

# Wrap-Around Mortgage Financing: Enhancing Lender and Investor Wealth

by *Richard T. Garrigan*

During the last decade, interest rates on permanent mortgage loans used to finance income-producing properties have moved irregularly upward and currently are at just below their peak levels. These high levels of interest are a principal reason why many proposed real estate developments are not economically feasible, especially in the case of multi-family residential projects. The continued existence of high interest rates has resulted, however, in more frequent use of an unusual form of second mortgage financing, the wrap-around (WA) mortgage loan.

The WA mortgage loan offers a lender the advantage of an above-market yield while at the same time enabling an investor-borrower to increase the wealth contribution of an existing real estate investment. Just how *both* parties to the transaction can thus benefit has not been previously analyzed in articles dealing with WA mortgage financing. This article, therefore, strives to present the essential financial characteristics of a typical WA mortgage loan from two perspectives: 1) that of a lender seeking to enhance the value of its mortgage portfolio, and 2) that of an investor-borrower seeking to deal with the adverse financial and tax effects of increasingly larger amortization payments on a low interest rate permanent mortgage loan.<sup>1</sup>

## **THE WA MORTGAGE LOAN: ENHANCING THE LENDER'S YIELD**

The WA mortgage loan is a second lien which has as its principal amount the sum of 1) the outstanding balance on an existing first mortgage loan

---

**Richard T. Garrigan** received his Doctor of Philosophy degree from the University of Wisconsin and is now Associate Professor of Real Estate and Finance, graduate school of business, DePaul University, Chicago. A member of the American Finance Association and American Real Estate and Urban Economics Association, he has published articles in *Federal Home Loan Bank Board Journal* and *Real Estate Review*.

and 2) the additional funds advanced. After the WA mortgage loan closing, the WA lender receives debt service payments on the total debt and agrees to make principal and interest payments on the existing first mortgage loan, but only to the extent that such payments are received from the borrower. In addition, the WA mortgage lender has the right, subject to the provisions of the existing first mortgage loan, to pay off the existing mortgage debt and succeed to its priority.

The WA mortgage note generally carries an interest rate which is less than the going market rate for first mortgage loans. The WA lender, however, obtains the advantage of financial leverage because the interest rate on the existing first mortgage loan is lower than the interest rate on the WA mortgage loan. For example, assume that a first mortgage loan in the amount of \$1,000,000, carrying a 6% interest rate, exists on a multi-family residential property. Assume further that a WA mortgage loan of \$1,500,000 at 8% is negotiated. At the mortgage loan closing, the WA lender actually advances only \$500,000, and during the first month this lender will earn a 12% annual yield on the net amount advanced.<sup>2</sup>

The WA lender's yield will change each month as debt service payments reduce the existing mortgage debt. Furthermore, as will be clear from the following example, the net amount invested through a typical WA mortgage transaction (whereby both additional funds are advanced and the amortization term is extended) increases each month until the existing mortgage debt is completely amortized.

### **A Hypothetical WA Mortgage Loan Transaction**

The following assumptions apply to a hypothetical WA mortgage loan transaction.

#### *Existing First Mortgage Loan*

Original amount:	\$3,000,000
Unamortized balance:	\$2,290,559
Original amortization term:	25 years (300 months)
Remaining amortization term:	15 years (180 months)
Interest rate:	6%
Monthly debt service payment:	\$19,330

#### *WA Mortgage Loan*

Initial	
Amount:	\$3,000,000
Amortization term:	25 years (300 months)
Interest rate:	8%
Monthly debt service payment:	\$23,155
Modifying	
Balloon note provision:	10 years (120 months)

The above listing of assumptions portrays circumstances whereby an existing first mortgage loan in the amount of \$3,000,000 has an unamortized balance of \$2,290,559 following ten years of debt service payments. At this point, it is assumed that a WA mortgage loan is made in the amount of

\$3,000,000, requiring monthly debt service payments based on a 25-year amortization term. The interest rate on the WA mortgage note is 8% while that on the existing mortgage note is 6%. The monthly debt service payments are \$23,155 for the WA mortgage loan and \$19,330 for the existing mortgage loan. Finally, under a modifying assumption, the WA mortgage note provides that the unamortized balance on the WA mortgage loan existing at the end of ten years will be repaid at that time.

Given these assumptions, *Table 1* has been prepared to show the financial flows associated with the hypothetical WA mortgage loan. The information appearing in the table presents financial data for 37 selected months: 1) the first six months, 2) the final month for each of the 25 years of the WA mortgage amortization term, and 3) the six months following the final payment on the existing mortgage loan.

In examining these data, it is useful to evaluate each of the three table segments beginning with the first four columns. The information appearing in these columns consists of an amortization schedule for the existing mortgage loan. As shown, this debt is amortized through level payments of \$19,330 each month, with varying amounts being applied to interest and amortization as the loan is repaid over the remaining 180 months of its term. The next four columns of data are applicable to the WA mortgage loan and consist of an amortization schedule for this loan. The significance of these first two sets of columns lies in their use in interpreting the flow of funds on the WA mortgage investment as presented in the final six columns of *Table 1*.

An examination of these latter columns reveals a unique characteristic of a WA mortgage investment: the net amount invested by the WA mortgage lender is not reduced through amortization during the initial years, but rather increases in amount. For example, during the first month the net funds advanced by the WA mortgage lender total \$709,441, the difference between the \$3,000,000 WA mortgage loan and the \$2,290,559 outstanding on the existing first mortgage debt. The cash flow for this month realized by the WA mortgage lender, however, amounts to only \$3,825, which is the difference between the \$23,155 debt service payment on the WA mortgage loan and the \$19,330 debt service payment required on the existing loan.

A comparison of the interest levels for the two loans, on the other hand, discloses that the net interest earned of \$8,547 on the WA mortgage investment is substantially more than the cash flow of \$3,825; therefore, a large part of the earned interest is deferred. This difference is accounted for as a change in the net funds advanced; in effect, the net investment by the WA mortgage lender increases by \$4,722. Hence for the second month the net funds advanced becomes \$714,163. This fact may be verified by comparing the amounts of amortized debt of \$2,996,845 for the WA mortgage loan and \$2,282,682 for the existing mortgage loan as of the second month. The difference in these amounts is the \$714,163 net investment made by the WA mortgage lender.

As noted above, the principal enticement for a WA mortgage lender to make such a loan is the financial leverage afforded through the existing

TABLE 1

## WA MORTGAGE LOAN FINANCIAL FLOWS

Month	Existing mortgage loan				WA mortgage loan			
	Unamortized debt	Monthly payment	Interest	Amortization	Unamortized debt	Monthly payment	Interest	Amortization
1	\$2,290,559	\$19,330	\$11,433	\$ 7,877	\$3,000,000	\$23,155	\$20,000	\$ 3,155
2	2,282,682	19,330	11,413	7,917	2,996,845	23,155	19,979	3,176
3	2,274,765	19,330	11,374	7,956	2,993,669	23,155	19,958	3,197
4	2,266,809	19,330	11,334	7,996	2,990,472	23,155	19,936	3,219
5	2,258,813	19,330	11,294	8,036	2,987,253	23,155	19,915	3,240
6	2,250,777	19,330	11,254	8,076	2,984,013	23,155	19,894	3,261
12	2,201,711	19,330	11,009	8,321	2,964,115	23,155	19,761	3,394
24	2,099,061	19,330	10,495	8,835	2,921,857	23,155	19,479	3,676
36	1,990,080	19,330	9,950	9,380	2,876,091	23,155	19,174	3,981
48	1,874,377	19,330	9,372	9,958	2,826,527	23,155	18,844	4,311
60	1,751,538	19,330	8,758	10,572	2,772,850	23,155	18,486	4,669
72	1,621,123	19,330	8,106	11,224	2,714,717	23,155	18,098	5,057
84	1,482,664	19,330	7,413	11,917	2,651,759	23,155	17,678	5,477
96	1,335,665	19,330	6,678	12,652	2,583,576	23,155	17,224	5,931
108	1,179,599	19,330	5,898	13,432	2,509,733	23,155	16,732	6,423
120	1,013,908	19,330	5,070	14,260	2,429,762	23,155	16,199	6,956
132	837,997	19,330	4,190	15,140	2,343,153	23,155	15,621	7,534
144	651,237	19,330	3,256	16,074	2,259,355	23,155	14,996	8,159
156	452,957	19,330	2,265	17,065	2,167,772	23,155	14,319	8,836
168	242,448	19,330	1,212	18,118	2,067,758	23,155	13,585	9,570
180	18,955	19,050	95	18,955	1,918,613	23,155	12,791	10,364
181					1,908,249	23,155	12,722	10,433
182					1,897,816	23,155	12,652	10,503
183					1,887,313	23,155	12,582	10,573
184					1,876,740	23,155	12,512	10,643
185					1,866,097	23,155	12,441	10,714
186					1,855,383	23,155	12,369	10,786
192					1,789,579	23,155	11,931	11,224
204					1,649,835	23,155	10,999	12,156
216					1,498,493	23,155	9,990	13,165
228					1,334,589	23,155	8,897	14,258
240					1,157,081	23,155	7,714	15,441
252					964,840	23,155	6,432	16,723
264					756,643	23,155	5,044	18,111
276					531,166	23,155	3,541	19,614
288					286,975	23,155	1,913	21,242
300					22,516	22,666	150	22,516

TABLE 1 (Continued)

Month	Flow of funds on WA mortgage investment					
	Net funds advanced	Cash flow	Net interest earned	Interest retained	Change in net funds advanced	Annual yield
1	\$ 709,441	\$ 3,825	\$ 8,547	\$ 3,825	\$ 4,722	14.46%
2	714,163	3,825	8,566	3,825	4,741	14.39
3	718,904	3,825	8,584	3,825	4,759	14.33
4	723,663	3,825	8,602	3,825	4,777	14.26
5	728,440	3,825	8,621	3,825	4,796	14.20
6	733,236	3,825	8,640	3,825	4,815	14.14
12	762,404	3,825	8,752	3,825	4,927	13.78
24	822,796	3,825	8,984	3,825	5,159	13.10
36	886,011	3,825	9,224	3,825	5,399	12.49
48	952,150	3,825	9,472	3,825	5,647	11.94
60	1,021,312	3,825	9,728	3,825	5,903	11.43
72	1,093,594	3,825	9,992	3,825	6,167	10.96
84	1,169,095	3,825	10,265	3,825	6,440	10.54
96	1,247,911	3,825	10,546	3,825	6,721	10.14
108	1,330,134	3,825	10,834	3,825	7,009	9.77
120	1,415,854	3,825	11,129	3,825	7,304	9.43
132	1,505,156	3,825	11,431	3,825	7,606	9.11
144	1,598,118	3,825	11,740	3,825	7,915	8.82
156	1,694,815	3,825	12,054	3,825	8,229	8.53
168	1,795,310	3,825	12,373	3,825	8,548	8.27
180	1,899,658	4,105	12,696	4,105	8,591	8.02
181	1,908,249	23,155	12,722	12,722	-10,433	8.00
182	1,897,816	23,155	12,652	12,652	-10,503	8.00
183	1,887,313	23,155	12,582	12,582	-10,573	8.00
184	1,876,740	23,155	12,512	12,512	-10,643	8.00
185	1,866,097	23,155	12,441	12,441	-10,714	8.00
186	1,855,383	23,155	12,369	12,369	-10,786	8.00
192	1,789,579	23,155	11,931	11,931	-11,224	8.00
204	1,649,835	23,155	10,999	10,999	-12,156	8.00
216	1,498,493	23,155	9,990	9,990	-13,165	8.00
228	1,334,589	23,155	8,897	8,897	-14,258	8.00
240	1,157,081	23,155	7,714	7,714	-15,441	8.00
252	964,840	23,155	6,432	6,432	-16,723	8.00
264	756,643	23,155	5,044	5,044	-18,111	8.00
276	531,166	23,155	3,541	3,541	-19,614	8.00
288	286,975	23,155	1,913	1,913	-21,242	8.00
300	22,516	22,666	150	150	-22,516	8.00

debt remaining outstanding. For the hypothetical loan portrayed through *Table 1*, the annual yield for the first month is  $\$8,547 \div 709,441 \times 12 = .1446$ , or 14.46%. During the second month, however, while the amount of net funds advanced grew by \$4,722, the net interest earned increased by only \$19 (from \$8,547 to \$8,566). Thus the annual yield declined to 14.39%, a pattern that is shown to continue until the 181st month.

This pattern is attributable, of course, to the fact that the financial leverage afforded the WA mortgage lender undergoes continual change, with the yield declining until the point in time when the existing first mortgage loan is fully amortized. By the 24th month, the net funds advanced has increased to \$822,796 while the existing debt has been amortized to \$2,099,061. The annual yield as a consequence has declined to 13.10%. By the 60th month the annual yield has dropped to 11.43%; by the 120th month it has become 9.43%; and by the 180th month (the final month that the existing mortgage loan is outstanding), the annual yield is only 8.02%.

This yield decline poses a dilemma for the WA mortgage lender. The justification for the lower-than-market-rate of interest on the WA mortgage loan is the financial advantage afforded by the still lower interest rate on the existing loan. However, with a substantial portion of the original term of the existing loan having expired by the time the WA mortgage loan is made, the increasingly heavy amortization of the existing mortgage loan adversely affects the WA mortgage lender's position. Thus, between the 132nd and the 144th months (eleventh and twelfth years) the yield on net funds invested declines to less than 9%.

Were the hypothetical WA mortgage loan to remain outstanding beyond the 180th month, the WA lender would be saddled with an 8% loan for up to another ten years. Further reference to *Table 1* supports this last observation. Beginning with the 181st month, the six columns portraying the flow of funds on the WA mortgage investment essentially duplicate the second set, which presents the WA mortgage loan amortization schedule. As of the 181st month, the cash flow becomes the entire \$23,155 monthly debt service payment, which for this month is comprised of \$12,722 of interest and \$10,433 of amortization. At this point, no interest is deferred and the change in net funds advanced is negative, consisting of the amortization payment. Furthermore, as noted, for this and subsequent months, the interest rate remains level at 8%.

### **The Balloon Note Provision**

Fortunately, the lender's dilemma can be easily remedied through use of a balloon note provision, a frequently encountered means of protecting mortgage lenders against the risk of rising interest rates. In this case, its use would interrupt the continuous annual yield decline noted above. For example, were a balloon note provision to take effect after ten years (this being the modifying assumption specified above), the annual yield on the net funds advanced would decline only to 9.43%, that return associated with the WA lender's investment during the 120th month. As of the begin-

ning of this month, the amount of debt outstanding on the WA mortgage loan would be \$2,429,762, of which \$1,415,854 would represent the net investment made by the WA mortgage lender. Assuming that the value of the property has at least remained at its previous level, refinancing of the unamortized portion of the WA mortgage debt should not present much difficulty. Indeed, the WA mortgage lender's experience with the investor-borrower may cause this lender to be a primary candidate for such financing.<sup>3</sup>

### **An Observation on Realized Yields**

While the above presentation accurately depicts the annual yields obtained through the WA mortgage lender's net investment in the WA mortgage loan itself, it does not show the realized yield that would obtain *both* from this investment *and* from the reinvestment of the monthly cash flows. The subject of realized yields on WA mortgage loans is largely unexplored in financial literature, and a detailed examination of this question is beyond the scope of this article. However, given the assumption of a ten-year balloon note provision, the \$3,825 monthly cash flows can be treated as an ordinary annuity. Through assuming that this annuity can be invested at, say, a 9% interest rate, compounded monthly, the future value can be easily computed through using 193.5143 as the appropriate interest factor. The future value of the monthly cash flows is thus  $\$3,825 \times 193.5143$ , or \$740,192. By adding this sum to the \$1,423,158 net WA investment existing after ten years (that is, at the *end* of 120 months), the combined future value is shown to be \$2,163,350. From a financial perspective, this wealth accumulation can be attributed to the original \$709,441 net investment in the WA mortgage loan. To solve for the realized yield, one simply determines the rate of return which equates \$2,163,350 to \$709,441 as a present value. In this case, the solution is a rate of return or realized yield of 11.20%.

Clearly, with reinvestment occurring at only 9%, the relative contribution which the reinvested cash flows make to the realized yield is very modest in comparison to that due to the net investment in the WA mortgage loan itself.<sup>4</sup> From a lender's point of view, this characteristic is a major advantage of the WA mortgage loan. For while the cash flows are subject to the vagaries of interest rate levels, a properly structured WA mortgage loan permits a growing net investment to be made at consistently high annual yields.

### **ENHANCING THE INVESTOR'S WEALTH**

Until now, this article has been primarily concerned with the financial position of the WA mortgage lender. At this point, three selected financing alternatives facing a prospective investor-borrower (hereafter called the investor) will be considered in determining the wealth contribution poten-

tial of the WA mortgage loan. In making this evaluation, it is first necessary to specify the characteristics of the property to be financed through each of the three mortgage loan alternatives.

### **A Hypothetical Real Estate Investment**

The following cost, depreciation, financing, income, and investor tax assumptions apply to a hypothetical multi-family residential property. These assumptions provide the financial inputs needed to evaluate the investor's position following ten years' ownership, that being the point when financing alternatives including the WA mortgage loan are to be considered.

#### *Cost*

Total:	\$4,000,000
Land:	\$ 600,000
Improvements:	\$3,400,000
Undepreciated basis—improvements:	\$2,035,706

#### *Depreciation*

Original useful life:	40 years
Method:	Double declining balance

#### *Financing*

Original loan amount:	\$3,000,000
Unamortized balance:	\$2,290,559
Original amortization term:	25 years (300 months)
Remaining amortization term:	15 years (180 months)
Interest rate:	6%
Monthly debt service payment:	\$19,330

#### *Net Operating Income*

Eleventh year:	\$367,000
Rate of increase:	1% per year

#### *Investor Taxation*

Ordinary income tax rate:	40%
---------------------------	-----

The above assumptions depict a property for which construction was assumed to have been completed in 1968 at a total development cost of \$4,000,000. Following ten years' ownership, the \$3,400,000 of improvements cost has been written down to \$2,035,706 through use of the double declining balance method of depreciation. The financing characteristics shown here were purposely made identical to those shown above for the assumed existing first mortgage loan. As indicated, the original loan was in the amount of \$3,000,000 and thus provided financing for 75% of the property's cost. The loan's terms, assumed to be negotiated in early 1966, called for amortization to occur over a 25-year period at a 6% interest rate. Remaining assumptions depict the anticipated levels of net operating income and the investor's ordinary income tax rate.

### **The Existing Mortgage Loan Alternative**

As alternatives to using WA mortgage financing, the investor could: 1) either retain the existing first mortgage loan as the only debt financing



TABLE 2

INVESTOR FINANCIAL FLOWS FOR OWNERSHIP YEARS 11 THROUGH 20 THROUGH USE OF THE  
EXISTING MORTGAGE LOAN ALTERNATIVE

	Year			
	11	12	13	14
<u>Annual Cash Flows</u>				
Net operating income	\$367,000	\$370,670	\$374,377	\$378,120
Less loan interest	134,791	128,798	122,436	115,682
Less depreciation	101,785	96,696	91,861	87,268
Net taxable income	\$130,424	\$145,176	\$160,079	\$175,171
Add depreciation	101,785	96,696	91,861	87,268
Less loan amortization payments	97,158	103,150	109,512	116,267
Before-tax cash flow	\$135,052	\$138,722	\$142,428	\$146,172
Less tax payment	52,170	58,070	64,032	70,068
After-tax cash flow	<u>\$ 82,882</u>	<u>\$ 80,651</u>	<u>\$ 78,396</u>	<u>\$ 76,104</u>
<u>Selected Financial Characteristics</u>				
Depreciation to loan amortization payments ratio	1.05	0.94	0.84	0.75
Net operating income to debt service ratio	1.58	1.60	1.61	1.63
Cumulative after-tax cash flow	\$ 82,882	\$ 163,533	\$ 241,930	\$ 318,033
Undepreciated basis--improvements	\$1,933,921	\$1,837,225	\$1,745,363	\$1,658,095
Unamortized mortgage loan balance	\$2,193,401	\$2,090,251	\$1,980,738	\$1,864,471

source, or 2) prepay such debt through a refinancing transaction whereby a new first mortgage loan would be placed on the property.<sup>5</sup> The financial results of the first of these alternatives, retaining the existing mortgage loan, have been incorporated into *Table 2*. The financial flows depicted in this table are based on an assumed continuation of the ownership of the above-described property for a second period of ten years. The table itself consists of two parts which together show annual cash flows and selected

TABLE 2 (Continued)

		Year					
		15	16	17	18	19	20
	\$381,902	\$385,721	\$389,578	\$393,474	\$397,408	\$401,382	
	108,510	100,897	92,814	84,233	75,122	65,449	
	82,905	78,760	74,822	71,080	67,526	64,150	
	<u>\$190,486</u>	<u>\$206,064</u>	<u>\$221,942</u>	<u>\$238,161</u>	<u>\$254,760</u>	<u>\$271,783</u>	
	82,905	78,760	74,822	71,080	67,526	64,150	
	123,438	131,051	139,134	147,716	156,827	166,499	
	<u>\$149,953</u>	<u>\$153,772</u>	<u>\$157,629</u>	<u>\$161,525</u>	<u>\$165,460</u>	<u>\$169,434</u>	
	76,195	82,426	88,777	95,264	101,904	108,713	
	<u>\$ 73,759</u>	<u>\$ 71,347</u>	<u>\$ 68,853</u>	<u>\$ 66,261</u>	<u>\$ 63,556</u>	<u>\$ 60,721</u>	
	0.67	0.60	0.54	0.48	0.43	0.39	
	1.65	1.66	1.68	1.70	1.71	1.73	
	\$ 391,792	\$ 463,138	\$ 531,991	\$ 598,252	\$ 661,808	\$ 722,528	
	\$1,575,190	\$1,496,431	\$1,421,609	\$1,350,529	\$1,283,003	\$1,218,852	
	\$1,741,033	\$1,609,982	\$1,470,847	\$1,323,131	\$1,166,305	\$ 999,805	

financial characteristics for the property. The annual cash flows segment follows a familiar pattern whereby each year's net operating income is reduced by mortgage loan interest and depreciation deductions to produce net taxable income. The depreciation expense is then added back and the monthly loan amortization payments are deducted to produce the before-tax cash flow. A tax payment, based on a 40% marginal ordinary income tax rate, is then deducted in computing the after-tax cash flow.

For year 11, the \$367,000 net operating income produces \$135,052 in before-tax cash flow which, after a tax payment of \$52,170, results in an after-tax cash flow of \$82,882. In subsequent years, despite the assumed growth in net operating income of one percent per year, the after-tax cash flows decline steadily to \$60,721 in year 20. This decline occurs because net taxable income is growing at a much faster rate than net operating income and consequently the tax payments are shown to grow to \$108,713 by the 20th year. Further evaluation reveals that this growth in net taxable income is largely attributable to the decline in deductions for both loan interest and depreciation during the second ten-year ownership period.

Continuing with this analysis, reference to the second part of the table discloses that the depreciation deduction exceeds the loan amortization payments only during year 11 and then only by a ratio of 1.05. Consequently, beginning with year 12 the investor pays income taxes on amounts of net taxable income which are greater than the amounts realized as before-tax cash flows. By year 20, the depreciation to loan amortization payments ratio had declined to 0.39. The net operating income subject to tax during this year is \$271,783, but only \$169,434 of this amount is realized as before-tax cash flow. The second ten years' ownership period thus may be described as one where reduced interest and depreciation deductions result in substantial income tax costs which, in turn, cause an uninterrupted decline in after-tax cash flows.

Further reference to *Table 2* discloses much useful added information. Were the existing loan used as the sole source of financing, the net operating income to debt service ratio would increase from a high 1.58 in year 11 to a very high 1.73 in year 20.<sup>6</sup> From the lender's perspective, this change would represent an improvement in loan quality. Then, as shown, the cumulative after-tax cash flow grows to \$722,528 over the ten-year period and thus averages about \$72,253 per year. The undepreciated basis—improvements is shown to decline to \$1,218,852 at the end of year 20 while the unamortized mortgage loan balance declines to \$999,805 by the end of the 20th year.

### **The WA Mortgage Loan Alternative**

In *Table 3*, the financial flows to be associated with use of the WA mortgage loan alternative are illustrated. As neither the net operating income of the property nor the depreciation deductions are affected by the use of the WA mortgage financing, the amounts given for these items are the same as those shown in *Table 2*. However, as the mortgage financing now consists of a \$3,000,000, 8% interest rate, 25-year amortization term WA mortgage loan, the loan interest for year 11 has increased from the \$134,791 shown in *Table 2* to \$238,581. This expense, together with the depreciation deduction of \$101,785, results in year 11's net taxable income being only \$26,634.

After adding back the depreciation expense and deducting the loan amortization payments, before-tax cash flow of \$89,146 is shown to have been generated. This cash flow amount is \$45,906 less than the \$135,052 shown

TABLE 3

INVESTOR FINANCIAL FLOWS FOR OWNERSHIP YEARS 11 THROUGH 20 THROUGH USE OF THE  
WA MORTGAGE LOAN ALTERNATIVE

	Year			
	11	12	13	14
<u>Annual Cash Flows</u>				
Net operating income	\$367,000	\$370,670	\$374,377	\$378,120
Less loan interest	238,581	235,321	231,791	227,968
Less depreciation	101,785	96,696	91,861	87,268
Net taxable income	\$ 26,634	\$ 38,653	\$ 50,725	\$ 62,885
Add depreciation	101,785	96,696	91,861	87,268
Less loan amortization payments	39,273	42,533	46,063	49,886
Before-tax cash flow	\$ 89,146	\$ 92,816	\$ 96,523	\$100,267
Less tax payment	10,654	15,461	20,290	25,154
After-tax cash flow	\$ 78,493	\$ 77,355	\$ 76,233	\$ 75,113
<u>Selected Financial Characteristics</u>				
Depreciation to loan amortization payments ratio	2.59	2.27	1.99	1.75
Net operating income to debt service ratio	1.32	1.33	1.35	1.36
Cumulative after-tax cash flow	\$ 78,493	\$ 155,848	\$ 232,081	\$ 307,193
Undepreciated basis--improvements	\$1,933,921	\$1,837,225	\$1,745,363	\$1,658,095
Unamortized mortgage loan balance	\$2,960,727	\$2,918,194	\$2,872,131	\$2,822,245

in *Table 2*, with the difference being entirely attributable to the higher debt service payments required on the WA mortgage loan. While the before-tax cash flow is substantially less than that generated through use of only the existing mortgage loan, the after-tax cash flow of \$78,493 is but modestly less than the \$82,882 listed in *Table 2* for year 11. The reason for so slight a difference, of course, is that the tax payment associated with the WA mortgage loan's use is only \$10,654, far less than the \$52,170 which would

TABLE 3 (Continued)

		Year					
		15	16	17	18	19	20
	\$381,902	\$385,721	\$389,578	\$393,474	\$397,408	\$401,382	
	223,827	219,343	214,487	209,227	203,531	197,362	
	82,905	78,760	74,822	71,080	67,526	64,150	
	\$ 75,170	\$ 87,618	\$100,270	\$113,166	\$126,351	\$139,870	
	82,905	78,760	74,822	71,080	67,526	64,150	
	54,027	58,511	63,367	68,627	74,323	80,491	
	\$104,048	\$107,867	\$111,724	\$115,620	\$119,555	\$123,529	
	30,068	35,047	40,108	45,266	50,540	55,948	
	\$ 73,980	\$ 72,820	\$ 71,616	\$ 70,353	\$ 69,014	\$ 67,581	
	1.54	1.35	1.18	1.04	0.91	0.80	
	1.37	1.39	1.40	1.42	1.43	1.45	
	\$ 381,173	\$ 453,993	\$ 525,609	\$ 595,962	\$ 664,977	\$ 732,557	
	\$1,575,190	\$1,496,431	\$1,421,609	\$1,350,529	\$1,283,003	\$1,218,852	
	\$2,768,218	\$2,709,707	\$2,646,340	\$2,577,713	\$2,503,391	\$2,422,899	

have been paid were the existing mortgage loan used as the sole financing source.

Further reference to *Table 3* discloses similar, but far less disadvantageous, patterns than were observed in *Table 2*. During the second ten years' ownership period, the interrelationships between net operating income and the loan interest and depreciation result in net taxable income growing from \$26,634 in year 11 to \$139,870 in year 20. But the increases in

before-tax cash flow are much smaller, being limited by the growth in net operating income of 1% per year. As a result, tax payments each year increase by more than the increase in before-tax cash flow, causing an uninterrupted decline in after-tax cash flow from \$78,493 in year 11 to \$67,581 in year 20.

Notwithstanding this decline, however, the investor would realize more after-tax cash flow through use of the WA mortgage loan alternative. Over the entire ten-year period, *Table 3* shows that the cumulative after-tax cash flow attributable to the use of the WA mortgage loan is \$732,557, in comparison to that of \$722,528 shown in *Table 2*. This advantage in favor of the WA mortgage loan develops irregularly over the ten-year period. During years 11 through 14, the yearly advantage rests with the existing mortgage loan; at the end of the 14th year, the cumulative after-tax cash flow for the existing mortgage loan is \$318,033 compared to \$307,193 for the WA mortgage loan. Beginning with the 15th year, however, the annual after-tax cash flow associated with the WA mortgage loan exceeds that for the existing mortgage loan; by the 19th year, the cumulative after-tax cash flow listed in *Table 3* also exceeds that for the existing mortgage loan.

The selected financial characteristics segment of *Table 3* provides additional useful information. The declining amounts of depreciation are adequate to cover loan amortization payments in all but the last two years, ranging from a ratio of 2.59 in year 11 to 0.80 in year 20. Furthermore, the net operating income to debt service ratio improves each year, ranging from a satisfactory 1.32 during year 11 to a relatively high 1.45 during year 20. Since depreciation policy does not change, the amounts shown for undepreciated basis—improvements are identical to those in *Table 2*. In comparison to *Table 2*, however, major and very significant differences do occur in the amounts shown as each year's unamortized mortgage loan balance. During each of the ten years, the unamortized balance for the WA mortgage loan exceeds that for the existing mortgage loan to an increasingly greater extent, an obvious result of the WA mortgage loan being for a higher amount and having lower amortization payments. At the end of the 20th year, the \$2,422,899 unamortized balance for the WA mortgage loan exceeds that of \$999,805 for the existing mortgage loan by \$1,423,094.<sup>7</sup>

In analyzing the significance of this difference, four elements would normally be considered: 1) the net amount advanced under the WA mortgage loan, 2) the difference in annual after-tax cash flows, 3) the difference in unamortized mortgage loan balances, and 4) the reinvestment rates required to equate the financial flows involved. The difference between the annual after-tax cash flows is not significant, and on a cumulative basis favors the WA mortgage loan. Therefore, the relative advantage of the WA mortgage loan alternative can be evaluated in terms of items 1, 3, and 4. In making this evaluation, it will be assumed that the WA mortgage loan terms incorporate the balloon note provision described above and that both the WA mortgage lender and investor contemplate a ten-year financing term. Given this assumption, the investor will thus have obtained \$709,441 in additional mortgage funds at a cost of having a mortgage liability which

is \$1,423,094 larger than would have existed had the WA mortgage loan alternative not been elected.

Without considering the question of risk, the attractiveness of the WA mortgage loan can be judged in light of the rate of return which would equate \$1,423,094 to \$709,441 in a present value sense. Through dividing \$1,423,094 by \$709,441, an interest factor of 2.00593 is obtained. This compares to the interest factor of 2.00966 for a 7% compound interest rate, based on monthly compounding over a ten-year period. Thus, if the investor could achieve an after-tax return of 7% on \$709,441 advanced through the WA mortgage loan, it would be economically advantageous to enter into that transaction. A yield of 7%, however, represents only the threshold of acceptability. The following information depicts the financial advantage of investing the \$709,441 at the higher after-tax returns of 8, 9, and 10% based on monthly compounding over a ten-year period:

Percent	Interest factor	Future value	Net additional mortgage liability	Investor financial advantage
8	2.21964	\$1,574,704	\$1,423,094	\$151,610
9	2.45135	1,739,088	1,423,094	315,994
10	2.70704	1,920,485	1,423,094	497,391

Unfortunately, relatively little information is available on the after-tax returns which actually have been achieved through equity investment in real estate. After-tax returns of, say, 9 to 10% would, however, be in line with those on equity capital achieved by many of the larger U.S. corporations. Were the investor able to achieve after-tax returns in this range, choosing the WA mortgage loan alternative would considerably enhance his wealth.

### The Refinancing Alternative

Before concluding that the WA mortgage loan is the preferred financing vehicle, it is appropriate to examine the third alternative, the refinancing of the existing first mortgage loan. Here, it is assumed that the available financing consists of a \$3,000,000, 9.5% interest rate, 30-year amortization term mortgage loan. Given these specifications, this alternative will be evaluated through use of *Table 4*.

Examination of this table discloses that neither the net operating income nor the depreciation deductions are affected by the refinancing transaction. An evaluation of the much higher interest expense associated with this transaction, however, reveals that the refinancing would result in much lower amounts of net taxable income than either of the other two alternatives. For years 11 and 12, a net loss would occur with the result (assuming the applicability of a 40% marginal ordinary income tax rate) being tax savings of \$7,597 and \$3,359, respectively.

This financing alternative also has much lower loan amortization payments associated with it, especially compared to the existing mortgage loan

TABLE 4

INVESTOR FINANCIAL FLOWS FOR OWNERSHIP YEARS 11 THROUGH 20 THROUGH USE OF THE  
REFINANCING ALTERNATIVE

	Year			
	11	12	13	14
<u>Annual Cash Flows</u>				
Net operating income	\$367,000	\$370,670	\$374,377	\$378,120
Less loan interest	284,208	282,372	280,354	278,136
Less depreciation	101,785	96,696	91,861	87,268
Net taxable income	(\$18,994)	(\$8,398)	\$ 2,161	\$ 12,717
Add depreciation	101,785	96,696	91,861	87,268
Less loan amortization payments	18,499	20,335	22,353	24,572
Before-tax cash flow	\$ 64,292	\$ 67,962	\$ 71,669	\$ 75,413
Less tax payment	7,597*	3,359*	865	5,087
After-tax cash flow	<u>\$ 71,890</u>	<u>\$ 71,322</u>	<u>\$ 70,805</u>	<u>\$ 70,326</u>
<u>Selected Financial Characteristics</u>				
Depreciation to loan amortization payment ratio	5.50	4.76	4.11	3.55
Net operating income to debt service ratio	1.21	1.23	1.24	1.25
Cumulative after-tax cash flow	\$ 71,890	\$ 143,212	\$ 214,016	\$ 284,343
Undepreciated basis--improvements	\$1,933,921	\$1,837,225	\$1,745,363	\$1,658,095
Unamortized mortgage loan balance	\$2,981,501	\$2,961,166	\$2,938,812	\$2,914,240

\*Tax savings.

case. Notwithstanding the low loan amortization payments, existence of tax savings during years 11 and 12, and relatively low tax payments in subsequent years, the after-tax cash flow for each year is *less* than that shown in *Table 3* for the WA mortgage loan alternative. Viewed on a cumulative basis, the after-tax cash flow resulting from the refinancing transaction would amount to \$696,768 compared to the \$732,557 attributable to the WA mortgage loan. The reason for the reduced cash flow is the very high interest expense associated with the refinancing alternative.



TABLE 4 (Continued)

		Year					
		15	16	17	18	19	20
	\$381,902	\$385,721	\$389,578	\$393,474	\$397,408	\$401,382	
	275,697	273,016	270,069	266,830	263,269	259,355	
	82,905	78,760	74,822	71,080	67,526	64,150	
	\$ 23,300	\$ 33,945	\$ 44,687	\$ 55,563	\$ 66,613	\$ 77,877	
	82,905	78,760	74,822	71,080	67,526	64,150	
	27,011	29,691	32,638	35,878	39,438	43,352	
	\$ 79,194	\$ 83,013	\$ 86,870	\$ 90,766	\$ 94,701	\$ 98,675	
	9,320	13,578	17,875	22,225	26,645	31,151	
	\$ 69,874	\$ 69,435	\$ 68,996	\$ 68,541	\$ 68,056	\$ 67,524	
	3.07	2.65	2.29	1.98	1.71	1.48	
	1.26	1.27	1.29	1.30	1.31	1.33	
	\$ 354,217	\$ 423,652	\$ 492,647	\$ 561,188	\$ 629,244	\$ 696,768	
	\$1,575,190	\$1,496,431	\$1,421,609	\$1,350,529	\$1,283,003	\$1,218,852	
	\$2,887,229	\$2,857,538	\$2,824,900	\$2,789,022	\$2,749,584	\$2,706,231	

Further reference to *Table 4* discloses depreciation to loan amortization payments ratios which range from 5.50 to 1.48; these relatively high values primarily reflect the low loan amortization payments required on this loan. On the other hand, the net income to debt service ratio takes on a more marginal character in this case, with the value for year 11 being a moderately low 1.21. Were the growth in net operating income to occur at the assumed rate of 1% per annum, however, this ratio would gradually increase to a value for the 20th year of 1.33. The undepreciated basis—improvements schedule remains unchanged.

The unamortized mortgage loan balance schedule conveys the added information needed to conclude that the refinancing transaction is inferior to the WA mortgage loan alternative. Examination of this schedule in comparison to the one presented in *Table 3* reveals that the refinancing alternative has a higher unamortized loan balance during each year than that associated with the WA mortgage loan. At the end of year 20, the difference in unamortized debt amounts to \$283,332 (\$2,706,231 - \$2,422,899). Consequently, since the refinancing transaction has both higher unamortized mortgage loan balances and lower after-tax cash flows than the WA mortgage loan, it is clearly not an economical alternative to the WA mortgage financing.

## CONCLUSIONS

This article has provided examples of how a properly structured WA mortgage loan can enhance the wealth of two traditional adversaries, the mortgage lender and the borrower. In the opinion of this author, a WA mortgage loan transaction can also entail less risk than a mortgage loan resulting from a refinancing transaction. For while both loans would provide the same amount of funding, a WA mortgage loan would absorb fewer dollars of a property's income stream than would a mortgage loan arising from the property's being refinanced.

This point is supported by the net operating income to debt service ratios portrayed in *Table 3* and *Table 4*. In the case of the WA mortgage loan alternative, the ratios ranged from 1.32 to 1.45. For the refinancing alternative, the ratios ranged from 1.21 to 1.33. Although there is no uniform industry standard for this particular ratio, clearly a mortgage lender has more protection from default the more comfortably a property's net operating income exceeds the annual debt service payments. Furthermore, the amortization term of the WA mortgage loan may result in there being less debt outstanding as the loan is amortized than would be the case for a refinancing alternative. Finally, in the typical case, the WA mortgage lender obtains the right to cure any default in the existing mortgage loan. Should it be necessary, the WA mortgage lender could ultimately acquire the senior lien position and thus succeed to the role it would have occupied through having initially entered into a refinancing transaction.

Were each of these elements present in the case of a particular WA mortgage loan, a financial anomaly could exist: less risk and more reward.

---

## REFERENCES

1. As this article focuses specifically on the financial characteristics of the WA mortgage loan, the reader may wish to consult other sources for material pertaining to its legal or operational characteristics. Among the more useful articles dealing with these matters are: John E. Cochrane, "Wrap-Around Mortgage Financing," *Legal Bulletin* (September 1971), pp. 185-203; Francis P. Gunning, "The Wrap-Around Mortgage . . . Friend or U.F.O.?" *Real Estate Review* (Summer 1972), pp. 35-48; and Arnold Leider, "Wrap-around Mortgage Financing by a Commercial Bank," *The Journal of Commercial Bank Lending* (April 1974), pp. 2-22.

2. The first month's interest on the \$1,500,000 WA mortgage loan would be \$10,000 ( $\$1,500,000 \times .08/12$ ) while the interest owed on the existing mortgage loan would be \$5,000 ( $\$1,000,000 \times .06/12$ ). The WA lender thus would receive \$5,000 in net interest, or a 12% annual yield.
3. After 20 years, it is likely that the existing first mortgage debt could be repaid without penalty. Alternatively, the WA mortgage lender's net investment could be repaid and the existing mortgage could remain in effect for five more years.
4. Even if the reinvestment rate was 8%, the realized yield nonetheless would still be a high 11.01%.
5. Here it is assumed that no restrictions or penalties exist to preclude prepayment of the existing mortgage loan.
6. Although there is no uniform industry standard regarding the extent to which a property's net rental income should exceed the dollar amount required to service a proposed loan, life insurance companies which finance multi-family residential properties generally seek minimum debt service coverage ratios ranging from 1.25 to 1.33.
7. The examples used in this article were prepared through the use of two separate computer programs which incorporate different procedures for rounding to whole dollar amounts. The \$64 difference between the \$1,423,094 amount presented here and the \$1,423,158 net WA mortgage investment amount described above is a difference in rounding.