

# Demolition and New Construction



A [hostile takeover](#) is not the only kind of land takeover of interest to new businesses. Suppose one hardware store is at a subway entrance and surrounded by great restaurants and nightlife. A high-rise developer wants to tear down the hardware store and build a luxury high-rise.

## How much rent should the high-rise developer bid to prevent other high-rise developers from grabbing the same spot?

The hardware store, with a structure value of \$600,000, has no defense against such a [treble](#), but that is not a problem. The high-rise is not a competitor, the owner of the hardware store will get [a 33% premium](#) on their structure and fixtures. They can reopen down the street with a new and spiffy store. The high-rise will be a source of additional customers. It is a win for everyone.

The first answer that needs to be determined is the safe-rent for the high-rise, once it is established. For that, return to the spreadsheet with "Hostile Takeover" selected.

The high-rise is 52 stories with six 2,000 sq. ft. luxury apartments per floor. The first floor includes 8,000 sq. ft. of retail, building offices, gym, and small apartments for doormen and maintenance. HVAC, swimming pool, and sun-deck is on the roof.

Total floor space is 12,500 sq. ft. per floor. Building costs are  $\$170 \times 52.5 \times 12,500 = \$111.6$  million. Interest on the new construction is \$5.57 million and depreciation is \$3.35 million. Utilities are  $\$1000 \times 53 \times 12 = \$0.63$  million. Labor, insurances, vacancy and other costs are \$2 million.

Units rent for an average \$8,000 monthly. The revenue for the rented retail space is \$3.2 million annually. Total annual apartment rental revenue =  $\$8,000 \times 6 \times 12 \times 51 = \$29.38$  million. Total revenue with retail = \$32.58 million. Total expenses are \$11.55 million. NEBR = \$21.03 million.

Avoiding a Hostile Takeover or Safe Demolition Treble								
	Current NEBR (Net Earnings Before Rent)	\$21,030,000	<input checked="" type="radio"/> Hostile Takeover	Sunk Structure Cost always equals discounted opportunity cost in any given year				
	Current Risk of Failure	1%	<input type="radio"/> Demolition and New Construction					
	Percent of Profits for Rent	58%	Sunk Structure Cost		\$36,828,000			
	Interest Rate	5%	Caution: Lower interest rates require higher ground rents!		1			
	Existing Structure Value	\$111,600,000				0		
		\$0						
Year	Discounted Profit at 5%	Cost of Failure Risk at 1%	Trebled Rent at 58% net profit	Interest on 1-Year Advance Rent	Discounted Risk, Rent and Costs	Profit After Rent, Risk and Advance Rent Interest	Opportunity Cost of Negative Balances	
0	\$21,030,000							
1	\$20,028,571	\$210,300	\$32,932,980	\$1,646,649	\$32,932,980	(\$12,904,409)		\$12,904,409
2	\$19,074,830	\$418,497	\$26,346,384	\$1,317,319	\$25,091,794	(\$6,016,964)		\$6,016,964
3	\$18,166,505	\$624,612	\$21,077,107	\$1,053,855	\$19,117,558	(\$951,053)		\$951,053
4	\$17,301,433	\$828,666	\$16,861,686	\$843,084	\$14,565,758	\$2,735,675		\$0
5	\$16,477,555	\$1,030,679	\$13,489,349	\$674,467	\$11,097,720	\$5,379,835		\$0
6	\$15,692,910	\$1,230,672	\$12,197,400	\$609,870	\$9,556,982	\$6,135,928		\$0
7	\$14,945,628	\$1,428,666	\$12,197,400	\$609,870	\$9,101,888	\$5,843,741		\$0
8	\$14,233,932	\$1,624,679	\$12,197,400	\$609,870	\$8,668,464	\$5,565,467		\$0
9	\$13,556,126	\$1,818,732	\$12,197,400	\$609,870	\$8,255,680	\$5,300,445		\$0
10	\$12,910,596	\$2,010,845	\$12,197,400	\$609,870	\$7,862,553	\$5,048,043		\$0
11	\$12,295,805	\$2,201,037	\$12,197,400	\$609,870	\$7,488,146	\$4,807,660		\$0
12	\$11,710,291	\$2,389,326	\$12,197,400	\$609,870	\$7,131,567	\$4,578,724		\$0
13	\$11,152,658	\$2,575,733	\$12,197,400	\$609,870	\$6,791,969	\$4,360,689		\$0
14	\$10,621,579	\$2,760,276	\$12,197,400	\$609,870	\$6,468,542	\$4,153,037		\$0
15	\$10,115,790	\$2,942,973	\$12,197,400	\$609,870	\$6,160,516	\$3,955,274		\$0
16	\$9,634,085	\$3,123,843	\$12,197,400	\$609,870	\$5,867,158	\$3,766,927		\$0
17	\$9,175,319	\$3,302,905	\$12,197,400	\$609,870	\$5,587,769	\$3,587,550		\$0
18	\$8,738,399	\$3,480,176	\$12,197,400	\$609,870	\$5,321,685	\$3,416,714		\$0
19	\$8,322,285	\$3,655,674	\$12,197,400	\$609,870	\$5,068,272	\$3,254,013		\$0
20	\$7,925,986	\$3,829,417	\$12,197,400	\$609,870	\$6,270,192	\$1,655,793		\$0
					Opportunity Cost	Net Profit		
Total	SAFE! Because opportunity cost more than net profit after 20 years				\$56,700,426	\$53,673,090		\$19,872,426

The high-rise developer would have to pay 58% of net profit in ground rent to protect against [treblers](#), or \$12,197,400. But this is hardly the final answer. Suppose construction takes two years. During those two years, how much [ground rent](#) should be paid?

Switch the radio button from “Hostile Takeover” to “Demolition and New Construction” (see next page). Three new fields appear - “New Construction Value”, “Construction Cost/Month”, and “Construction Months Remaining”.

Not only are all the construction costs remaining opportunity costs for the trebler, but the rents paid during construction are also opportunity costs. The latter is added to Sunk Structure Cost, while the former is added to the Opportunity Cost of the Negative Balances total at the bottom of the column.

The lowest rent occurs just after demolition and it turns out to be 32% of expected future profits. Why rent is slightly lower just after demolition is explained below.

Avoiding a Hostile Takeover or Safe Demolition Treble							
Estimated Future NEBR (Net Earnings Before Rent)	\$21,030,000	<input type="radio"/> Hostile Takeover	Sunk Structure Cost always equals discounted opportunity cost in any given year				
Future Risk of Failure	1%	<input checked="" type="radio"/> Demolition and New Construction					
Percent of Profits for Rent	32%	Sunk Structure Cost		\$37,401,180			
Interest Rate	5%	Caution: Lower interest rates require higher ground rents!		2	Construction Cost/Month	\$4,625,000	
Existing Structure Value	\$798,000			Construction Months Remaining:		24	
New Construction Value	\$0						
Year	Discounted Profit at 5%	Cost of Failure Risk at 1%	Trebled Rent at 32% net profit	Interest on 1-Year Advance Rent	Discounted Risk, Rent and Costs	Profit After Rent, Risk and Advance Rent Interest	Opportunity Cost of Negative Balances
0	\$21,030,000						
1	\$20,028,571	\$210,300	\$18,169,920	\$908,496	\$18,169,920	\$1,858,651	\$0
2	\$19,074,830	\$418,497	\$14,535,936	\$726,797	\$13,843,749	\$5,231,081	\$0
3	\$18,166,505	\$624,612	\$11,628,749	\$581,437	\$10,547,618	\$7,618,887	\$0
4	\$17,301,433	\$828,666	\$9,302,999	\$465,150	\$8,036,280	\$9,265,153	\$0
5	\$16,477,555	\$1,030,679	\$7,442,399	\$372,120	\$6,122,880	\$10,354,675	\$0
6	\$15,692,910	\$1,230,672	\$6,729,600	\$336,480	\$5,272,818	\$10,420,092	\$0
7	\$14,945,628	\$1,428,666	\$6,729,600	\$336,480	\$5,021,731	\$9,923,897	\$0
8	\$14,233,932	\$1,624,679	\$6,729,600	\$336,480	\$4,782,601	\$9,451,331	\$0
9	\$13,556,126	\$1,818,732	\$6,729,600	\$336,480	\$4,554,858	\$9,001,267	\$0
10	\$12,910,596	\$2,010,845	\$6,729,600	\$336,480	\$4,337,960	\$8,572,636	\$0
11	\$12,295,805	\$2,201,037	\$6,729,600	\$336,480	\$4,131,391	\$8,164,415	\$0
12	\$11,710,291	\$2,389,326	\$6,729,600	\$336,480	\$3,934,658	\$7,775,633	\$0
13	\$11,152,658	\$2,575,733	\$6,729,600	\$336,480	\$3,747,293	\$7,405,365	\$0
14	\$10,621,579	\$2,760,276	\$6,729,600	\$336,480	\$3,568,851	\$7,052,728	\$0
15	\$10,115,790	\$2,942,973	\$6,729,600	\$336,480	\$3,398,905	\$6,716,884	\$0
16	\$9,634,085	\$3,123,843	\$6,729,600	\$336,480	\$3,237,053	\$6,397,033	\$0
17	\$9,175,319	\$3,302,905	\$6,729,600	\$336,480	\$3,082,907	\$6,092,412	\$0
18	\$8,738,399	\$3,480,176	\$6,729,600	\$336,480	\$2,936,102	\$5,802,297	\$0
19	\$8,322,285	\$3,655,674	\$6,729,600	\$336,480	\$2,796,288	\$5,525,997	\$0
20	\$7,925,986	\$3,829,417	\$6,729,600	\$336,480	\$4,106,398	\$3,819,588	\$0
Total	SAFE! Because opportunity cost more than net profit after 20 years				Opportunity Cost	Net Profit	
					\$148,401,180	\$146,450,023	\$111,000,000

To protect the developer, all reasonable construction costs become New Construction Value over the course of development. In this case, development has yet to start. The \$798,000 in Existing Structure Value is described next.

Demolition is considered an improvement equal to the old structure value plus any premium paid. This depreciates over the course of new development, and becomes zero when the high-rise is completed. It depreciates by 3% annually for vacant land and disappears if land is abandoned.

Trebling and demolition accompanied by a failure to raise the rent to around 32% of the ground rent paid by the most efficient user of the land will lead to the booby prize of 133% of 133% of the demolished structure value, or 177% of the demolished structure value. Demolished structures previously purchased without a premium will pay a total of only 133% of the demolished structure value on a vacant land treble. The \$798,000 under existing structure value includes the \$600,000 demolished structure value and the premium paid. The additional 33% is applied in the Sunk Structure Cost which also holds the far more significant projected rent for the construction period.

Next, consider the rent halfway through construction:

Avoiding a Hostile Takeover or Safe Demolition Treble							
	Estimated Future NEBR (Net Earnings Before Rent)	\$21,030,000	<input type="radio"/> Hostile Takeover	Sunk Structure Cost always equals discounted opportunity cost in any given year			
	Future Risk of Failure	1%	<input checked="" type="radio"/> Demolition and New Construction				
	Percent of Profits for Rent	44%		Sunk Structure Cost	\$43,829,310		
	Interest Rate	5%	<b>Caution: Lower interest rates require higher ground rents!</b>		2	Construction Cost/Month	\$4,625,000
	Existing Structure Value	\$399,000			Construction Months Remaining:		
	New Construction Value	\$55,500,000			12		
Year	Discounted Profit at 5%	Cost of Failure Risk at 1%	Trebled Rent at 44% net profit	Interest on 1-Year Advance Rent	Discounted Risk, Rent and Costs	Profit After Rent, Risk and Advance Rent Interest	Opportunity Cost of Negative Balances
0	\$21,030,000						
1	\$20,028,571	\$210,300	\$24,983,640	\$1,249,182	\$24,983,640	(\$4,955,069)	\$4,955,069
2	\$19,074,830	\$418,497	\$19,986,912	\$999,346	\$19,035,154	\$39,676	\$0
3	\$18,166,505	\$624,612	\$15,989,530	\$799,476	\$14,502,975	\$3,663,530	\$0
4	\$17,301,433	\$828,666	\$12,791,624	\$639,581	\$11,049,885	\$6,251,548	\$0
5	\$16,477,555	\$1,030,679	\$10,233,299	\$511,665	\$8,418,960	\$8,058,595	\$0
6	\$15,692,910	\$1,230,672	\$9,253,200	\$462,660	\$7,250,124	\$8,442,785	\$0
7	\$14,945,628	\$1,428,666	\$9,253,200	\$462,660	\$6,904,880	\$8,040,748	\$0
8	\$14,233,932	\$1,624,679	\$9,253,200	\$462,660	\$6,576,076	\$7,657,855	\$0
9	\$13,556,126	\$1,818,732	\$9,253,200	\$462,660	\$6,262,930	\$7,293,196	\$0
10	\$12,910,596	\$2,010,845	\$9,253,200	\$462,660	\$5,964,695	\$6,945,900	\$0
11	\$12,295,805	\$2,201,037	\$9,253,200	\$462,660	\$5,680,662	\$6,615,143	\$0
12	\$11,710,291	\$2,389,326	\$9,253,200	\$462,660	\$5,410,154	\$6,300,137	\$0
13	\$11,152,658	\$2,575,733	\$9,253,200	\$462,660	\$5,152,528	\$6,000,130	\$0
14	\$10,621,579	\$2,760,276	\$9,253,200	\$462,660	\$4,907,170	\$5,714,410	\$0
15	\$10,115,790	\$2,942,973	\$9,253,200	\$462,660	\$4,673,495	\$5,442,295	\$0
16	\$9,634,085	\$3,123,843	\$9,253,200	\$462,660	\$4,450,947	\$5,183,138	\$0
17	\$9,175,319	\$3,302,905	\$9,253,200	\$462,660	\$4,238,998	\$4,936,322	\$0
18	\$8,738,399	\$3,480,176	\$9,253,200	\$462,660	\$4,037,141	\$4,701,259	\$0
19	\$8,322,285	\$3,655,674	\$9,253,200	\$462,660	\$3,844,896	\$4,477,389	\$0
20	\$7,925,986	\$3,829,417	\$9,253,200	\$462,660	\$5,105,072	\$2,820,913	\$0
					<b>Opportunity Cost</b>	<b>Net Profit</b>	
Total	<b>SAFE! Because opportunity cost more than net profit after 20 years</b>				\$104,284,379	\$103,629,900	\$60,455,069

Rent has increased from 32% to 44% of expected net profits. The developer has lost 50% of the improvement from the demolition of the hardware store (\$798,000 down to \$399,000), which pays at 177% on a treble, and has \$55.5 million of new construction that pays 133% on a treble. The number of construction months remaining has dropped from 24 to 12.

As construction is completed, the rent will approach the 58% needed to prevent a hostile takeover. Because rents fall by default, the [advance rent account](#) should be updated at the start of each construction month.