



Money Matters Case Study: Saving For Retirement D.I. Wallace, K. Rheinlander



Your Assistance is Cordially Requested

Claude and Diana have been married several years. Now in their early 30's, they have just solved the two-jobs-in-the-same-city problem and bought their first house. Although they have little in savings, they now have two steady incomes totaling \$75,000 and a brand new mortgage for \$200,000 at 5.25% interest. Their monthly mortgage payment, including amounts held in escrow for insurance and taxes, runs about \$1,600 per month, although the mortgage is just part of that. They know they should invest for their retirement and feel that they can put aside \$10,000 into a tax protected 401k account each year. This would come out of Claude's salary, because his employer would match the first \$5,000 for a total of \$15,000 per year invested.

Although this seems like a great deal, the couple disagrees about what to do. Claude believes that they should invest \$5,000 to get the employer's \$5,000 match, but use the other \$5,000 to pay off their mortgage early. He feels that the market is currently not doing much better than 5% and he can always put more into his retirement fund later when the house is paid off and his income has risen at rates consistent with inflation. Diana believes that the tax break they get from investing that extra \$5,000 is worth enough that they should put the money in the 401k instead of using it to pay down their mortgage debt.

They ask you their opinion. You surprise them by not giving it immediately. Instead, you say, "Let me run some numbers and see what the consequences will be of these two strategies. I'll get back to you". They are so delighted they set a date, planning to cook their best dinner for you (which includes Claude's famous chocolate pear galette and Diana's homemade bread).

You make some assumptions. Claude and Diana will retire in 35 years when they are both 65 years old. They will then live to be 95. The cost of living will go up at about the same rate as this year, 2%. Claude and Diana will need only 90% of their final salary when they retire because they will have no mortgage payments. Their 401k will grow at about the same rate the market has been growing for the last 10 years, 7%, until retirement. After retirement it will be invested more conservatively and will grow at only 5%.

Now you need to figure out a few things. You assemble all your calculators and spreadsheets.

1. Given Claude and Diana's current income and 35 years of raises to match the cost of living, what income will they expect their last year of working? And what "error bars" would you put around this estimate? That is, what if the inflation rate is slightly more or less than the 2% estimated?

This case study is part of the Dartmouth Money Matters Curriculum.

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2. How much will they need to have invested when they retire in order to live on 90% of their retirement salary until age 95? What error bars go with this estimate? That is, what if the return on their investments during retirement is slightly more or less than the 5% estimated?
3. How much do they need to put away each year in order to arrive at this number at age 65? Again, what are the error estimates for this calculation? That is, what if the return on their investments before retirement is slightly more or less than the 7% estimated?
4. If they invest \$15,000 each year for the next 35 years, will they be ok?
5. If they put \$5,000 into their mortgage principal every year, when will it get paid off? How much do they save on the total price of the house by doing this?
6. If they only put \$10,000 per year into their retirement until the mortgage is paid off, then increase the contribution to \$15,000, what will happen? How much will they have at age 65?
7. What if they only put \$10,000 per year into their retirement until the mortgage is paid off, then increase the contribution to \$15,000 PLUS the amount saved by not having the mortgage to pay (although they still have to pay insurance and taxes), what will happen? How much will they have at age 65?
8. Finally, you consider another scenario. By putting \$10,000 into their tax protected account, they actually only lose a fraction of that from their paycheck. How much? If they took that extra savings and put it toward the principal of the mortgage, when will the mortgage be paid off?

Based on your calculations and analysis of the results, summarize what you have found and what you think the best option is for Claude and Diana. And, enjoy your dinner!