in construction and lease-up adequately rewarded by consistently higher returns? How different were the actual cash-on-cash yields from what was anticipated at the start of the property development?

EXHIBIT 4

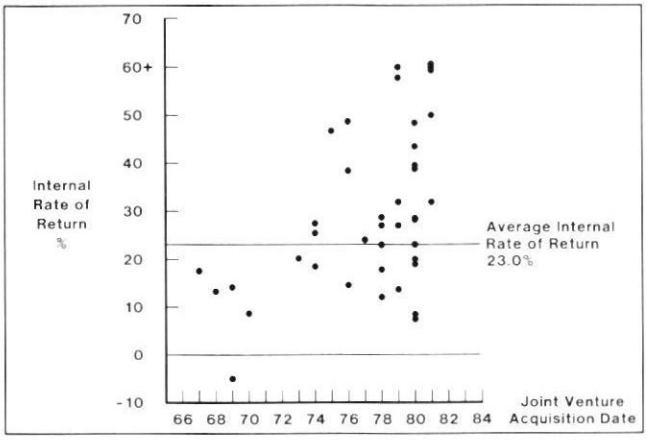


Exhibit 4 shows an internal rate of return analysis on 40 of these investments ranging from a low of −5% to investments that have internal rates of return approaching 60, 70 and 80%. This represents the return to the investor. The developer's return is not included. The horizontal axis indicates the year the development was started.

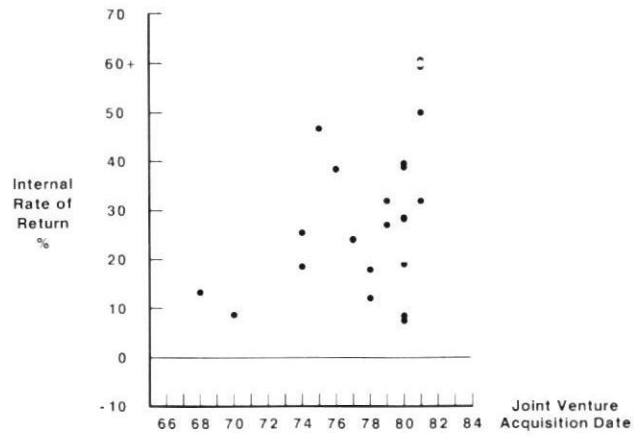
This portfolio is a good sample to study. It represents a significant investment with a substantial number of properties, about 500 individual buildings constructed in 100 different phases of development. Twenty-two developers created these properties in 12 different states over the last 17 years in good and bad markets and in times of high and low inflation. Each investment is at least four years old, with the average age being 7.7 years. The sample does have two limiting factors: it was managed by only one investment advisor with a very different specific strategy and it lacks a few real estate components since it does not include any residential, large mixed-use complexes or large downtown high-rise office buildings.

From the data in Exhibit 4, there was an actual loss of capital on a developmental investment in 3% of the cases. An additional 7% of the sample yielded returns below what could have been obtained in a safe investment such as a high grade corporate bond. However, 90% of the time the portfolio exceeded its alternative safe investment yield. In addition, this large, diversified portfolio had a consolidated internal rate of return of 23% and exceeded the expected return of a so called safe real estate project 85% of the time.

Joint Ventures

The next step in the study is to take a specific group of joint ventures and examine their performance in detail. Where were the risks in each development and was the volatility expected? Eighteen joint ventures, shown as lighter dots in Exhibit 5, were selected for this analysis and have a consolidated average internal rate of return over 17 years of 24% versus 23% for the entire sample, and reflect a diversification (9 states) and age (8.3 year

EXHIBIT 5



average) similar to the larger portfolio. The developments were built in 47 different phases over the last 17 years, have almost 300 individual buildings and constitute nearly $1.4 billion of assets.

EXHIBIT 6

$$\text{Cash-on-Cash} = \frac{\text{Net Cash Flow}}{\text{Total Cost}}$$

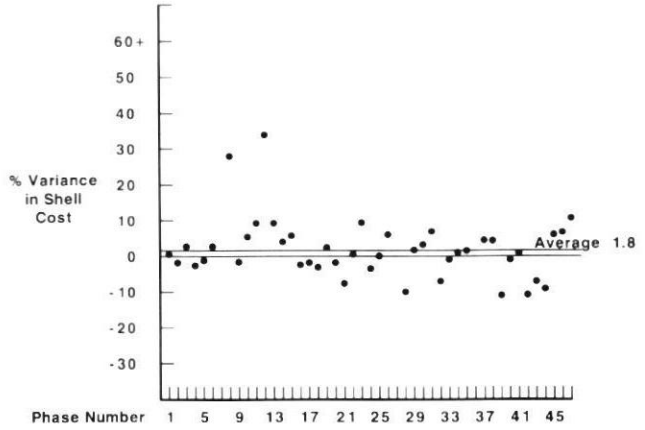
As mentioned earlier, initial cash-on-cash yield, the equation in Exhibit 6, is the most important determinant of the profitability of the risks of real estate development. Comparable quality property can be bought in the marketplace at a 9% yield. The difference between that 9% and what is earned on a developmental investment represents the profit for the risk taken.

Cash-on-cash yield is net cash flow divided by total development cost. In assessing the risks of obtaining higher cash-on-cash yields, the volatility of the denominator, total costs, is examined. How do costs vary in this sample? Was the budget maintained or where were the cost overruns? Was it in shell cost, the cost of the physical structure, tenant improvements or soft costs (i.e., interest expense during construction and lease-up cost)?

First to be assessed is the volatility in costs, the denominator of the cash-on-cash equation followed by the returns to the numerator, the actual net income. These

two components, income and cost, determine yield. When an investment is approved and before the first spade goes into the ground, the best pro forma estimate of income and total cost need to be compiled. The following analysis examines the difference between what was expected to happen to the 47 different phases of the 18 developmental investments, the pro formas and what actually happened. By quantifying the variance from an original best estimate, comes an assessment of the risks innate to investing in real estate development. Again it is important to realize that these 47 projects were built during the last two decades, in good and bad real estate markets, in periods of high and low inflation.

EXHIBIT 7



The Results

Shell costs, the cost of building the basic building shell, are shown in Exhibit 7. This illustrates the percentage of variance of shell cost from pro forma—a positive (+) variance means there were increased costs. Ninety-five percent of the cases remained within ±10% of the pro forma of hard shell cost. The mean variance from pro forma is 1.8%. The average over 17 years in over $1 billion worth of development, was that pro forma shell cost was missed by 2%. The volatility is quite limited and that's what you would expect. These are fairly simple office, R&D and industrial buildings with uncomplicated construction built over relatively short periods of time.

Variance in tenant improvement cost from pro forma is shown in Exhibit 8. There is more variability here than in shell cost because you can't get firm prices for tenant improvements prior to the start of construction; tenant improvement cost is determined by what each tenant needs for his own space. However, in reviewing this data, positive variances—high increases in tenant improvement costs—are not necessarily bad. In many instances, there are direct correlations between extra improvements and higher rental income. The variability is significant. On average, the sample was 7.8% over budget for tenant improvements.

EXHIBIT 8

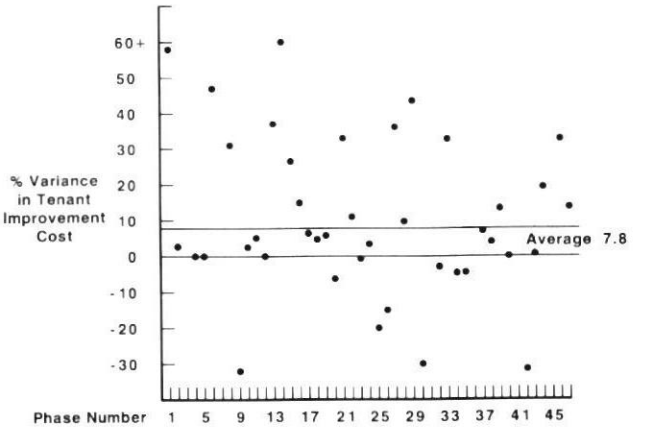
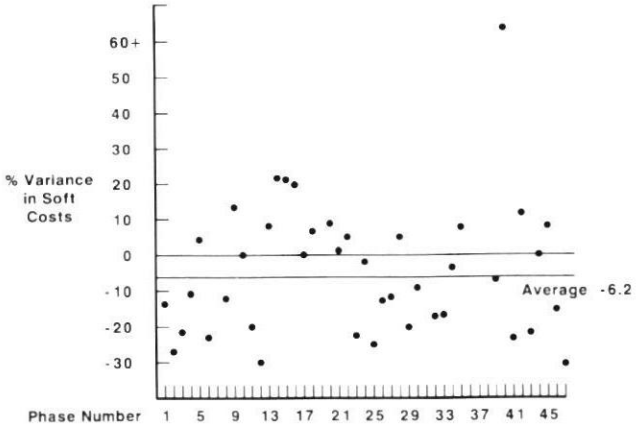


EXHIBIT 9



Variance in soft costs from budget is shown in Exhibit 9. Soft costs are primarily interest expense during lease-up and some marketing expenses. Although one would expect a fair amount of volatility in soft costs, on average there was a favorable variance of 6.2%. The soft costs were 6% less than what was expected when the investment was approved.

EXHIBIT 10

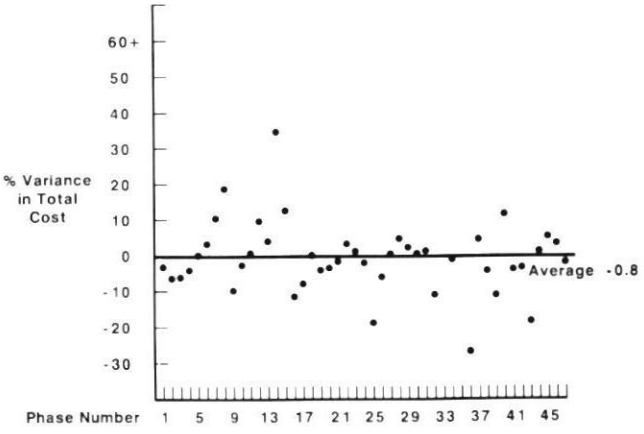
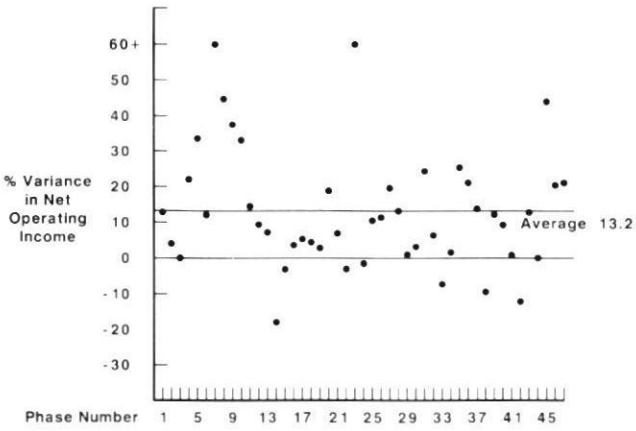


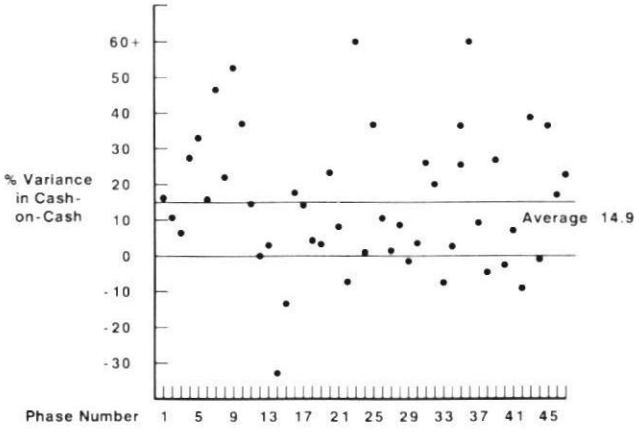
Exhibit 10 summarizes the results for the total cost component on the cash-on-cash equation. It shows that 93% of the sample was within ±10% of the pro forma estimate of total cost. More important, on average the 47 phases of these 18 developments constructed over a 17-year period came in at 1% under their originally expected total cost.

EXHIBIT 11



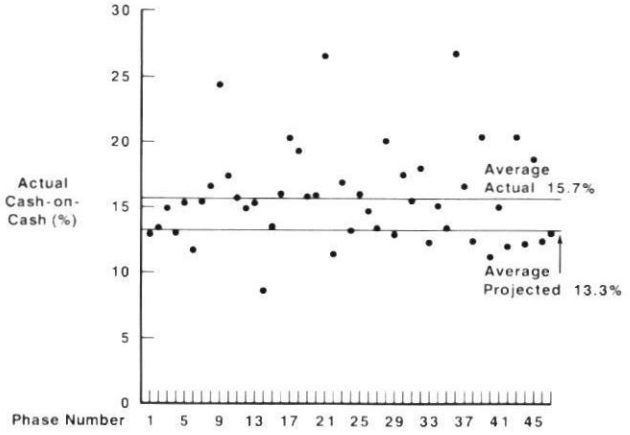
Next, what is the net cash flow from the leasing of these properties relative to what was expected? Exhibit 11 illustrates that 4% of the sample was significantly below pro forma net operating income, while 53% of the sample clusters between 0–15% were above the net operating income expected when the project was started. Overall, net operating income had a positive variance of about 15%. Income was 15% higher than the investors anticipated.

EXHIBIT 12



What happens to these individual components as expressed by the variance in cash-on-cash yields? Exhibit 12 describes the variance in actual cash-on-cash yields in the 47 investment sample. In nine situations (i.e., 19% of the sample), the cash-on-cash yields were lower than anticipated. However, 81% of the developments had cash yields equal to or greater than their initial pro formas, and the whole portfolio had cash-on-cash yields 15% higher, on average, than original pro forma.

EXHIBIT 13



To put this in perspective, the actual cash-on-cash yields from pro forma are included, not just the variances from pro forma. Exhibit 13 shows the actual cash-on-cash yields, 15.7% on average on an unleveraged basis. Assuming a property can be sold at 9% yield, there clearly has been a substantial increase in value during the development period. Although there has been a significant amount of volatility from pro forma in a number of key areas, the end result has been a portfolio that met or exceeded expectations more than 80% of the time. The standard deviation on these actual cash-on-cash yields is 3.8%. Even moving down two standard deviations, actual cash-on-cash yield would be about 9% on the low side, which is what one would expect to pay currently when buying a property.

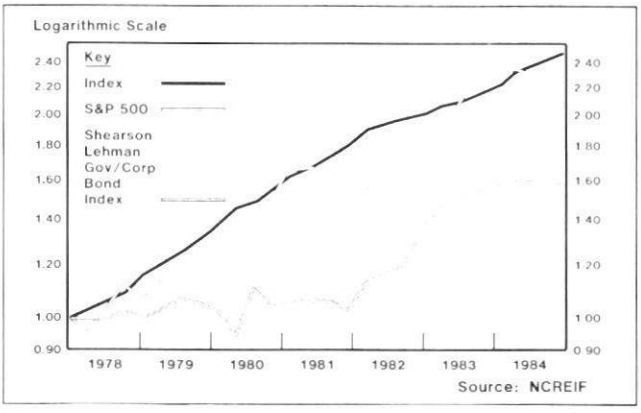
Conclusion

The risk factors in this portfolio have been in lease-up, the present area of concern for most developers. It has not been in hard construction cost. In this analysis, there is manageable risk in development if done on a dollar cost averaging basis, in relatively small buildings over long periods of time, with professional development partners. The overall variances have been favorable, in fact, much more favorable than one might initially anticipate. Certainly there has been more volatility in returns than in an unleveraged nondevelopmental portfolio. That risk however, has been extremely well rewarded in this large development portfolio over a long period of time. The study indicates a 900–1,000 basis points yield advantage over the standard real estate portfolio.

Exhibit 14 displays the Frank Russell Property Index beginning in January, 1978. This is a log chart where a straight line represents a constant rate of return. The real estate line, an aggregate of several unleveraged

EXHIBIT 14

FRC PROPERTY INDEX
January 1, 1978–June 30, 1984



nondevelopmental portfolios, consistently shows less volatility than the S&P 500 and the Shearson Lehman Bond Index. Strictly on a return basis, this index indicates that over the last seven years, $1 invested in real estate on an unleveraged basis in 1978 would have a value of $2.40 in 1985.

Based on the entire portfolio of 40 investments with an average compounded annual return of 23%, $1 invested in that developmental portfolio in 1978 would have had a value of $4.25 for the same period. These are historic returns, and in today's marketplace margins are going to shrink. This example does indicate however, the spread between nondevelopment and development returns. One dollar invested in unleveraged real estate in 1978 grew by $1.40 in seven years, while $1 invested in leveraged developmental real estate in 1978 increased in value by $3.25. The difference, $1.85 of profit on that original $1 invested, represents the investment premium for assuming the risks of real estate development.

Historically, investors have been well rewarded for investing in real estate development. In the future, real estate markets are going to be more difficult and development profit margins will shrink. But overall there is a good argument to be made for investing in real estate development based on its historical performance over the last 20 years.