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Entrepreneurial Incentive And Rates Of Return In Subdivision Analysis

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Abstract

Entrepreneurial incentive and Rates of Return in Subdivision Analysis

Residential subdivision valuation is based on the anticipated pace of lot sales, estimated sales prices, and the costs and expenses necessary to attain those sales. Value is created by the market for the product type proposed at the subject. This article attempts to provide a uniform model for subdivision valuation which considers cash flow from the sales, the costs of attaining those sales, and the distribution of the cash flow as a lender's rate of return and as entrepreneurial incentive to the developer.

The Appraisal of Real Estate is silent on the derivation of discount rates for subdivision analysis except that it should be applied based on market conditions. In the real world, appraisers need solutions, tips, and methodological suggestions which can assist them in accurately analyzing a property. This article is meant to provide an alternative solution to the construction of a cash flow spreadsheet and how to handle entrepreneurial profit and discount rates for subdivision analyses.

Key Words for Indexing

Subdivision Analysis
Entrepreneurial incentive
Rates of Return
Discounted Cash Flow Analysis
Development

Entrepreneurial Incentive And Rates Of Return In Subdivision Analysis

Residential subdivision analysis is an area of analytical confusion for many appraisers and reviewers. There are probably as many variations in valuing a subdivision as there are appraisal shops. Part of the problem is a lack of clear understanding of the components of the cash flow and their affect on value. This article focuses on two components of cash flow; entrepreneurial incentive, and rate of return. Most appraisers can formulate a cash flow model to allow for lot absorption and the costs of development and marketing. The confusion in the appraisal process centers on the distribution of cash flow to the developer (entrepreneurial incentive) and the lender (debt service). Hopefully, the analytical techniques presented in this article will serve as a model of uniformity for use throughout the appraisal profession.

Basis of Subdivision Analysis

A residential subdivision will typically exist as one of several structures, the definitions of which may vary by geography or local jurisdiction;

- Raw, unplatted acreage, or
- Platted (recorded) lots or parcels, or
- Developed lots or parcels, or
- Improved lots or parcels.

Raw, unplatted acreage is just that; a parcel of land without a recorded or approved plan for development. Generally, this land has an interim use such as a farm or ranch.

Platted (recorded) lots have been taken through an initial governmental approval level generally delineating the form of a proposed subdivision (i.e., number and size of lots, location and width of roads, delineation of wetlands or other open space, etc.). Some jurisdictions have several layers of approvals; *preliminary approval, sketch plan approval, Planning Department reviews*. In this article, *platted lots* means that the developer has completed all of the preliminary review levels and ending with recorded, ready-to-move-dirt lots. The process of lot recordation is generally seen as the last level of approvals needed by the local government (i.e., approval from all governmental agencies such as Planning and Zoning, Health Department, Transportation, Schools, etc.).

Developed lots have all infrastructure in place. That is, roads and paving, water and sewage lines, initial lot grading, street lights, utilities to the lot lines have all been completed and the lots are ready for construction of homes.

Improved lots have homes built on them. The common descriptive phrase is that the houses are improvements to the developed lots.

In some areas, it is customary for land developers to take the project through developed lots and sell individual lots to home builders. In other geographic regions, it is customary for the developer to take the parcel of land through the entire development process; from raw land to house sales. The subdivision can be sold at any level of development so the appraiser must be able to value the rights being sold at any level of development. To do this, the appraiser must understand what creates the value in the eyes of the buyer (i.e., developer). Each stage in the subdivision process is an opportunity for the developer to earn profit from the sale of lots – either *platted, developed, or improved*.

Entrepreneurial Incentive in the Subdivision Process

In residential subdivision development, the expected future benefit of ownership is the right to receive a profit, i.e., entrepreneurial incentive, from the periodic sales of building lots (developed or improved) over and anticipated sales period (absorption). Entrepreneurial incentive is a market-derived figure that reflects the amount an entrepreneur expects to receive for his or her contribution to the project.¹ Potential profit (i.e., entrepreneurial incentive) should be derived from market analysis and through interviews with developers to determine the expectations of profit required as a motivation or incentive to undertake a particular development. Less emphasis should be given to historical profit margins since these are records of results and often differ from the *anticipated* profits which originally motivated the developer to proceed with a project. The measurement of entrepreneurial incentive is generally the greatest problem in residential subdivision valuation. Discussions with local developers may yield a variety of measurements, each different from each other in terms of how profit is measured by the local market participants.

Lovell and Martin state that the appraiser should select the method that best reflect current market conditions and the behavior of developers in the specific market and suggest that there are several ways to handle entrepreneurial profit in a cash flow forecast.² The appraiser may:

- Deduct entrepreneurial profit as a line item of expense based on a percentage of sales income.
- Increase the discount rate to reflect compensation for the entrepreneur's contribution in addition to project risk.
- Allocate entrepreneurial profit as a line item expense over both the construction period and the sellout period. Entrepreneurial profit is deducted as a percentage of development costs over the construction period and as a percentage of sales income over the sellout period.
- Deduct fixed dollar payments at various points in the construction and sellout period of the project.

¹ Appraisal Institute, *The Appraisal of Real Estate*, 12th ed., (Chicago: Appraisal Institute, 2001), 360.

² Douglas D. Lovell and Robert S. Martin, *Subdivision Analysis*, (Chicago: Appraisal Institute), 53.

In terms of applying discount rates, Lovell and Martin assert that if entrepreneurial profit has been deducted as a line item of expense in the cash flow forecast, the discount rate should reflect the return needed to compensate the capital investor for project risk. And if entrepreneurial profit has not been deducted in the cash flow forecast, the discount rate used must reflect not only the expected return to the capital invested in the project, but also an adequate provision to compensate the developer for the entrepreneurial effort need to create a successful project.³

Munson suggests that it may be appropriate to put in a separate spreadsheet expense line providing a minimum gross profit market deduction to ensure that developer incentive is considered.⁴ Munson, however, also includes returns to both equity and capital in the derivation of yield rates.⁵ This methodology double accounts for entrepreneurial profit as it is treated as an expense and also as a component in the yield rate.

These authors are correct in suggesting to the appraiser that their local market should be their guide when determining how to apply profit in a subdivision analysis, and even what *is* profit. The questions the appraiser needs to ask when involved in this type of assignment include:

- How does the local market measure profit?
- Is profit a percentage of gross sales of lots or houses?
- Is it a stated dollar amount per lot or house?
- Is profit a measure of the total project value?

³ Douglas D. Lovell and Robert S. Martin, *Subdivision Analysis*, (Chicago: Appraisal Institute), 54.

⁵ Chuck Munson, "Lender Residential Subdivision Evaluation Using Discounted Cash Flow Analysis", *The Appraisal Journal* (October 1994), 576.

⁵ Chuck Munson, "Lender Residential Subdivision Evaluation Using Discounted Cash Flow Analysis", *The Appraisal Journal* (October 1994), 576.

- When is profit earned; at completion of land development, at the sale of a lot or house, or when total sales are completed (measured as a residual)?

The answer to these questions will be the appraiser's guide in how it is melded into the cash flow analysis.

The appraiser should be able to ascertain the local market's profit *expectations* from conversations with developers. The term *expectations* is key since this is what entices developers and lenders to become involved in projects such as these. Munson devoted discussion in his article to the inability of the appraiser to predict the future.⁶ The appraiser is not predicting the future; rather the appraiser is attempting to mirror the current level of expectations of participants in this transaction. "What is the developer expecting?" "What are the current expectations of buyers of homes in this marketplace?" "What would a prudent developer/entrepreneur/lender require/expect in terms of returns, risk, sell-off, pricing, expenses, etc.?" The appraiser is not predicting the future; s/he is mirroring the present.

Subdivision Analysis Example

The value of a subdivision is primarily based on the pace of lot sell-off and the price of the lots (or condominium units or whatever is being sold). Whether or not entrepreneurial incentive is a line-item in the cashflow spreadsheet or included in the overall internal rate of return should not materially affect the value of the project. To visualize how this is true, three interrelated spreadsheet examples are discussed below to see how entrepreneurial profit can be modeled. The basic assumptions for these three models are:

⁶ Chuck Munson, "Lender Residential Subdivision Evaluation Using Discounted Cash Flow Analysis", *The Appraisal Journal* (October 1994), 579.

- Number of Lots = 112
- Five (5) quarters for site development and sell-off of lots
- \$30,000 per lot pricing, inflated by 4% per year (1% per quarter)
- Real estate taxes of \$420 per lot, payable once a year beginning in quarter one
- \$1,239,000 in site development costs, spread over the first two (2) quarters
- Marketing costs of 3% of sales income
- General and administrative costs of 2% of sales income

These assumptions build a cashflow spreadsheet model shown in Table 1. Notice in the spreadsheet that entrepreneurial profit has not been included as a line item in this first subdivision cashflow example, but it will be treated in the next step. However, all other expenses of the construction, development and sales of the subject lots or homes should fit into the expense categories listed.

Table 1
Spreadsheet Valuation Model

Pace and Price							
Absorption - Sell-Off of Lots	112 lots						
	Quarterly Period	<u>Quarter 1</u>	<u>Quarter 2</u>	<u>Quarter 3</u>	<u>Quarter 4</u>	<u>Quarter 5</u>	<u>Totals</u>
Total # of Lots Sold Per Period		0	28	28	28	28	112
Cumulative Sold		0	28	56	84	112	
Finished Lot Price		\$ 30,000	\$ 30,300	\$ 30,600	\$ 30,900	\$ 31,200	
Total Sales Income		\$ 0	\$ 848,400	\$ 856,800	\$ 865,200	\$ 873,600	\$ 3,444,000
Less: Cost of Sales							
Real Estate Taxes	\$ 420	\$ 47,040	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,040
Site Development Costs		\$ 633,000	\$ 396,000				\$ 1,029,000
Marketing	3%	\$ 0	\$ 25,500	\$ 25,700	\$ 26,000	\$ 26,200	\$ 103,300
General & Administrative	2%	<u>\$ 0</u>	<u>\$ 17,000</u>	<u>\$ 17,100</u>	<u>\$ 17,300</u>	<u>\$ 17,500</u>	<u>\$ 68,900</u>
Total Cost of Sales		\$ 680,040	\$ 438,500	\$ 42,800	\$ 43,300	\$ 43,700	\$ 1,248,240
Net Income from Development		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900	\$ 2,195,660

Assuming all project-related income and expenses have been accounted for, Net Income from Development in Table 1 is the sum of money each period which flows to only two sources; equity and capital. Equity can be defined as a return to the developer/owner in the form of profit, and capital can be defined as a return to the lender for the money required to fund the project.⁷

The value of a subdivision project is based on the timing of sales and the amount of revenue the sales generate. This is known as pace and price. Acknowledging that net income after accounting for development expenses flows to only two entities (equity and capital), the structure of the spreadsheet can be done in one of three models; capital residual (Table 2 – Lender Residual Model), equity residual (Table 3 – Entrepreneurial Profit Residual Model), and combined residual (Table 4 – Debt and Equity Combined Model). Regardless of which model or models the appraiser chooses to produce, the value of the subject should be exactly the same since the value of the property is based on the price of the lots and the pace of sell-off (absorption). *How* the appraiser models the returns to equity and capital should not affect value.

Further Assumptions For The Model

For ease of discussion, assume that entrepreneurial profit (i.e., return to equity) is measured in the subject's market as a percentage of gross sales income (i.e., sales per lot or house, per quarter); say 15% of gross sales income, for illustrative purposes. The remaining residual component, return to capital, can best be measured as the lender's rate of return. Munson describes this as an annual yield equal to the annual percentage rate after considering a lender's loan fees.^{8,9}

⁷ Note that developer and lender can have many subcategories such as multiple equity investors or entrepreneurial participants, or multiple levels of capital participants. "Developer" and "Lender" will be used as generic terms for each broad category.

⁸ Chuck Munson, "Lender Residential Subdivision Evaluation Using Discounted Cash Flow Analysis", *The Appraisal Journal* (October 1994), 577.

To demonstrate this valuation methodology, three spreadsheet models will be constructed based on the assumptions noted above; 1) a lender residual model, 2) an entrepreneurial profit model, and 3) a debt and equity residual model.

Lender Residual Model

Table 2 demonstrates a cash flow spreadsheet using a debt/capital-residual analysis. The cash flow spreadsheet from Table 1 was modified by taking entrepreneurial profit of 15% of gross sales as a line item and then discounting the resulting cash flow at an internal rate of return of 12% yielding a net present value of \$1,450,000.

Table 2
Lender Residual Model

Absorption - Sell-Off of Lots		112 lots					
Quarterly Period		<u>Quarter 1</u>	<u>Quarter 2</u>	<u>Quarter 3</u>	<u>Quarter 4</u>	<u>Quarter 5</u>	<u>Totals</u>
Total # of Lots Sold Per Period		0	28	28	28	28	112
Cumulative Sold		0	28	56	84	112	
Finished Lot Price		\$ 30,000	\$ 30,300	\$ 30,600	\$ 30,900	\$ 31,200	
Total Sales Income		\$ 0	\$ 848,400	\$ 856,800	\$ 865,200	\$ 873,600	\$ 3,444,000
Less: Cost of Sales							
Real Estate Taxes	\$ 420	\$ 47,040	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,040
Site Development Costs		\$ 633,000	\$ 396,000				\$ 1,029,000
Marketing	3%	\$ 0	\$ 25,500	\$ 25,700	\$ 26,000	\$ 26,200	\$ 103,300
General & Administrative	2%	<u>\$ 0</u>	<u>\$ 17,000</u>	<u>\$ 17,100</u>	<u>\$ 17,300</u>	<u>\$ 17,500</u>	<u>\$ 68,900</u>
Total Cost of Sales		\$ 680,040	\$ 438,500	\$ 42,800	\$ 43,300	\$ 43,700	\$ 1,248,240
Net Income from Development		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900	\$ 2,195,660
Entrepreneurial Profit	15%	<u>\$ 0</u>	<u>\$ 127,260</u>	<u>\$ 128,520</u>	<u>\$ 129,780</u>	<u>\$ 131,040</u>	
Net Cash Flow		(\$ 680,040)	\$ 282,640	\$ 685,480	\$ 692,120	\$ 698,860	
Net Present Value		12.0%	\$ 1,450,000				

⁹ As in all appraisal analyses, the appraiser should use market-derived terms for the analysis, not just the specific terms of the subject's loan. That is the primary difference between investment value and market value.

Entrepreneurial Profit Residual Analysis

As a check on the lender's residual model above, the appraiser can model the spreadsheet to reflect a profit residual analysis. Assuming the debt service is known, both in terms of payback per lot and loan fees, the residual will be the entrepreneurial profit. In this case, profit is not measured as an amount per lot sold but rather an overall return based on the investment expectations of the developer.

In this example, the costs of the loan are assumed to be 9% interest rate on the quarterly outstanding balance at the beginning of each quarter, and a 2% loan origination fee, based on total project costs. Now, since the target value of \$1,450,000 is known, the appraiser solves for the unknown; the overall developer's return. In this example, it is 32%, which is calculated by applying several iterations into the spreadsheet, solving for the unknown return. The 32% can be cross-checked for reasonableness by manually calculating the present value of the entrepreneurial profit from Table 2 and dividing that amount by the total project value, of \$1,450,000. Further, this percentage should be cross-checked in the local market for reasonableness.

Table 3
Entrepreneurial Profit Residual Model

Absorption - Sell-Off of Lots		112 lots					
Quarterly Period		<u>Quarter 1</u>	<u>Quarter 2</u>	<u>Quarter 3</u>	<u>Quarter 4</u>	<u>Quarter 5</u>	<u>Totals</u>
Total # of Lots Sold Per Period		0	28	28	28	28	112
Cumulative Sold		0	28	56	84	112	
Finished Lot Price		\$ 30,000	\$ 30,300	\$ 30,600	\$ 30,900	\$ 31,200	
Total Sales Income		\$ 0	\$ 848,400	\$ 856,800	\$ 865,200	\$ 873,600	\$ 3,444,000
Less: Cost of Sales							
Real Estate Taxes	\$ 420	\$ 47,040	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,040
Site Development Costs		\$ 633,000	\$ 396,000				\$ 1,029,000
Marketing	3%	\$ 0	\$ 25,500	\$ 25,700	\$ 26,000	\$ 26,200	\$ 103,300
General & Administrative	2%	\$ 0	\$ 17,000	\$ 17,100	\$ 17,300	\$ 17,500	\$ 68,900
Total Cost of Sales		\$ 680,040	\$ 438,500	\$ 42,800	\$ 43,300	\$ 43,700	\$ 1,248,240
Net Income from Development		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900	\$ 2,195,660
Loan Fees	2%	\$ 25,000					
Debt Service (on total project costs)	9%	\$ 28,000	\$ 21,000	\$ 14,000	\$ 7,000	\$ 0	
Net Cash Flow		(\$ 733,040)	\$ 388,900	\$ 800,000	\$ 814,900	\$ 829,900	
Net Present Value		32.0%	\$ 1,450,000				

Unfortunately, most developers do not interpret financial returns for subdivision projects in terms of yield rates or cash-on-cash returns. They generally apply a percentage of gross sales, as noted above. That does not, however, rule out the potential use of this methodology by the appraiser as a cross-check of reasonableness of the other two models.

It is important to understand that the net present value of the subdivision project should be the same regardless of which valuation method is applied. The \$1,450,000 value in the Lender's Residual example should also be the same value as in the Entrepreneurial Profit Residual example.

Debt and Equity Combined Model

Finally, one last spreadsheet can be developed combining both entrepreneurial profit and lender's return into a single rate of return -- no profit or debt payback is included as a line item in the cash flow. However, the value should not change from the previous two examples since value in a subdivision model is primarily based on the price of the lots and the pace of the sell-off. This model is a good test of reasonableness of the overall value in terms of an overall discount rate, or internal rate of return.

Table 4
Debt and Equity Combined Model

Absorption - Sell-Off of Lots		112 lots					
Quarterly Period		<u>Quarter 1</u>	<u>Quarter 2</u>	<u>Quarter 3</u>	<u>Quarter 4</u>	<u>Quarter 5</u>	<u>Totals</u>
Total # of Lots Sold Per Period		0	28	28	28	28	112
Cumulative Sold		0	28	56	84	112	
Finished Lot Price		\$ 30,000	\$ 30,300	\$ 30,600	\$ 30,900	\$ 31,200	
Total Sales Income		\$ 0	\$ 848,400	\$ 856,800	\$ 865,200	\$ 873,600	\$ 3,444,000
Less: Cost of Sales							
Real Estate Taxes	\$ 420	\$ 47,040	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,040
Site Development Costs		\$ 633,000	\$ 396,000				\$ 1,029,000
Marketing	3%	\$ 0	\$ 25,500	\$ 25,700	\$ 26,000	\$ 26,200	\$ 103,300
General & Administrative	2%	\$ 0	\$ 17,000	\$ 17,100	\$ 17,300	\$ 17,500	\$ 68,900
Total Cost of Sales		\$ 680,040	\$ 438,500	\$ 42,800	\$ 43,300	\$ 43,700	\$ 1,248,240
Net Income from Development		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900	\$ 2,195,660
Net Present Value		37.5%	\$ 1,450,000				

This rate of return can also be considered in terms of the range of IRR's and discount rates for competing real estate projects. At first glance, a 37% IRR is extraordinary when compared to retail centers, office buildings, and industrial facilities with indicated IRR's of between 10% to 15%. However, consider the risk and reward relationships. For the analysis of an income producing commercial property, the DCF models both a return on and a return of the investment. The return *on* is

the cash flow; the return *of* is the residual or reversion value assumed to be a resale at the conclusion of the holding period. For a subdivision project, or any sell-off (for example, a condominium apartment project), there is no reversion. At the end of the holding period, or sell-off, or absorption period, there is nothing left to own. There is no residual. As such, all the return on the investment risk must be obtained by way of the cash flow from the sell-off of the product (i.e., lots or condominiums, etc.).

In addition to the structure of the cash flow without a reversion, consider the risk of a project such as lot development or home building. There is a large capital outlay at the beginning of the project, with sales and cash flow income only after construction is completed.¹⁰ It should be noted that depending on the size of the project, residential subdivision projects are looked upon as medium-to-long-term investments for developers. There is a significant amount of up-front time and expenses that are typical in bringing the lots to marketable condition. The income, as the reward for these actions (i.e., governmental approvals, site design, etc.), will not be realized until some time in the future when the lots are sold in the market. However, the overall return to these developers and/or investors is generated over the entire absorption period, typically anywhere from three to five years depending on the size of the subdivision even though a developer might have several years of pre-planning that goes into a land development project. At best, developers for these types of projects expect a return competitive with other alternative medium-to-long-term investments given the nature of the real estate risk component.

In the most general terms, the following list is an example of the range of investment risk alternatives, from least risky to the riskiest.

¹⁰ This type of analysis also is applicable to a non-development cash flow such as the purchase of a completed subdivision or condominium project in where the new owner would only have to sell finished product without construction costs. In those examples, the indicated overall IRR should be lower than an IRR indicated for the risk of a property *with* development or construction costs and risks.

- 3-Month Treasury Bills
- 6-Month Treasury Bills
- 1-Year Treasury Bills
- 5-Year Treasuries
- State and Local Bonds
- 30-Year Treasuries
- Corporate Aaa Bonds
- A-Utility Bonds
- Corporate Baa Bonds

In addition to these "paper" instruments, an investor choosing to become involved in real estate has the following choices, also ranked in very general terms of risk from lowest to highest:

- Fully leased, investor grade commercial properties in quality markets
- Similar properties but in less than stable markets
- Commercial properties in quality markets but not achieving stabilized occupancy
- Similar properties but in less than stable markets
- Commercial building construction on a "build-to-suit" basis
- Speculative commercial construction or residential land development in quality markets
- Speculative commercial or residential land development in less than active markets.

It is very difficult to measure indicated rates of return from market observations. For many commercial building transactions, a *capitalization* rate can be measured from the relationship between sales price and reported net operating income. In some cases when a market participant will not divulge net operating income, the analyst can estimate net income by making assumptions based on readily available data from the market. However, this technique does not necessarily apply to the derivation of internal rates of return for subdivision or lease-up projects due to the quantity of financial, operating, and absorption variables involved. A purchaser's decision is based on their individual assumptions. In commercial buildings, this would include estimates of market rent, rent increases, actual lease terms, rollover assumptions, inflation assumptions, expense characteristics, and reversion assumptions. For residential subdivision projects, these would include pace of lot sales, retail lot pricing, analyses of the finished product type, and costs associated with the development. Unless the appraiser is intimate with

the specific sales transaction and the parties involved, s/he would have a very difficult time duplicating the assumptions of the sale.

Table 5 shows the three cash flow/residual models in one single spreadsheet to review the fundamental premise of this methodology that is based on the premise that the pace and the price of absorption/sell-off are the primary determinants of value, not whether or not entrepreneurial profit is included as a line item in the spreadsheet cash flow.

Table 5
Combined Exhibit Demonstrating The Three Cash Flow Models

Pace and Price							
Absorption - Sell-Off of Lots		112 lots					
	Quarterly Period	<u>Quarter 1</u>	<u>Quarter 2</u>	<u>Quarter 3</u>	<u>Quarter 4</u>	<u>Quarter 5</u>	<u>Totals</u>
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Real Estate Taxes	\$ 420	\$ 47,040	\$ 0	\$ 0	\$ 0	\$ 0	\$ 47,040
Site Development Costs		\$ 633,000	\$ 396,000				\$ 1,029,000
Marketing	3%	\$ 0	\$ 25,500	\$ 25,700	\$ 26,000	\$ 26,200	\$ 103,300
General & Administrative	2%	\$ 0	\$ 17,000	\$ 17,100	\$ 17,300	\$ 17,500	\$ 68,900
Total Cost of Sales		\$ 680,040	\$ 438,500	\$ 42,800	\$ 43,300	\$ 43,700	\$ 1,248,240
Cash Flow		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900	\$ 2,195,660

Lender Residual Model

Cash Flow		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900
Entrepreneurial Profit	15%	\$ 0	\$ 127,260	\$ 128,520	\$ 129,780	\$ 131,040
Net Cash Flow		(\$ 680,040)	\$ 282,640	\$ 685,480	\$ 692,120	\$ 698,860
Net Present Value	12.0%	\$ 1,450,000				

Developer's Residual Model

Cash Flow		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900
Loan Fees	2%	\$ 25,000				
Debt Service (on total project costs)	9%	\$ 28,000	\$ 28,000	\$ 21,000	\$ 14,000	\$ 7,000
Net Cash Flow		(\$ 733,040)	\$ 381,900	\$ 793,000	\$ 807,900	\$ 822,900
Net Present Value	31.0%	\$ 1,450,000				

Debt and Equity Residual

Cash Flow		(\$ 680,040)	\$ 409,900	\$ 814,000	\$ 821,900	\$ 829,900
Net Present Value	37.5%	\$ 1,450,000				

Conclusions

The methodology discussed in this paper is based on the appraiser completing three interrelated cashflow spreadsheets to ascertain the relationship between entrepreneurial profit and overall rates of return for a subdivision project. It is another example of a flexible valuation methodology that may be of assistance to the appraiser and an attempt at clarifying some of the literature currently being discussed within the Appraisal Institute.

June 2005
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