

5. Financial Feasibility Analysis

The next important step in completing a feasibility analysis for a multifamily development is to evaluate its financial feasibility. In essence, this analysis is the one lenders will want to see to make sure the project will live up to its performance expectations. How one analyzes the financial feasibility of apartments is similar to the process used for all income property. The steps of financial analysis begin with a simple back-of-the-envelope capitalization and end with direct equity, joint venture, or syndication analysis.

Analysis of any income property involves five stages:

- Stage 1—The pro forma statement: simple capitalization of pro forma net operating income (NOI);
- Stage 2—Discounted cash flow (DCF) analysis of annual cash flows during the operating period's stabilized cash flows;
- Stage 3—Combined analysis of the development and operating periods;
- Stage 4—Monthly cash flows during the development period;
- Stage 5—Discounted cash flow analysis for investors.

This chapter concentrates on Stages 1 and 2 and a before-tax version of Stage 5. Of all the stages of analysis, Stage 2 is the most important. It is known by various names, including DCF analysis and justified investment

price analysis. Appraisers do a form of Stage 2 analysis when they compute the unleveraged returns on a building from the time of stabilized occupancy to final sale in seven or ten years.¹

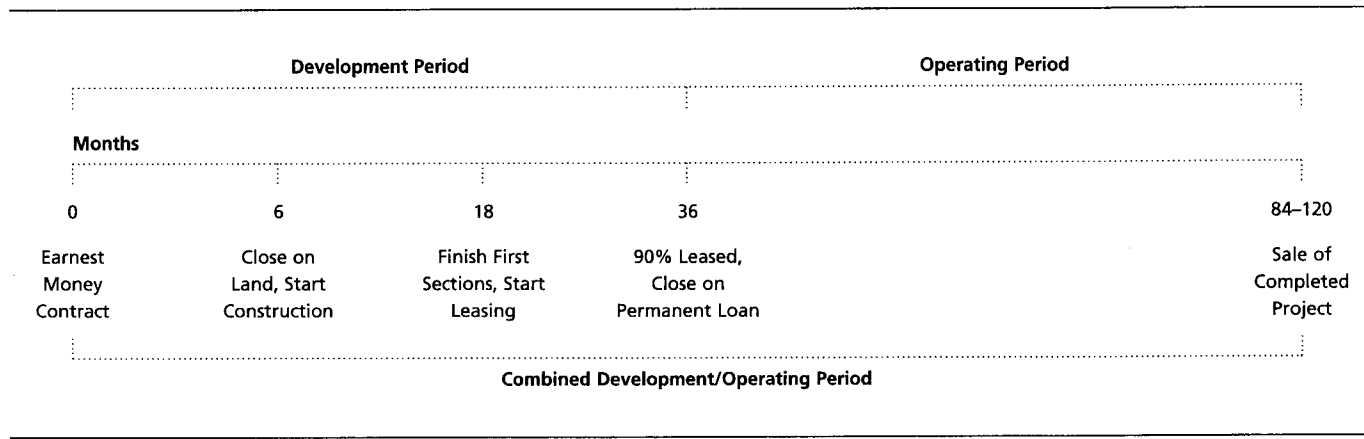
As part of the general framework, it is helpful to distinguish the development period from the operating period (Figure 5-1). The development period runs from the time the developer purchases the land through lease-up of the property. Although the operating period begins when the property is put into service, appraisers and lenders typically evaluate the property from the time it reaches stabilized occupancy (normally 95 percent)—the time when the permanent mortgage is funded—through final sale. Stage 2 analysis is used to evaluate this period (although in some cases the permanent mortgage may be funded in stages).

Stage 2 analysis is the developer's version of the architect's sketch pad. The developer goes through many iterations of Stage 2 analysis. For the first iteration, rents, expenses, costs, and other assumptions are crude estimates based on cursory evaluation. By the time developers are ready to commit to the earnest money contract (remove any contingencies that may allow them to get back the full purchase deposit on the land), they should have the best information possible about the property's expected performance. This information forms the basis for computing the expected returns to the developer and investors, assuming the property is purchased at the given price. If it is a to-be-built property, then the total estimated project

Addison Circle brings an urban lifestyle to an edge city, Addison, Texas.

figure 5-1

Development and Operating Periods



cost from inception to stabilized occupancy is used instead of the purchase price.

The stages of analysis correspond to major hurdles in the course of financing a project. Stage 1 is the developer’s first cursory analysis based on simple pro forma income and cost estimates. Stage 2 justifies the overall value of the investment as an operating real estate venture and is given to mortgage brokers and lenders who will provide permanent financing. Stage 3 gives the de-

veloper a picture of the overall development, from inception through final sale. Stage 4 is given to the construction lender in support of the estimated construction loan required and interest reserves during construction and lease-up. Stage 5 is given to potential investors in support of the returns they will receive if they invest in the property given a specific deal structure.

The following case study illustrates the stages of analysis for a new 158-unit apartment complex, Shady Hollow, in Dallas, Texas. The complex has one-, two-, and three-bedroom units averaging 844 square feet that rent for an average of \$698 per month. Estimated development costs total \$7,832,000. Figure 5-2 lists the underlying assumptions for the property.

figure 5-2

Underlying Assumptions for a New 158-Unit Apartment Complex in Dallas, Texas

Total Project Cost	\$7,834,355
Operating Reserve	\$389,676
Total Capital Cost	\$7,444,679
Net Present Value Discount Rate	20%
Years for Analysis	7
Mortgage Parameters	
Equity	\$1,406,331
Principal	\$6,428,024
Interest Rate	8.5%
Term (years)	25
Monthly Payment	\$51,760
Annual Payment	\$621,122
Depreciation	
Building Basis	\$6,841,330
Life (years)	27.5
Factor	1.0
Straight-Line Depreciation	\$248,776
Capitalization Rate at Sale	9.5%
Commission on Sale	4%

Stage 1—The Pro Forma Statement

The first step is to create a pro forma statement that estimates rents and expenses for the stabilized project. Inputs include the type and size of apartments to be built and market rents for the apartments (see Figure 5-3). The other needed inputs are estimated vacancy rate and operating expenses. Both the income and expense estimates should reflect local conditions and any specific features of the project. Income and expenses should reflect conditions as they will be at the time that leasing begins; for example, if the project is expected to require a year to design and build, rents and expenses should be projected as of a year from now. For Shady Hollow, the pro forma indicates total income of \$1,298,190 and NOI of \$872,375 (see Figure 5-4).

Calculating the Maximum Loan Balance

The project’s pro forma NOI is the basis for determining the size of the loan for the project. Lenders use two common criteria—debt coverage ratio (DCR) and loan-to-value (LTV) ratio—to determine the maximum loan amount.

The debt coverage ratio is a tool used to measure the financial risk of an investment. It is calculated by divid-

figure 5-3

Rent Summary

Unit Type	Number of Units	Square Feet per Unit	Rent per Square Foot	Rent per Month per Unit	Total Square Feet	Total Annual Rent for Unit Type
1-Bedroom/1-Bath	36	590	\$0.88	\$517	21,240	\$223,275
1-Bedroom + Den/1-Bath	20	741	\$0.85	\$631	14,820	151,520
2-Bedroom/2-Bath	24	832	\$0.84	\$699	19,968	201,277
2-Bedroom/2-Bath	46	952	\$0.83	\$788	43,792	435,117
3-Bedroom/2-Bath	32	1,050	\$0.82	\$857	33,600	329,011
Total	158				133,420	\$1,340,200
Average		844	\$0.84	\$698		

Note: Mathematical discrepancies are the result of rounding.

ing NOI by the debt service for the project. A DCR of 1.0 means that NOI equals the debt service for the project. For income-producing properties, most lenders require a DCR of at least 1.2.

DCR can be applied directly to NOI to determine the maximum payment that can be assumed for the loan. Given the lender's requirements for amortization and interest, it is then possible to calculate the maximum loan that could be serviced by the project's income, less the required coverage. In this case, a DCR of 1.25 would allow monthly payments of \$58,158. Assuming an interest rate of 8.5 percent and 25-year amortization, \$7,222,598 is the maximum loan a lender would allow (the present value of the monthly payment divided by 1.25 for the given rate of interest and term).

To establish the maximum loan available using an LTV ratio, it is necessary to first determine the project's value. The value can be calculated by applying a capitalization rate to the pro forma NOI. The capitalization rate is determined by the market and by what similar properties have sold for. It reflects the relationship between a property's income and its value. The lender ultimately requires an appraisal to verify the income and assumptions about the capitalization rate used to establish the value. The value is then multiplied by the LTV ratio to determine the maximum loan amount. In this case, a capitalization rate of 9.5 percent yields a value of \$9,182,895. With an assumed maximum LTV ratio of .7, the most that the lender will lend is \$6,428,024.

Lenders typically look at both criteria when underwriting a loan and use the more restrictive one. When interest rates are low, LTV tends to be more restrictive, and when interest rates are high, DCR tends to be more restrictive. In this example, LTV is the more restrictive, so the maximum loan on the property would be \$6,428,024 (see Figure 5-5).

Development Costs

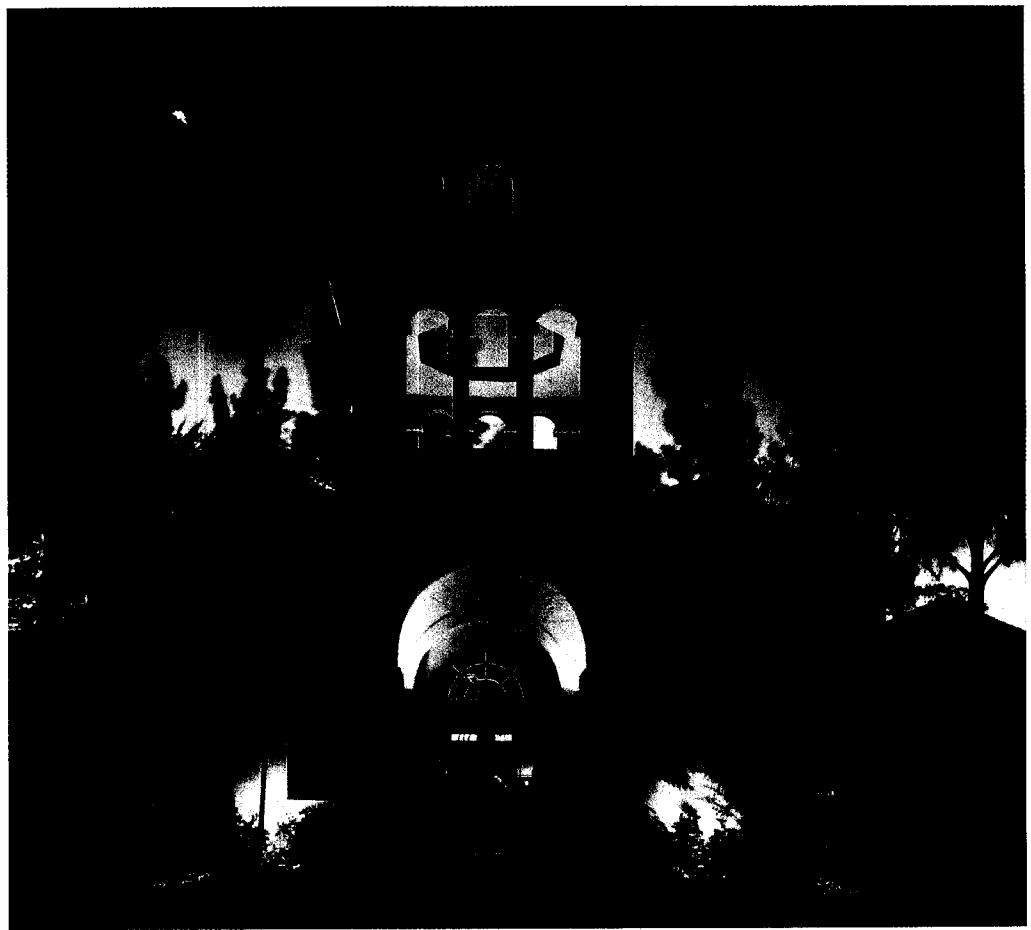
Development costs are the other part of the equation needed to evaluate a project's feasibility. An overall static

figure 5-4

Pro Forma NOI

	Annual Revenue/Cost
Income	
Gross Potential Rent	\$1,340,200
Less: Vacancy and Collection Loss (5%)	(67,010)
Plus: Other Income	25,000
Effective Gross Income	\$1,298,190
	(\$9.73 per square foot)
Expenses	
Payroll	
Manager	\$24,000
Assistant Manager/Bookkeeper	15,600
Maintenance	24,000
Porter for Grounds	14,400
Subtotal	\$78,000
Payroll Taxes and Insurance (20% of payroll)	15,600
Advertising and Promotion	24,016
Maintenance Supplies (5% of effective gross income)	64,041
Administration, Management, Telephone (5% of effective gross income)	64,041
Utilities for Common Area (5% of effective gross income)	64,041
Real Estate Taxes	77,384
Insurance	38,692
Total Expenses	\$425,815
	(\$3.19 per square foot)
Net Operating Income	\$872,375
	(\$6.54 per square foot)

The Promenade at Aventura reflects the Spanish-style architecture of southern Florida.



STB Architects & Planners, Inc.

figure 5-5

Maximum Debt Calculation

Pro Forma NOI and Value	
Pro Forma NOI (from Figure 5-4)	\$872,375
Capitalization Rate	9.5%
Value (NOI ÷ capitalization rate)	\$9,182,895
Loan Terms	
Interest Rate	8.5%
Amortization (years)	25
Using Loan-to-Value Ratio	
Maximum LTV	70%
Maximum Loan Based on LTV	\$6,428,024
Using Debt Coverage Ratio	
Maximum DCR	1.25
Maximum Monthly Payment (NOI ÷ DCR ÷ 12)	\$58,158
Maximum Loan Based on DCR	\$7,222,598
Maximum Loan (Lesser of LTV or DCR)	
Maximum Principal	\$6,428,024
Monthly Payment	\$51,760
Annual Debt Service	\$621,122

cost estimate for the project must be calculated. The estimate should include the cost of acquiring the site, construction costs, and soft costs such as legal and accounting fees, architectural and engineering fees, and contingencies. The costs should also include the developer's overhead and costs associated with the initial marketing and lease-up of the project. As an initial rough estimate, interest costs can be approximated by assuming an average draw and length of the loan. The operating reserve during lease-up can be approximated by assuming a lease-up period and computing the rent lost from vacancies during that time. Figure 5-6 shows total development costs for Shady Hollow before interest and lease-up of \$7,158,008. With estimated construction interest of \$337,471 and an operating reserve of \$336,761, project costs total \$7,832,240.

Stage 1 analysis is sometimes called a back-of-the-envelope analysis because the simple returns can literally be computed on the back of an envelope. Still, the overall return (NOI divided by total project cost) and cash-on-cash return (cash flow after debt service divided by equity) are the two most commonly cited measures of return in the industry. For an apartment project, returns in excess of 10 percent are desirable. As inflation picks up, the initial cash-on-cash return may go down to 6 to 8 percent as developers look to the future for higher cash flows and profit from sale of the complex. For Shady Hollow, the overall return is 11.14 percent ($\$872,375 \div \$7,832,240$). The cash-on-cash return is 17.89 percent

figure 5-6

Development Costs

Development Costs	
Land (\$2.70 per square foot for 5.13 acres)	\$603,350
Land Carry (12% for 3 months) ¹	18,100
Approval Fees	42,000
Soft Costs	
Architecture	42,000
Engineering	24,000
Professional Fees	6,000
Marketing	54,000
Construction (\$42 per square foot)	5,603,640
Furnishings	12,000
Taxes and Insurance during Construction	60,855
Developer's Overhead (5% of soft costs, construction, and furnishings)	287,082
Loan Origination Costs	224,981
Contingencies	180,000
Total Development Cost, Excluding Interest and Lease-up Costs	\$7,158,008
Estimate of Construction Interest²	
Permanent Loan	\$6,428,024
Construction Interest	10.5%
Construction Period (months)	12
Average Draw	50%
Estimated Interest Cost	337,471
Total Capital Cost	\$7,495,479
Estimate of Operating Reserve³	
Gross Potential Rent per Month	\$111,683
Lease-up Period (months to reach stabilized occupancy) ⁴	10.53
Average Occupancy during Lease-up	50%
Estimated Lost Rent during Lease-up	\$588,013
Less: Pro Forma Cash Flow after Debt Service	(251,252)
First Year Operating Reserve Required ⁵	336,761
Total Project Cost	\$7,832,240

¹ "Land carry" refers to interest paid to the land seller as part of the land purchase contract.

² This calculation is a preliminary estimate of construction interest. A more accurate estimate is made as part of Stage 4 analysis.

³ Operating reserve during lease-up represents the subsidy that will be required to cover operating costs and debt service before the project reaches break-even occupancy.

⁴ Based on market studies, the project is expected to lease at a rate of 15 apartments per month. The project will then take 10.53 months to be fully leased (158 units ÷ 15 = 10.53).

⁵ The operating reserve includes funds needed to cover operating costs and debt service during lease-up.

(\$251,253 ÷ \$1,404,216). Both figures compare favorably with other deals.

Total Project Cost (Figure 5-6)	\$7,832,240
Less: Mortgage (Figure 5-5)	(6,428,024)
Equity	\$1,404,216
.....	
NOI (Figure 5-5)	\$872,375
Less : Debt Service (Figure 5-5)	(621,122)
Cash Flow after Debt Service	\$251,253

Stage 2—Discounted Cash Flow Analysis

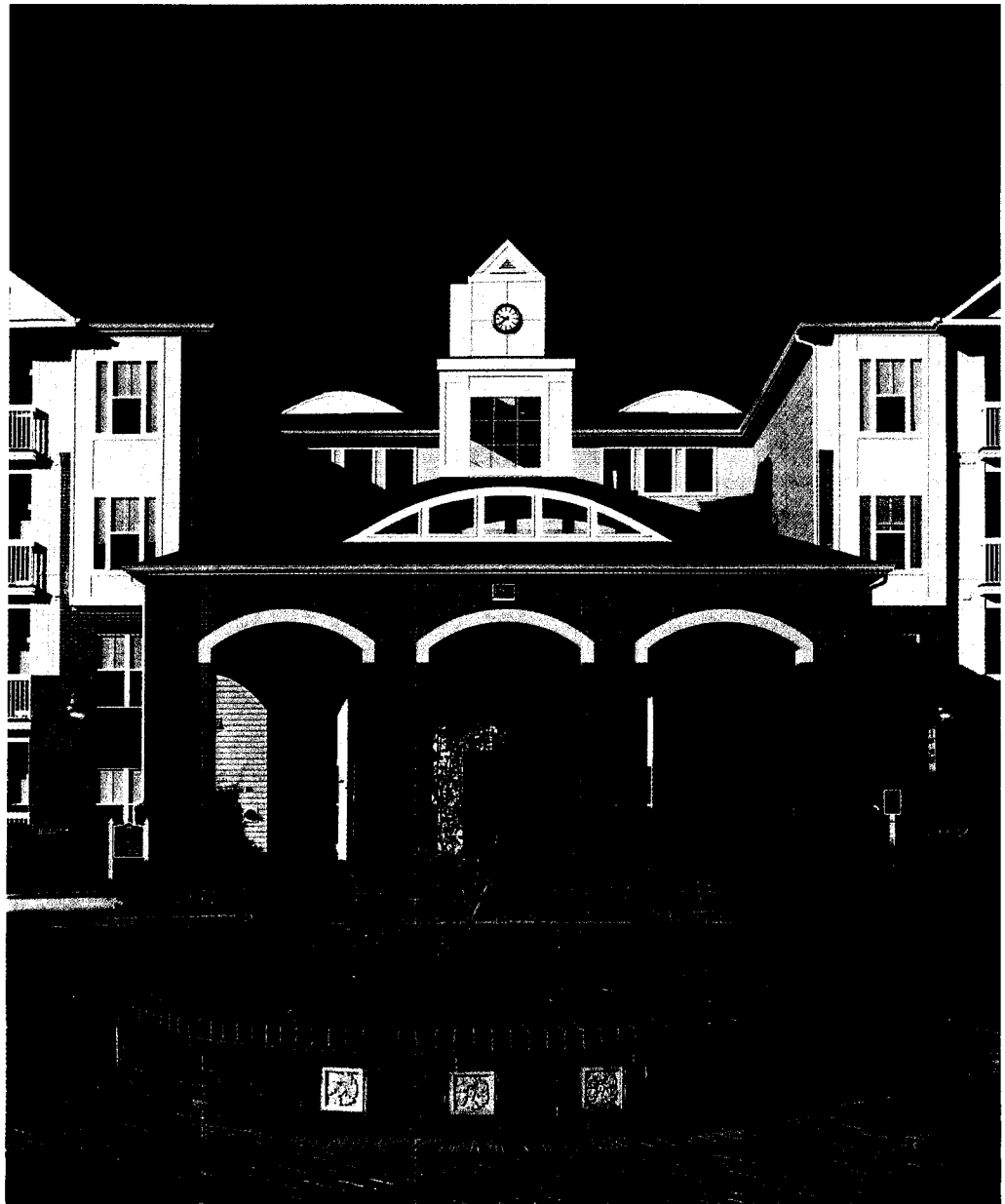
The project is typically held for a period of time after construction and lease-up. To calculate the operating cash flows, the pro forma NOI is extended over time, usually ten years, showing growth in both rents and expenses. The growth rates for each could be adjusted

Summit Properties, Inc., is a Charlotte, North Carolina-based REIT that owns and manages more than 60 communities, including the 530-unit Summit Fair Lakes in Fairfax, Virginia.

separately, but in this example both rents and expenses are assumed to increase at a rate of 3 percent per year.

Appraisers and some lenders focus on the unleveraged before-tax returns because those numbers give the “pure real estate value” of the property (without financing or income tax considerations). Both leveraged and unleveraged analysis can be done on the same spreadsheet simply by changing the assumptions about the mortgage and income taxes.

Developers use Stage 2 analysis to determine whether the proposed building offers an attractive rate of return. The DCF analysis is performed many times as more detailed and accurate information becomes available about design, development costs, and anticipated rents. The initial runs of Stage 2 analysis may focus on the unleveraged returns for the project—the internal rate of return (IRR) on total project cost. The IRR represents the relationship between the present value of the cash flow and the capital invested. This return should range from about



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12 to 15 percent, depending on the type of property, its location, and interest and inflation rates. (The higher the inflation rate, the higher the overall return.) The unleveraged rate of return is computed on NOI for each year of ownership, *starting from the time the building is fully occupied* and ending with the sale of the project. The unleveraged (before-tax) return for Shady Hollow is 14.9 percent. Note that in the example, Stage 2 analysis begins *after* the building reaches stabilized occupancy. All of the interest subsidies during lease-up are included in the total investment cost. In this case, we assume that the building is fully leased even though it is not yet built. Alternatively, we could assume that Years 1 and 2 are the lease-up years and that the project does not reach stabilized income for a full year until Year 3. Such an assumption lowers the apparent returns but more accurately reflects what happens in a new development where the building must be constructed and leased from scratch. These nuances are considered in the more detailed analysis of Stage 3 and discussed later in this chapter.

Appraisers calculate the present value of the future cash flow stream at a discount rate determined by the market (usually 11 to 13 percent). The concept of present value represents the reverse of future value. Just as one dollar will likely be worth more in the future, one dollar in the future is worth less than one dollar today. The discount rate is used to discount future values to present value. It also represents the investor's required rate of return. The resulting present value represents the value of the building once it is fully leased. The difference between the discounted value and the development cost is the developer's profit, also known as the net present value (NPV). Using the NPV method of DCF analysis, a prospective investment must show a positive NPV to justify the investment. The unleveraged net present value at 12 percent is \$1,151,000.² This amount is the development profit for Shady Hollow.

The unleveraged IRR in Figure 5-7 is 14.9 percent, which is in line with the recommended unleveraged IRR of 15 percent for a project yet to be developed. Although an existing, occupied apartment project should produce an unleveraged IRR around 12 percent, new development projects should produce returns on the order of 15 percent to compensate for the added risks.

Although the unleveraged IRR is important, developers are primarily interested in the return on equity (ROE). The return on equity also is expressed as an IRR and takes into account the financing (leverage) and personal income taxes of the owner/developer. Stage 2 analysis focuses on the returns on the project as a single, undivided investment where one individual (100 percent owner/developer) puts up all the equity and receives all the cash flow.

Figure 5-7 shows the leveraged analysis of the project with mortgage financing. Developers focus on the leveraged before-tax and after-tax returns on equity because investment in the project must compete with returns available from other investments, such as stocks and bonds. Shady Hollow's before-tax IRR is 33.28 percent, the after-tax IRR 27.34 percent.

For a developer new to the business of multifamily development, one of the biggest challenges may be establishing credibility with sources of capital. Establishing credibility is particularly important in seeking lenders and equity investors to fund the project. But regardless of a developer's experience, lenders and investors will not part with a dime unless they have complete confidence in the developer, the development team, and the viability of the project itself. One of the best ways to allay their fears and prove the viability of the project is to present a well-prepared and comprehensive development proposal or package. This presentation should bring the objectives of the whole property together, showing its goals in the best light and proving that the homework has been done properly.

Think of the lender as a strategic investor. He has received clear directions from his organization to find a certain type of transaction in certain markets. For a developer in search of capital, it makes sense to find out first the answers to several questions instead of going about the process almost blindly:

- Who has money? Which lenders and investment groups are currently in the market looking for transactions?
- Of the groups that do have money available, which one matches the developer's strategy? Whether the project is to be built to sell or to hold over the long term, who funds similar transactions?
- Of the groups that provide capital for similar development projects, what specifically are they looking for in terms of geographic market, transaction size, and other key points?
- Who makes the decision? Who pulls the trigger? Is it an individual or a committee or even a series of committees? What is the actual decision process?
- What are their biases or prejudices? What do the last five transactions they have completed look like? Exactly what caused them to reject deals in the past?
- What does their current portfolio look like compared with the parameters they are trying to achieve? Where are the holes in that portfolio that can be filled?

Answers to these questions will eliminate a lot of problems in trying to complete a transaction in today's very competitive capital markets.

figure 5-7

Stage 2 Analysis—Discounted Cash Flow

Project Costs								
Total Project Cost	\$7,832,240							
Capital Cost	\$7,495,479							
Land Cost	\$603,350							
Financing Assumptions								
Equity	\$1,404,216							
Mortgage Principal	\$6,428,024							
Interest Rate	8.5%							
Amortization Period (years)	25							
Annual Debt Service	\$621,122							
Depreciation Assumptions								
Building Basis	\$6,892,130							
Life (years)	27.5							
Factor	1							
Straight-Line Depreciation ¹	\$250,623							
Mortgage Calculation								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Beginning Balance ²	\$6,428,024	\$6,350,302	\$6,265,710	\$6,173,641	\$6,073,435	\$5,964,370	\$5,845,666	\$5,716,469
Ending Balance	6,350,302	6,265,710	6,173,641	6,073,435	5,964,370	5,845,666	5,716,469	5,575,852
Amortization of Principal	77,722	84,592	92,069	100,207	109,064	118,705	129,197	140,617
Interest	543,400	536,531	529,053	520,915	512,058	502,418	491,925	480,505
Depreciation								
Beginning Balance ³	\$6,892,130	\$6,641,507	\$6,390,884	\$6,140,261	\$5,889,638	\$5,639,015	\$5,388,392	\$5,137,769
Less: Annual Depreciation	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)
Ending Balance	\$6,641,507	\$6,390,884	\$6,140,261	\$5,889,638	\$5,639,015	\$5,388,392	\$5,137,769	\$4,887,146
Cumulative Depreciation Taken	250,623	501,246	751,869	1,002,492	1,253,114	1,503,737	1,754,360	2,004,983
Recapture	0	0	0	0	0	0	0	0
Remaining Book Value	\$7,244,856	\$6,994,233	\$6,743,610	\$6,492,988	\$6,242,365	\$5,991,742	\$5,741,119	\$5,490,496
Annual Cash Flows								
Gross Rent ⁴	\$1,340,201	\$1,373,706	\$1,408,048	\$1,443,249	\$1,479,331	\$1,516,314	\$1,554,222	\$1,593,077
Vacancy Loss and Collection	(67,010)	(68,685)	(70,402)	(72,162)	(73,967)	(75,816)	(77,711)	(79,654)
Adjusted Gross Income	\$1,273,190	\$1,305,020	\$1,337,646	\$1,371,087	\$1,405,364	\$1,440,498	\$1,476,511	\$1,513,423
Other Income ⁵	25,000	25,625	26,266	26,922	27,595	28,285	28,992	29,717
Effective Gross Income	\$1,298,190	\$1,330,645	\$1,363,911	\$1,398,009	\$1,432,959	\$1,468,783	\$1,505,503	\$1,543,141
Operating Expenses ⁶	\$425,816	\$436,461	\$447,373	\$458,557	\$470,021	\$481,771	\$493,816	\$506,161
Total Expenses	\$425,816	\$436,461	\$447,373	\$458,557	\$470,021	\$481,771	\$493,816	\$506,161
Net Operating Income	\$872,375	\$894,184	\$916,539	\$939,452	\$962,938	\$987,012	\$1,011,687	\$1,036,979
Annual Debt Service	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)
Before-Tax Operating Cash Flow	\$251,252	\$273,062	\$295,416	\$318,330	\$341,816	\$365,890	\$390,565	\$415,857

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Tax Calculation								
Net Operating Income	\$872,375	\$894,184	\$916,539	\$939,452	\$962,938	\$987,012	\$1,011,687	\$1,036,979
Interest	(543,400)	(536,531)	(529,053)	(520,915)	(512,058)	(502,418)	(491,925)	(480,505)
Depreciation	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)	(250,623)
Taxable Income (loss)	\$78,351	\$107,031	\$136,862	\$167,914	\$200,258	\$233,971	\$269,139	\$305,851
Passive Loss Offset	0	0	0	0	0	0	0	0
Taxable Income	\$78,351	\$107,031	\$136,862	\$167,914	\$200,258	\$233,971	\$269,139	\$305,851
Passive Loss Carryforward	0	0	0	0	0	0	0	0
Taxes (28%)	\$21,938	\$29,969	\$38,321	\$47,016	\$56,072	\$65,512	\$75,359	\$85,638
After-Tax Cash Flow								
Before-Tax Operating Cash Flow	\$251,252	\$273,062	\$295,416	\$318,330	\$341,816	\$365,890	\$390,565	\$415,857
Taxes	(21,938)	(29,969)	(38,321)	(47,016)	(56,072)	(65,512)	(75,359)	(85,638)
After-Tax Operating Cash Flow	\$229,314	\$243,093	\$257,095	\$271,314	\$285,744	\$300,378	\$315,206	\$330,219
Calculation of Sale Price							Year 7	
Before-Tax Cash Flow from Sale								
Sale Price (capitalization rate 9.5%, using Year 9 NOI)								\$10,915,572
Commission (4%)							(436,623)	
Adjusted Sale Price							\$10,478,949	
Remaining Mortgage Balance							(5,716,469)	
Before-Tax Cash Flow from Sale							\$4,762,481	
Taxes								
Adjusted Sale Price							\$10,478,949	
Remaining Book Value							(5,741,119)	
Total Taxable Gain							\$4,737,830	
Passive Loss Carryover							0	
Capital Gain							\$4,737,830	
Tax on Capital Gain (28%)							\$1,326,593	
After-Tax Cash Flow from Sale								
Before-Tax Cash Flow from Sale							\$4,762,481	
Tax							(1,326,593)	
After-Tax Cash Flow from Sale							\$3,435,888	

continued

Stage 2 Analysis—Discounted Cash Flow *continued*

Return Measures	Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Unleveraged IRR								
Project Cost	(\$7,834,355)							
Net Operating Income		\$872,375	\$894,184	\$916,539	\$939,452	\$962,938	\$987,012	\$1,011,687
Adjusted Sale Price								10,478,949
Total Before-Tax Cash Flow	(\$7,834,355)	\$872,375	\$894,184	\$916,539	\$939,452	\$962,938	\$987,012	\$11,490,637
Unleveraged IRR	14.9%							
Net Present Value @ 12% ⁷	\$1,151,030							
Before-Tax IRR								
Equity	(\$1,404,216)							
Before-Tax Operating Cash Flow		\$251,252	\$273,062	\$295,416	\$318,330	\$341,816	\$365,890	\$390,565
Before-Tax Cash Flow from Sale								4,762,481
Total Before-Tax Cash Flow	(\$1,404,216)	\$251,252	\$273,062	\$295,416	\$318,330	\$341,816	\$365,890	\$5,153,046
Before-Tax IRR	33.28%							
Net Present Value @ 15%	\$1,662,334							
After-Tax IRR								
Equity	(\$1,404,216)							
After-Tax Operating Cash Flow		\$229,314	\$243,093	\$257,095	\$271,314	\$285,744	\$300,378	\$315,206
After-Tax Cash Flow from Sale								3,435,888
Total After-Tax Cash Flow	(\$1,404,216)	\$229,314	\$243,093	\$257,095	\$271,314	\$285,744	\$300,378	\$3,751,094
After-Tax IRR	27.34%							
Simple Return Measures								
NOI/Project Cost		11.14%	11.41%	11.70%	11.99%	12.29%	12.60%	12.91%
Before Tax Cash Flow/Equity		17.89%	19.45%	21.04%	22.67%	24.34%	26.06%	27.81%
Tax Shelter/Equity		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

¹ Different from final depreciation as a result of variance between estimated construction interest and actual interest.

² The permanent mortgage balance was determined based on value and cash flow. During the development period, only interest will be paid on the construction loan. Amortization begins upon funding of the permanent loan, after stabilization.

³ The depreciable basis is the total project cost, excluding land costs and operating losses during the lease-up period. The remaining book value includes the land cost.

⁴ Gross rent escalates 2.5 percent per year.

⁵ Other income escalates (or inflates) 2.5 percent per year. (Other income is usually tied to adjusted gross income, as vending machine fees and parking fees are tied to occupancy.)

⁶ Operating expenses escalate 2.5 percent per year.

⁷ Net present value equals the present value of future cash flows, less the initial investment. Unleveraged net present value represents the development profit.

Two bridges connect Harbour Place on Harbour Island to downtown Tampa, Florida, making it possible for residents to commute easily from the island to downtown.



RTKL

Stage 3—Combined Analysis of the Development and Operating Periods

Some time before the developer makes a firm commitment on the earnest money, it is important to compute a more refined estimate of cash flows during the development period and operating period.³ This stage of analysis provides measures of return for the entire life of the proposed project. Stage 3 is more accurate than Stage 2, which assumes that equity is invested at the time of stabilized occupancy whereas, in fact, it must be invested before construction begins. Because the time frame is extended one to two years before Stage 2 analysis and the initial years produce little if any cash flow, the IRRs for Stage 3 are necessarily lower than for Stage 2. Nevertheless, they represent the most accurate picture of how the project will perform.

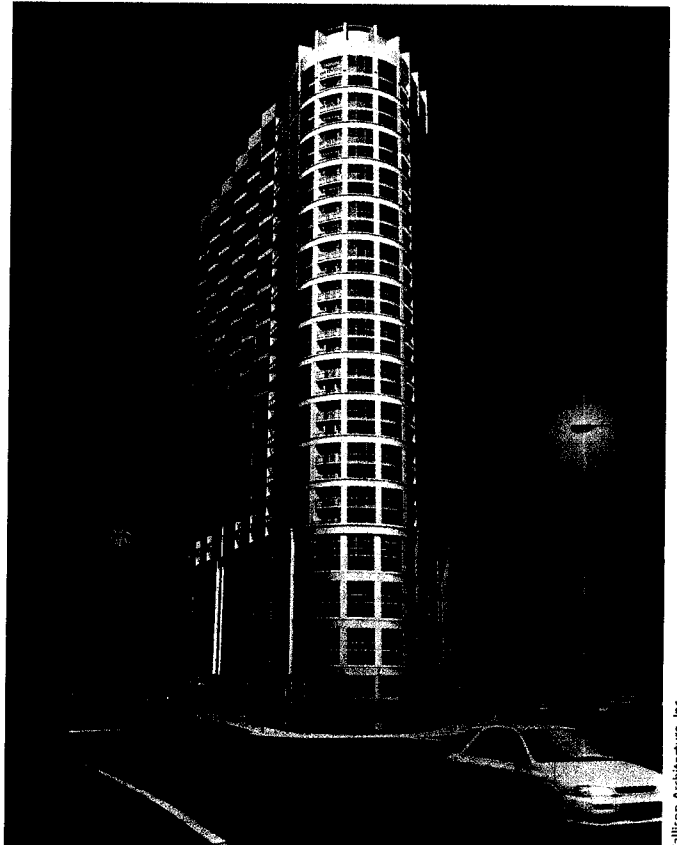
Stage 3 evaluates cash flows quarterly during the development period, taking into account the anticipated monthly lease-up rate. It also shows when equity and debt funds will be needed and how long they will be accruing interest before the project's cash flow can support the debt service. In this example, costs are projected on a quarter-by-quarter basis.

Stage 4—Monthly Cash Flows during the Development Period

Stage 4 analysis (not shown) focuses on just the development period and refines the quarterly projections into monthly projections to support the request for the construction loan. Figure 5-8 presents the quarterly cash flows during the development period, including construction and lease-up of the project. The schedule here assumes that the project will be built during the first four quarters and that the project will be leased up over the next four quarters.⁴ The estimated lease-up time (10.53 months) was calculated from the anticipated absorption of apart-

ments based on the market study. The project reaches stabilized occupancy after the second year.

The construction loan is limited to the amount of the permanent loan. In today's lending environment, it is unlikely that anyone will lend 100 percent of the costs of the project. The developer will be required to contribute equity. A primary purpose of the quarterly analysis of the development phase is to estimate the amount of the loan that needs to be set aside to cover interest



Callison Architecture, Inc.

Westlake Tower Apartments in downtown Seattle, Washington, is a 24-story, 368-unit building atop retail space and parking.

figure 5-8

Stage 3 Analysis (Part 1)—Cash Flows during Development Period, Including Initial Lease-Up

	Development Period				Lease-Up Period							
	Total	Time Zero	Year 1 Total	Year 2 Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8
Development Costs												
Land	\$603,350	\$603,350	\$0	\$0								
Land Carry	18,100	18,100	0	0								
Approval Fees	42,000	42,000	0	0								
Soft Costs			0	0								
Architecture	42,000		42,000	0	\$29,400	\$4,200	\$4,200	\$4,200				
Engineering	24,000		24,000	0	24,000							
Professional Fees	6,000	6,000	0	0								
Marketing	54,000		18,000	36,000				18,000	\$18,000	\$18,000		
Construction	5,603,640		5,603,640	0	1,400,910	1,400,910	1,400,910	1,400,910				
Furnishings	12,000		12,000	0				12,000				
Taxes and Insurance during Construction	60,855		60,855	0	15,214	15,214	15,214	15,214				
Developer Overhead (5% of soft costs, construction, furnishings)	287,082	300	284,982	1,800	72,716	70,256	70,256	71,756	900	900	0	0
Loan Origination Costs	224,981	224,981	0	0								
Contingencies	180,000		180,000	0	45,000	45,000	45,000	45,000				
Total Development Cost, Excluding Interest	\$7,158,008	\$894,731	\$6,225,477	\$37,800	\$1,587,239	\$1,535,579	\$1,535,579	\$1,567,079	\$18,900	\$18,900	0	0
Operating Costs during Lease-Up												
Months to Reach Stabilized Occupancy (10.53)												
Number of Apartments Leased				351					23	68	113	147
Vacancy Rate during Lease-Up (percentage of gross potential)				44.46%					85.44%	56.96%	28.48%	6.96%
Stabilized Vacancy (percentage of gross potential)				2.78%					0.73%	2.15%	3.58%	4.65%
Overall Vacancy Rate				47.24%					86.17%	59.11%	32.06%	11.61%
Gross Potential Rent (from pro forma NOI)	\$1,340,201			\$1,340,201					\$335,050	\$335,050	\$335,050	\$335,050

	Development Period				Lease-Up Period							
	Total	Time Zero	Year 1 Total	Year 2 Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 5	Quarter 6	Quarter 7	Quarter 8
Vacancy Loss (\$)	(\$633,096)			(\$633,096)					(\$288,716)	(\$198,061)	(\$107,407)	(\$38,912)
Adjusted Gross Rent	707,104			707,104					46,334	136,989	227,643	296,138
Other Income	13,884			13,884					910	2,690	4,470	5,815
Total Revenue	\$720,989			\$720,989					\$47,244	\$139,679	\$232,113	\$301,953
Operating Expenses	425,815			425,816					106,454	106,454	106,454	106,454
Net Operating Income	\$295,173			\$295,173					(\$59,210)	\$33,225	\$125,659	\$195,499
Combined Cash Flow during Development Period	(\$6,862,835)	(\$894,731)	(\$6,225,477)	\$257,373	(\$1,587,239)	(\$1,535,579)	(\$1,535,579)	(\$1,567,079)	(\$78,110)	\$14,325	\$125,659	\$195,499
Construction Loan Balance and Interest Calculation												
Maximum Loan Balance (from financing calculation)	\$6,428,024											
Equity (total project cost, less construction loan)	\$1,406,331	\$894,731	\$511,600	0	\$511,600	0	0	0	0	0	0	0
Construction Loan Account												
Beginning Balance			\$6,000,548	0	\$1,089,757	\$2,674,096	\$4,300,025	\$6,000,548	\$6,236,420	\$6,386,049	\$6,428,024	
Loan Draw												
Construction Draw	\$5,751,677		\$5,713,877	37,800	1,075,639	1,535,579	1,535,579	1,567,079	18,900	18,900	0	0
Operating Deficit	59,210		0	59,210	0	0	0	0	59,210	0	0	0
Interest (10.5%)	944,757		286,671	658,086	14,118	48,761	90,350	133,444	157,762	163,954	167,634	168,736
Interest Accrued during Construction Period	286,671		286,671	0	14,118	48,761	90,350	133,444				
Interest Accrued during Operating Period	330,466			330,466	0	0	0	0	157,762	130,729	41,975	0
Interest Paid from Operations	327,620			327,620	0	0	0	0	0	33,225	125,659	168,736
Ending Balance	\$6,428,024		\$6,000,548	\$6,428,024	\$1,089,757	\$2,674,096	\$4,300,025	\$6,000,548	\$6,236,420	\$6,386,049	\$6,428,024	\$6,428,024

figure 5-9

Final Development Cost Summary

Capital Costs	
Total Development Cost, Excluding Interest	\$7,158,008
Interest Accrued during Construction	286,671
Total Capitalized Costs	\$7,444,679
Depreciable Basis	
Land Cost	603,350
Depreciable Basis (capital cost minus land)	\$6,841,330
Operating Reserve	
Operating Loss during Lease-up	\$59,210
Interest Accrued during Operating Period	330,466
Total Operating Reserve during Lease-Up	\$389,676
Total Project Cost (capital costs plus operating reserve)	\$7,834,355

expenses and operating losses during the construction and startup phase. In this case, the total project cost is estimated at \$7,832,240. Because the maximum loan is \$6,428,024, the developer is required to come up with \$1,404,216 in equity. The amount of equity must be expended before the lender starts funding the loan.

Figure 5-9 summarizes project costs and identifies separately the capitalized costs from the first-year operating loss. Both are project costs that need to be funded but are treated differently when calculating income taxes.

Figure 5-10 shows the operating period cash flows for Stage 3. The quarterly figures from Figure 5-8 are summed to obtain annual numbers and brought forward to Figure 5-10. This analysis resembles Stage 2 analysis except that the construction and lease-up years (1 and 2) are included, whereas Stage 2 analysis assumed that the

The Meridian at State Thomas is a luxury multifamily development in a historic Dallas neighborhood.



first year had stabilized occupancy. Note that the cash flow for Year 1 is zero because all the equity is invested before Year 1 and all costs are covered by construction draws. The before-tax IRR is 26 percent, the after-tax IRR 22.42 percent.

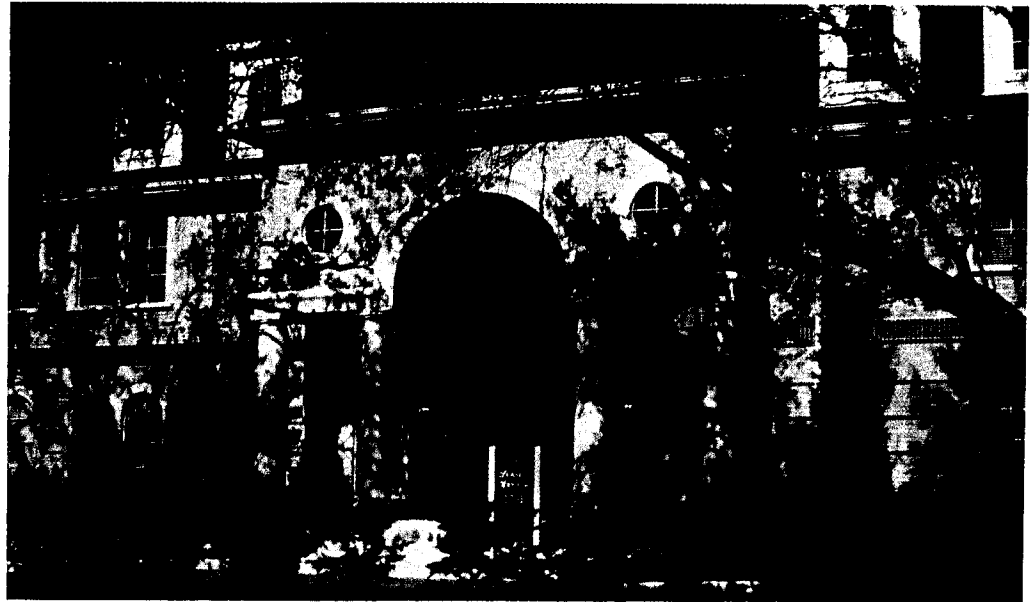
Stage 5—Discounted Cash Flow Analysis for Investors

The final step in the analysis is to divide cash flows for the whole project into the investor’s and developer’s shares. Stage 5 is the joint venture/syndication analysis. It is used to structure the deal between the developer and the equity investor. Although the final version of Stage 5 for the offering package is usually prepared by an accountant on an after-tax basis, the developer’s analysis typically focuses on *before-tax* cash flows and IRRs to the investor. The project’s viability hinges on attracting sufficient equity capital, so the investor’s IRR is one of the key measures of return.

Stage 5 analysis should be done before one makes a firm commitment for the earnest money for the land. If the investor’s IRR is below 15 percent (and higher if inflation exceeds 3 to 4 percent or the deal is unusually risky), then the land price or purchase price is too high. Alternatively, the investor can be given a greater share of the profits, but if too little money is left over for the developer, the deal is not worth doing.

Figure 5-11 shows the before-tax Stage 5 analysis for Shady Hollow. The investor who puts up the equity typically requires a preferred return. The preferred return is most often cumulative, which is to say that if funds are not sufficient to pay the preferred return, the deferred return is added to the equity balance and accrues interest. In this case, the investor receives an 8 percent cumulative preferred return and takes 80 percent of the remaining cash flow as paydown of the equity. The other 20 percent is split evenly between the developer and the investor. When

The Park at Greenway in Houston, Texas, is an infill development that provides high-end units clustered in landscaped courtyards.



Camden Property Trust

the property is sold, the first distribution goes to pay down any remaining equity and unpaid preferred return. The balance is split 50-50. Under this structure, the developer receives some cash flow throughout the operating period. The investor's before-tax IRR is 17.1 percent.

Some investors may insist on receiving all the cash flow until they receive back their initial equity investment and preferred return. There is no "typical" deal structure. It is up to the developer to devise a structure that will attract the necessary equity.

When a single large investor is involved, the deal is negotiated directly between the developer and the investor. Institutional equity investors typically require 75 to 80 percent of the profits. Developers can often raise money more cheaply from private individuals. A common structure with private individuals during the 1980s was a 6 to 10 percent preferred return and a 50-50 split of the profits after return on equity. As money for real estate became scarce in the late 1980s and early 1990s, investors required as much as 80 to 90 percent of the profits. "Lookback IRRs" of 20 to 25 percent were also common; in essence, the investor had to achieve a 20 to 25 percent IRR before the developer received a share of the profits. These returns are difficult to achieve except when properties are purchased at deep discounts or perform especially well. They require getting in and out of the deal in a short time—two or three years at most.

As money became more available in the mid-1990s, terms of deals with investors became less stringent. Still, many investors lost money in the 1980s, especially in nonresidential property. It will be harder for developers to obtain the traditional 50-50 deal with investors for some time.

What to Look Out For

Financial analysis is a necessary but often misused tool. Experienced developers sometimes scoff at the latest

DCF and IRR techniques because the old rules of thumb (capitalized value should exceed cost by a comfortable margin, say 10 to 15 percent, or cash-on-cash return should be 10 to 11 percent) work just as well when a project is obviously a good investment. Stage 2 analysis can easily be misused to overestimate a project's returns. One should be aware of the major pitfalls:

- underestimating costs
- overestimating rents
- underestimating operating expenses, especially after five years
- underestimating or omitting a reserve for replacements
- underestimating or omitting tenant turnover expenses for repainting, carpets, draperies, and appliances
- overestimating rent escalation
- assuming too low a sale-year capitalization rate (which increases sale value)
- not allowing a sufficient interest reserve during lease-up or assuming an insufficient lease-up time.

The errors in analysis are compounded by developers' natural optimism—the predilection to make several optimistic or "aggressive" assumptions simultaneously. Making one optimistic assumption, such as too short a lease-up period, may not alter the results too much, but when two or three such assumptions are made, the resulting returns may represent a *very* optimistic and unrealistic case. For example, if three assumptions that each are likely to occur only 25 percent of the time are used together, the resulting case has only a 1.5 percent likelihood of occurring ($0.25 \times 0.25 \times 0.25$). Thus, one must be very careful about selecting assumptions for the variables that represent *average* or *most likely* values.

The other common mistake is going into too much detail too early in the analysis. It is inappropriate to analyze the cash flows on a monthly basis when one is first looking at a project because the data for costs and rents are so crude that the extra detail does not help.

figure 5-10

Stage 3 Analysis (Part 2)—Annual Before- and After-Tax Cash Flows during Development and Operating Periods

Mortgage Calculation	Development Period			Operating Period						
	Initial Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Beginning Balance ¹	\$6,428,024			\$6,428,024	\$6,350,302	\$6,265,710	\$6,173,641	\$6,073,435	\$5,964,370	\$5,845,666
Ending Balance	\$6,428,024			\$6,350,302	\$6,265,710	\$6,173,641	\$6,073,435	\$5,964,370	\$5,845,666	\$5,716,469
Amortization of Principal				77,722	84,592	92,069	100,207	109,064	118,705	129,197
Interest				543,400	536,531	529,053	520,915	512,058	502,418	491,925
Depreciation										
Beginning Balance ²			\$6,841,330	\$6,592,554	\$6,343,779	\$6,095,003	\$5,846,227	\$5,597,452	\$5,348,676	\$5,099,900
Less: Annual Depreciation			(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)
Ending Balance			\$6,592,554	\$6,343,779	\$6,095,003	\$5,846,227	\$5,597,452	\$5,348,676	\$5,099,900	\$4,851,125
Cumulative Depreciation Taken			248,776	497,551	746,327	995,103	1,243,878	1,492,654	1,741,429	1,990,205
Cumulative Straight-Line Depreciation			248,776	497,551	746,327	995,103	1,243,878	1,492,654	1,741,429	1,990,205
Recapture			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Remaining Book Value			\$7,195,904	\$6,947,128	\$6,698,352	\$6,449,577	\$6,200,801	\$5,952,026	\$5,703,250	\$5,454,474
Annual Cash Flows										
Gross Rent ³			\$1,340,201	\$1,373,706	\$1,479,331	\$1,516,314	\$1,554,222	\$1,593,077	\$1,632,904	\$1,673,727
Vacancy Rate			47.24%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Vacancy (\$)			633,096	68,685	73,967	75,816	77,711	79,654	81,645	83,686
Adjusted Gross Income			707,104	1,305,020	1,405,364	1,440,498	1,476,511	1,513,423	1,551,259	1,590,040
Other Income (2.5%) ⁴			13,884	25,625	26,922	27,595	28,285	28,992	29,717	30,460
Total Revenue			\$720,989	\$1,330,645	\$1,432,286	\$1,468,093	\$1,504,796	\$1,542,416	\$1,580,976	\$1,620,501
Operating Expenses (2.5%) ⁵			\$425,815	\$436,461	\$470,021	\$481,771	\$493,816	\$506,161	\$518,815	\$531,786
Other Expenses			0	0	0	0	0	0	0	0
Total Expenses			\$425,816	\$436,461	\$470,021	\$481,771	\$493,816	\$506,161	\$518,815	\$531,786
Net Operating Income			\$295,173	\$894,184	\$962,265	\$986,322	\$1,010,980	\$1,036,255	\$1,062,161	\$1,088,715
Less: Annual Debt Service			(658,086)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)	(621,122)
Plus: Operating Reserve Funded by Construction Loan ⁶			389,676							
Before-Tax Cash Flow			\$26,763	\$273,062	\$341,143	\$365,200	\$389,858	\$415,132	\$441,039	\$467,593
Tax Calculation										
Net Operating Income			\$295,173	\$894,184	\$962,265	\$986,322	\$1,010,980	\$1,036,255	\$1,062,161	\$1,088,715
Interest			(658,086)	(543,400)	(536,531)	(529,053)	(520,915)	(512,058)	(502,418)	(491,925)
Depreciation			(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)	(248,776)
Taxable Income (loss)			\$(611,689)	\$102,008	\$176,959	\$208,493	\$241,289	\$275,421	\$310,968	\$348,014
Less: Passive Loss Offset			0	(102,008)	(176,959)	(208,493)	(124,228)	0	0	0
Taxable Income			0	0	0	0	\$117,061	\$275,421	\$310,968	\$348,014
Passive Loss Carryover			(611,689)	(509,681)	(332,721)	(124,228)	0	0	0	0
Taxes (28%)				0	0	0	32,777	77,118	87,071	97,444

After-Tax Cash Flow from Operations	Initial Investment	Development Period		Operating Period							
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	
Before-Tax Cash Flow			\$26,763	\$273,062	\$341,143	\$365,200	\$389,858	\$415,132	\$441,039	\$467,593	
Taxes			0	0	0	0	(32,777)	(77,118)	(87,071)	(97,444)	
After-Tax Cash Flow			\$26,763	\$273,062	\$341,143	\$365,200	\$357,081	\$338,014	\$353,968	\$370,149	
Sale Price Calculation											
Sale Price (end of Year 9, based on Year 10 NOI)										\$11,746,661	
Less: Commission (4%)										(469,866)	
Adjusted Sale Price										\$11,276,795	
Less: Remaining Balance on Mortgage										(5,716,469)	
Cash from Sale before Tax										\$5,560,326	
Taxes											
Adjusted Sale Price										\$11,276,795	
Less: Remaining Book Value										(5,454,474)	
Total Taxable Gain										\$5,822,320	
Less: Passive Loss Carryover										0	
Capital Gain										\$5,822,320	
Tax on Capital Gain (28%)										\$1,630,250	
Total Tax from Sale										1,630,250	
Cash from Sale before Tax										\$5,560,326	
Less: Tax										(1,630,250)	
Cash from Sale after Tax										\$3,930,077	
Return Analysis											
Equity (-)	(\$1,406,331)										
Before-Tax Cash Flows from Operations		0	\$26,763	\$273,062	\$341,143	\$365,200	\$389,858	\$415,132	\$441,039	\$467,593	
Cash Flow from Sale before Tax										5,560,326	
Total Before-Tax Cash Flow	(\$1,406,331)	0	\$26,763	\$273,062	\$341,143	\$365,200	\$389,858	\$415,132	\$441,039	\$6,027,919	
Before-Tax IRR			26%								
After-Tax Cash Flows from Operations		0	0	26,763	273,062	341,143	365,200	357,081	338,014	353,968	370,149
Cash Flow from Sale after Tax											3,930,077
Total After-Tax Cash Flow	(\$1,406,331)	0	\$26,763	\$273,062	\$341,143	\$365,200	\$357,081	\$338,014	\$353,968	\$4,300,225	
After-Tax IRR			22.42%								

¹ The permanent mortgage balance was determined based on value and cash flow. During the development period, only interest will be paid on the construction loan. Amortization begins upon funding of the permanent loan, after stabilization.

² The depreciable basis is the total project cost, excluding land costs and operating losses during the lease-up period. The remaining book value includes the land cost.

³ Gross rent escalates 2.5 percent per year.

⁴ Other income escalates (or inflates) 2.5 percent per year. (Other income is usually tied to adjusted gross income, as vending machine fees and parking fees are tied to occupancy.)

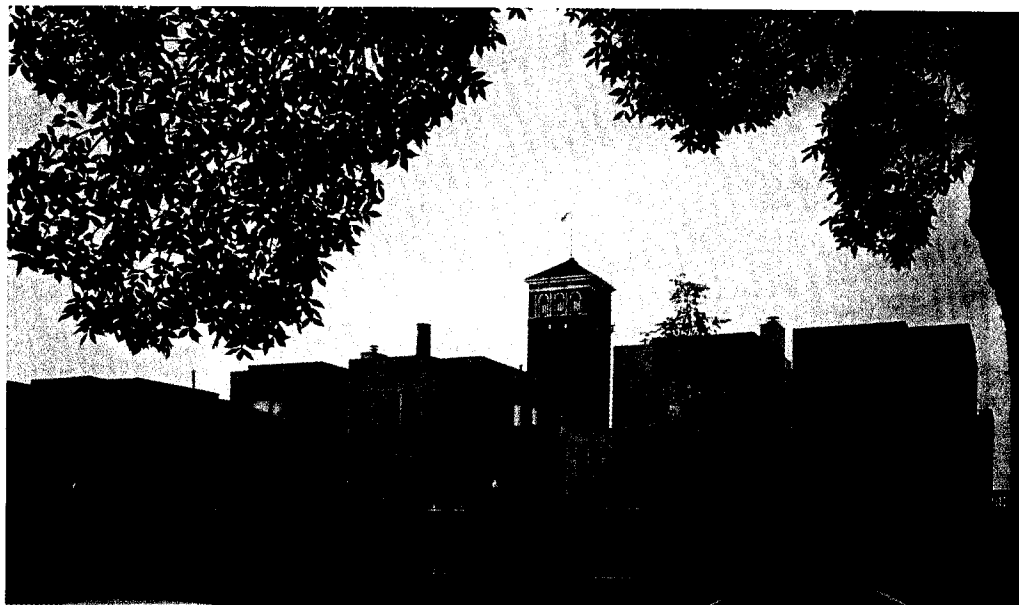
⁵ Operating expenses escalate 2.5 percent per year.

⁶ Net present value equals the present value of future cash flows, less the initial investment. Unleveraged net present value represents the development profit.

Stage 5 Analysis—Returns to Investors

Initial Equity		\$1,406,331										
Cumulative Preferred Return		8%										
Priority Payback of Equity		80%										
Investors' Share of Remaining Cash Flow		50%										
		Development Period					Operating Period					
	Initial Investment	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Before-Tax Cash Flow	(\$1,406,331)	\$0	\$0	\$26,763	\$273,062	\$341,143	\$365,200	\$389,858	\$415,132	\$441,039	\$6,027,919	
Preferred Return												
Beginning Equity Account Balance		1,406,331	1,406,331	1,406,331	1,406,331	1,253,578	1,041,647	796,426	515,292	195,440		
Preferred Return Earned		112,507	112,507	112,507	112,507	100,286	83,332	63,714	41,223	15,635		
Preferred Return Paid Currently		\$0	\$26,763	\$112,507	\$112,507	\$100,286	\$83,332	\$63,714	\$41,223	\$15,635		
Unpaid Return Account												
Beginning Balance		0	112,507	198,250	37,695	0	0	0	0	0	0	
Deferred Preferred Return		112,507	85,744	0	0	0	0	0	0	0	0	
Deferred Preferred Return Paid		0	0	160,555	37,695	0	0	0	0	0	0	
Ending Balance		\$112,507	\$198,250	\$37,695	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Equity Account Balance												
Beginning Equity Account Balance		1,406,331	1,406,331	1,406,331	1,406,331	1,253,578	1,041,647	796,426	515,292	195,440		
Equity Payback		0	0	0	152,753	211,931	245,221	281,135	319,852	195,440		
Ending Balance		\$1,406,331	\$1,406,331	\$1,406,331	\$1,253,578	\$1,041,647	\$796,426	\$515,292	\$195,440	\$0		
Equity Payments Recap												
Preferred Return Paid Currently		0	26,763	112,507	112,507	100,286	83,332	63,714	41,223	15,635		
Deferred Preferred Return Paid		0	0	160,555	37,695	0	0	0	0	0		
Equity Payback		0	0	0	152,753	211,931	245,221	281,135	319,852	195,440		
Total Payments on Equity		\$0	\$26,763	\$273,062	\$302,955	\$312,217	\$328,553	\$344,849	\$361,076	\$211,075		
Remaining Cash Flow												
Before Tax Cash flow		0	26,763	273,062	341,143	365,200	389,858	415,132	441,039	6,027,919		
Total Payments on Equity		0	26,763	273,062	302,955	312,217	328,553	344,849	361,076	211,075		
Remaining Cash Flow		\$0	\$0	\$0	\$38,188	\$52,983	\$61,305	\$70,284	\$79,963	\$5,816,844		
Investors' Share of Remaining Cash Flow		0	0	0	19,094	26,491	30,653	35,142	39,982	2,908,422		
Investors' Cash Flow Recap												
Investment	1,406,331											
Total Payments on Equity		0	26,763	273,062	302,955	312,217	328,553	344,849	361,076	211,075		
Investors' Share of Remaining Cash Flow		0	0	0	19,094	26,491	30,653	35,142	39,982	2,908,422		
Before-Tax Investors' Cash Flow	(\$1,406,331)	\$0	\$0	\$26,763	\$273,062	\$322,049	\$338,708	\$359,205	\$379,990	\$401,057	\$3,119,497	
Investors' Before-Tax IRR	17.1%											
Net Present Value at 15%	\$461,987											
Developer's Cash Flows												
Before-Tax Cash Flow to Developer	\$0	\$0	\$0	\$0	\$0	\$19,094	\$26,491	\$30,653	\$35,142	\$39,982	\$2,908,422	
Net Present Value at 15%	\$890,376											

Homan Square in Chicago is a 54-acre master-planned development of 600 rental and for-sale residential units. The project was intended to stabilize and revitalize the community through innovative affordable housing.



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In fact, it may make it harder to see what is going on. A basic rule of financial analysis is that the level of detail should be no greater than the accuracy of the information analyzed. Therefore, Stage 4 monthly cash flow analysis is appropriate only after considerable time and money have been spent collecting the best possible information about operations and development costs. Until that point, it is a waste of time.

Last, one should always use common sense. The various measures of return should correlate with standard rules of thumb. Good projects typically meet the following measures of return, although they vary according to the degree of risk:

Measure of Return	Existing New Development	Stabilized Property
Cash-on-cash return		
(cash throwoff/equity)	8–10%	8–10%
Overall return (NOI/total cost)	10–11%	9–10%
Unleveraged IRR	15%	11–12%
Before-tax leveraged IRR	20–25%	15–20%
After-tax leveraged IRR	15–20%	12–15%
Investor's before-tax IRR	16–20%	14–18%

These rules of thumb are rough guidelines. Returns may be higher or lower depending on the risks associated with a particular deal and the general economic environment and geographic location.

One should remember that financial analysis is an iterative process. Stage 2 analysis is necessary many times during the course of collecting better and better information about a deal. Fortunately, once the model is set up, it is a five-minute exercise to introduce better information and rerun it. But care must be taken to double check that the assumptions and results make sense. Simple measures of return for cash-on-cash returns and capitalization rates still apply. One should avoid the trap of creating so complicated a spreadsheet that key numbers become lost in the pages and pages of analysis.

Notes

1. Stage 2 analysis is standard throughout the real estate industry and is taught in most real estate graduate schools and executive training courses. A more detailed discussion of the five stages of analysis is found in Richard Peiser and Dean Schwanke, *Professional Real Estate Development: The ULI Guide to the Business* (Washington, D.C.: ULI—the Urban Land Institute, 1992). Most real estate finance textbooks describe DCF in detail; see, for example, William Brueggeman and Jeffrey Fisher, *Real Estate Finance* (Homewood, Illinois: Richard D. Irwin, Inc., 1996).
2. Unleveraged discount rates are published for pension fund investors and life insurance companies. Institutional investors were looking for unleveraged returns of 11 to 12.5 percent on “stabilized” apartment projects in 2000.
3. The developer’s deposit money for the land is usually non-refundable.
4. One typically considers Time Zero to be the time when the developer closes on the land. When closing occurs a long time before start of construction, it is simpler to assign Time Zero as the start of construction and to include land carry, design, and other interim costs as “costs to date.” “Number of apartments leased” in Figure 5-8 is the average for the quarter (46 units leased each quarter).