

“Should I Pay Off My Mortgage Early?”

Part II

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The term ‘Opportunity Cost,’ or the cost of a foregone opportunity, gets a lot of use by economists and finance folks. The meaning is a bit abstract but here’s a good illustration of the term ‘Opportunity Cost’...

My wife, Denise, and I love a local eating spot, the Spinnerstown Inn. Last time we visited two choices on the menu appealed to me: the prime tenderloin and the lamb loin chops. I chose the lamb loin chop. It came with sautéed broccoli and pecan sweet potatoes. What I gave up was a great cut of tenderloin, hashed Brussels sprouts, and mascarpone whipped red potatoes. It wasn’t an easy choice because I thought I regret my choice either way.

Now an economist would say, “The foregone tenderloin, Brussels sprouts and whipped potatoes were the opportunity cost of choosing the lamb loin chop dish.” Yes, I know, it’s a bit abstract but the term does have a useful function in economics and finance.

Last month we wondered whether it was better to pay off a mortgage early by making advance principal payments on the mortgage, on the one hand, (See the article [here.](#)) On the other hand, some would prefer to capture a wealth building advantage of 3-4%/yr by investing the money that would have gone to the early payoff into a prudent, globally diversified portfolio.

We demonstrated that \$393/mo that would have grown significant wealth over that time to the tune of about 9%/yr annualized: the \$141K outlay would have resulted in \$1.399M given returns for the last 30 years.

The ‘opportunity cost’ of choosing to invest \$393/mo for 30 years rather than paying the mortgage in 20 years was this: a mortgage for an additional 10 years and additional interest payments of \$43,488.

Well, some of us are more risk averse and we just love the thought of paying off the mortgage early. We just can’t wait to get that cancellation notice at the 20-year mark. We want to have a party.

Okay, well if that’s your style, how do you structure the early payoff without having to pay one of those ‘mortgage accelerator’ programs which, by the way, add even more costs? (We’ll talk at the end of the article how to create a systematic process to get that \$393 into a prudent investment month by month if you decide you want to do that instead of paying off your mortgage early.)

Understand that your home’s mortgage is paid off by a process called ‘amortization.’ Though the payments remain stable (for a fixed rate mortgage), the amount of each payment is sorted between two parts: the interest on the loan balance and the payment on the loan amount, or the principal.

Look at this illustration assuming an interest rate of 5.3%. Notice how each month the interest payment credited drops just a bit (by only about \$1.50 initially) and the loan amount decreases slightly (\$1.40 initially). This illustrates how amortization works. As the loan balance is paid down, the interest portion is lower and lower each month as the loan balance decrease. More and more goes to pay off the loan, aka ‘principal.’

(Also, notice this: the interest payments over 360 months (30 years) equals the total amount of the original loan balance. See the red circles. Lesson: make sure to keep that interest rate as low as possible.)

Loan Amortization Schedule

Enter values	
Loan amount	\$ 300,000.00
Annual interest rate	5.3%
Loan period in years	30
Number of payments per year	12
Start date of loan	7/1/17
Optional extra payments	\$ -

Loan summary	
Scheduled payment	\$ 1,666.67
Scheduled number of payments	360
Actual number of payments	360
Total early payments	\$ -
Total interest	\$ 300,000.00

PmtNo.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance	Cumulative Interest
1	8/1/17	\$ 300,000.00	\$ 1,666.66	\$ -	\$ 1,666.66	\$ 340.66	\$ 1,326.00	\$299,659.34	\$ 1,326.00
2	9/1/17	299,659.34	1,666.66	-	1,666.66	342.16	1,324.49	299,317.18	2,650.49
356	3/1/47	8,223.96	1,666.67	-	1,666.67	1,630.32	36.35	6,593.65	299,926.98
357	4/1/47	6,593.65	1,666.67	-	1,666.67	1,637.52	29.14	4,956.12	299,956.12
358	5/1/47	4,956.12	1,666.67	-	1,666.67	1,644.76	21.91	3,311.36	299,978.03
359	6/1/47	3,311.36	1,666.67	-	1,666.67	1,652.03	14.64	1,659.33	299,992.67
360	7/1/47	1,659.33	1,666.67	-	1,659.33	1,652.00	7.33	0.00	300,000.00

Let’s look back at last month’s example: a \$300K, 30-year mortgage at 3.5%. Notice that the amount of interest paid over 30 years is much lower at 3.5% than 5.3% we saw in the first diagram. By reducing your interest from 5.3% to 3.5% you’ve saved \$115K in interest over 30 years (\$300K – \$185K = \$115K).

More important for our purposes, you haven’t made any advance payments so the mortgage does take the full 30 years to pay off. Also note that at 20 years you still have 45% of your loan balance to pay off (136K/300K = 45%, see the green circles).

Loan Amortization Schedule

Enter values		Loan summary	
Loan amount	\$ 300,000.00	Scheduled payment	\$ 1,347.13
Annual interest rate	3.50 %	Scheduled number of payments	360
Loan period in years	30	Actual number of payments	360
Number of payments per year	12	Total early payments	\$ -
Start date of loan	7/1/17	Total interest	\$ 184,968.26
Optional extra payments	\$ -		

PmtNo.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance	Cumulative Interest
1	8/1/17	\$ 300,000.00	\$ 1,347.13	\$ -	\$ 1,347.13	\$ 472.13	\$ 875.00	\$ 299,527.87	\$ 875.00
2	9/1/17	299,527.87	1,347.13	-	1,347.13	473.51	873.62	299,054.35	1,748.62
3	10/1/17	299,054.35	1,347.13	-	1,347.13	474.89	872.24	298,579.46	2,620.86
4	11/1/17	298,579.46	1,347.13	-	1,347.13	476.28	870.86	298,103.19	3,491.72
239	6/1/37	138,122.51	1,347.13	-	1,347.13	944.28	402.86	137,178.23	159,143.27
240	7/1/37	137,178.23	1,347.13	-	1,347.13	947.03	400.10	136,231.20	159,543.38
241	8/1/37	136,231.20	1,347.13	-	1,347.13	949.79	397.34	135,281.41	159,940.72
359	6/1/47	2,682.53	1,347.13	-	1,347.13	1,339.31	7.82	1,343.22	184,964.35
360	7/1/47	1,343.22	1,347.13	-	1,343.22	1,339.30	3.92	0.00	184,968.26

Now, look what happens if you decide to pay an additional \$393/mo toward your mortgage. The green circle shows that you can pay this mortgage off in 240 months/20 years, by making an additional \$393/mo payment over that 20 years.

Loan Amortization Schedule

Enter values		Loan summary	
Loan amount	\$ 300,000.00	Scheduled payment	\$ 1,347.13
Annual interest rate	3.5%	Scheduled number of payments	360
Loan period in years	30	Actual number of payments	240
Number of payments per year	12	Total early payments	\$ 94,226.78
Start date of loan	7/1/17	Total interest	\$ 117,543.75
Optional extra payments	\$ 393.00		

PmtNo.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance	Cumulative Interest
1	8/1/17	\$ 300,000.00	\$ 1,347.13	\$ 393.00	\$ 1,740.13	\$ 865.13	\$ 875.00	\$ 299,134.87	\$ 875.00
2	9/1/17	299,134.87	1,347.13	393.00	1,740.13	867.66	872.48	298,267.21	1,747.48
3	10/1/17	298,267.21	1,347.13	393.00	1,740.13	870.19	869.95	297,397.02	2,617.42
238	5/1/37	5,102.45	1,347.13	393.00	1,740.13	1,725.25	14.88	3,377.19	117,529.10
239	6/1/37	3,377.19	1,347.13	393.00	1,740.13	1,730.28	9.85	1,646.91	117,538.95
240	7/1/37	1,646.91	1,347.13	299.78	1,642.11	1,642.11	4.80	0.00	117,543.75
241	8/1/37	0.00	1,347.13	-	0.00	0.00	0.00	0.00	117,543.75
242	9/1/37	0.00	1,347.13	-	0.00	0.00	0.00	0.00	117,543.75
243	10/1/37	0.00	1,347.13	-	0.00	0.00	0.00	0.00	117,543.75

(If you want to play around with a mortgage calculator you can download this one I've used [here.](#))

Does this appeal to you? Read on.

First, never pay for what are called ‘mortgage accelerator’ programs. They are expensive. You don’t need them and you can accelerate payments yourself. Some lenders make it easy, others not so much. Call your lender and ask the best way to make this extra payment.

Here you must be careful because if you don’t clearly note how the extra \$393 (in this example) is to be allocated, the lender won’t apply it to the principal payment but to your next payment due. That doesn’t help reduce your principal faster. Your lender may have a spot on the coupon to designate extra principal payments. But if not, or if you pay directly from your bank, you can note clearly how the extra payment is to be imputed. Again, check with your lender to avoid any confusion and misallocation of your payment.

You might also decide to make 26 bi-weekly payments instead of 12 monthly payments. This amounts to one extra payment/year. That will pay off a 30 years’ mortgage in about 22 years. If you add an additional principal payment to each of those 26 payments, as you can imagine you’ll accelerate the payoff to even less than 20 years.

So, which is for you? Payoff that mortgage in 20 years with an extra \$393/month (in this illustration)? Or, put that \$393 each month into a prudent globally diversified portfolio over 20, or even 30 years and watch that money grow far beyond the amount of interest you’ve saved? Read last week’s [article](#) again. Then decide how you’re ‘wired,’ and if you like the idea of that cancellation notice at 20 years, I’ve given you the tools.

BUT, if you decide you’d like to grow your wealth significantly over 30 years, Damian in our office can set you up with a MF (Mutual Fund) Systematic Recurring Contribution Plan. (You may reach Damian at damian@eatoncambridge.com or 480.385.7393.) He’ll put your money in the same place everyone at Eaton-Cambridge puts their own money, their loved one’s money, and where we prefer to put our clients’ money as well: a very prudent, institutional class, globally diversified portfolio.

Like a good economist, weigh the ‘Opportunity Costs’ and decide for yourself.