

**The Pedagogy of Mortgage Prepayments:
The difference between points and negative points**

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Abstract

Frequently mortgage buyers are given the choice to “buy down” a mortgage interest rate through the use of conventional discount points. Conversely, mortgage buyers may also agree to pay a higher-than-par interest rate and receive negative points; this receipt of up-front cash is commonly termed the yield spread premium (YSP). Unfortunately these topics, particularly the YSP, receive short thrift in many undergraduate real estate text books. To this end, the paper will: (a) present an analysis for analyzing both positive and negative discount points through an effective yield calculation, as well as a break-even analysis that may provide more information to the average consumer, and (b) examine the nature of the YSP. The addition of these topics to those traditionally found in real estate text books will ensure students receive adequate exposure to all aspects of the point-rate decision.

I. INTRODUCTION

The vast number of options facing today’s mortgage buyer leaves many individuals questioning the appropriateness of their decisions. Not only must consumers choose between different loan maturities, they must also make the decision to obtain a mortgage with a fixed or adjustable interest rate. The consumer also needs to decide whether to buy down a mortgage interest rate through the use of discount points, or to accept a higher-than-par rate of interest in exchange for a front-end payment from the lender. This is the crux of the understanding points and negative points.

Too often real estate text books do not address of the impact of points on the rate-discount decision limiting the dissemination of useful information and analysis of this important topic. For example, Miller & Geltner [2005] provide an analysis of the number of points needed to bring a yield up on a mortgage. Likewise, Ling & Archer [2005] provide a similar analysis that accommodates variable holding period with level payment mortgages. However, neither text provides a methodology by which a consumer may be able to determine if paying (or receiving) points is a good “investment.” Furthermore, none of the six textbooks consulted provide any discussion on negative points.¹ Given the large sums of money involved with mortgages, a proper, yet simple, analysis of these payments cannot be overstated. The purpose of this paper is to provide a summary of the important disclosure requirements surrounding the controversial and often misunderstood yield spread premium (*a.k.a.* “negative points” or “YSP”) as well as to provide a methodology that allows for a simple, but very useful quantitative evaluation in terms of a holding period for both receiving and paying points. Unlike other papers that rely on spreadsheets for analysis, this paper allows for calculator techniques to be used thereby enhancing the learning opportunities.²

II. THE ROLE OF POINTS IN MORTGAGE LOANS

Individuals may choose to buy down their mortgage interest rate for of a variety of reasons. Some of the rationales may well be psychological (*i.e.* the perception of paying less interest over the life of the loan), while others may reflect the individual’s anticipated time in the home or their current financial situation. In contrast, lender-paid points (*e.g.* YSP) have received far less attention. In this situation the *lender* pays up-front points (*i.e.* a yield spread premium or negative points) in exchange for a higher contract interest rate. Cash-short consumers can use this financing option to pay origination fees, closing costs, or even take money out.

While most real estate text books do provide the analytics required to evaluate and select the optimal decision with respect to *paying* discount points, they generally fail to consider the receipt of discount points (via the YSP). Most real estate students do not understand there is a whole menu of mortgage rate options available, including the payment of points in the form of a daily wholesale sheet. The wholesale sheet is usually distributed to brokers and other lending professionals on a daily basis. Table 1 is an actual wholesale sheet from September 2005.

Table 1—Actual Wholesale Sheet

Conventional Conforming FNMA/FHLMC ³ 30 YR FIXED				
Rate	15 Day ⁴	30 Day	45 Day	60 Day
6.125	-2.375 ^e	-2.250	-2.000	-1.875
6.000	-2.000	-1.875	-1.625	-1.500
5.875	-1.625	-1.500	-1.250	-1.125
5.750	-1.125	-1.000	-0.750	-0.625
5.625	-0.625	-0.500	-0.250	-0.125
5.500	-0.125	0.000	0.250	0.375
5.375	0.500	0.625	.0875	1.000
5.250	1.125	1.250	1.500	1.625 ^f

In Table 1, “conventional” refers to a fully amortized loan, while “conforming” refers to the lender-applied criteria that are used to adjust the rate. Borrowers with higher risk profiles will lead to more expensive rates. For example, if the loan is a FNMA interest-only first mortgage, with a loan to value of greater than 90%, the lender will require a payment of 25 basis points. Thus, a borrower would get the listed rate if none of the conforming adjustments apply. The negative sign means the lender will pay the borrower/broker this percentage. A positive sign indicates the amount a borrower will pay the lender to get this reduced rate. Notice that the point payment the lender will require for the lower rate increases with time. Conversely, the amount of points the lender is willing to pay as a yield spread premium decreases with time.

A. The Payment of Points

Should the consumer “purchase” a lower rate—is it financially optimal? One way to analyze the cost of paying points is to calculate the effective yield of each alternative.⁵ To illustrate,

consider a hypothetical \$280,000 mortgage loan. The mortgage broker presents several financing plans; however, the three most attractive alternatives from Table 1 are:

- ❶ a 30-year mortgage at $5\frac{1}{4}\%$ + $1\frac{1}{4}$ discount points. (with a 30 day lock)
- ❷ a 30-year mortgage at $5\frac{3}{8}\%$ + $\frac{5}{8}$ discount points. (with a 30 day lock)
- ❸ a 30-year mortgage at $5\frac{1}{2}\%$ + 0 discount points. (with a 30 day lock)

1. *The Effective Yield Analysis*

Step 1 Determine the up-front amount the consumer will be paying.

- ❶ $.0125 * \$280,000 = \$3,500$
- ❷ $.00625 * \$280,000 = \$1,750$
- ❸ $0 * \$280,000 = \0

Step 2 Determine the monthly interest and principle payment for each financing plan.

- | | | |
|--|---|--|
| ❶ PV = \$280,000
N = $30 * 12 = 360$
I = $5.25\% / 12 = .4375\%$
PMT = \$1,546.17 | ❷ PV = \$280,000
N = $30 * 12 = 360$
I = $5.375\% / 12 = .4792\%$
PMT = \$1,567.92 | ❸ PV = \$280,000
N = $30 * 12 = 360$
I = $5.50\% / 12 = .4583\%$
PMT = \$1,589.81 |
|--|---|--|

Step 3 Determine the amount of the present value received.

- ❶ $\$280,000 - \$3,500 = \$276,500$
- ❷ $\$280,000 - \$1,750 = \$278,250$
- ❸ $\$280,000 - \$0 = \$280,000$

Step 4

Calculate the effective yield by using the present value received in Step 3.

① PV = \$276,500	② PV = \$278,250	③ PV = \$280,000
PMT = (\$1,546.17)	PMT = (\$1,592.92)	PMT = (\$1,589.81)
N = 360	N = 360	N = 360
I = .4469*12 = 5.36%	I = .4645*12 = 5.57%	I = .4583*12 = 5.50%

The results are somewhat surprising because the effective cost in the first alternative is the lowest, even though there is the up-front payment of \$3,500. Part of the reason for the result is the fact that the calculation assumes that the consumer will hold the mortgage until maturity, which may not be very realistic assumption. If the time horizon was in fact shortened, the effective rates would be change dramatically.⁶ In its present form the effective yield analysis (this is also known as the Annual Percentage Rate, “APR”) provides limited information to the average consumer. Allowing for a different type of break-even analysis may provide more insight to mortgagors that may have a short time horizon.

2. *The Break-Even Analysis*

There is another means of analyzing the different alternatives, which reflects a payback period, or more precisely, a break-even point in time; which answers the question of how long will it take for the lower monthly payments obtained via alternative ① or ② to offset the discount points paid up-front. The comparison can be made in four simple steps. To illustrate, assume the consumer can reinvest the savings from lower monthly payments in a bank account earning 3 ½ %:

Step 1 Determine the up-front amount the consumer will be paying.

① $.0125 * \$280,000 = \$3,500$

② $.00625 * \$280,000 = \$1,750$

③ $0 * \$280,000 = \0

Step 2 Determine the monthly interest and principle payment for each financing plan.

① PV = \$280,000
N = 30*12 = 360
I = 5.25%/12 = .4375%
PMT = \$1,546.17

② PV = \$280,000
N = 30*12 = 360
I = 5.375%/12 = .4792%
PMT = \$1,567.92

③ PV = \$280,000
N = 30*12 = 360
I = 5.50%/12 = .4583%
PMT = \$1,589.81

Step 3 Determine the difference in payments, specifically with regard to the par rate.

$\Delta \text{③} - \text{①} = \$1,589.81 - \$1,546.17 = \43.64 per month

$\Delta \text{③} - \text{②} = \$1,589.81 - \$1,567.92 = \21.59 per month

Step 4 Determine the number of monthly payments (*i.e.* “ Δ ”) necessary to recover the discount points paid (\$3,500 or \$1,750).

① PV = \$3,500
PMT = \$43.64
I = 3 ½ %/12
N = ? = 91.49 \approx 92 months

② PV = \$1,750
PMT = \$21.59
I = 3 ½ %/12
N = ? = 92.61 \approx 93 months

Assuming a 3 ½ % reinvestment rate, we find the “breakeven point” is 92 and 93 months respectively for the two alternatives that require a present payment of points. The benefits of this type of analysis over the effective yield calculation is that it allows the consumer to run a mental calculation to see whether their stay in their residence will exceed the break-even point, and whether they expect rates to decline enough to warrant refinancing for a period of time greater than 92 or 93 months. If the mortgagor is not going to be in the house for at least 8 years, it would be better to avoid paying the points.

While the preceding analysis is independent of the amount borrowed meaning that the amount borrowed does not affect the answer, the break-even point is influenced by the assumed reinvestment rate. If, for example, the monthly savings were not reinvested at all (substitute a 0% reinvestment rate in Step 4) the break-even point necessary to recover the initial investment shortens to 80.20 months. The higher the reinvestment rate, the longer the “payback” period because the present value of each period’s monthly savings declines when discounted at a higher rate. Intuitively, the higher the reinvestment rate, the more the consumer will lose in terms of the “opportunity cost” associated with not being able to invest the dollars paid at t=0 as discount points (\$3,500). Finally, the analysis presented above is akin to a discounted payback method used in capital budgeting analysis. Certainly, many of the same criticisms that pertain to that

analysis apply in this case, but with one major difference being that most capital budgeting projects assume that project life will be met. With most consumer mortgages, “the project life” will almost certainly be less than the full term.

B. The Payment of Negative Points or the Yield Spread premium⁷

Examining Table 1 quickly reveals the *payment* of points and the *receipt* of negative points are really mirror images of one another. Whereas the payment of points allow the borrower to buy down the rate, the receipt of negative points provides the borrower compensation for paying a higher interest rate than required. It should come as no surprise that the effective yield analysis and the break-even calculation are very similar to the case of paying points.

1. An Effective Yield Analysis of the YSP

To illustrate the proper analysis of the YSP, reconsider the hypothetical \$280,000 mortgage loan. The mortgage broker offers the following financing options.

- ❶ a 30-year mortgage at 6 % - 1 7/8 discount point. (with a 30 day lock)
- ❷ a 30-year mortgage at 5 3/4 % -1 discount points. (with a 30 day lock)
- ❸ a 30-year mortgage at 5 1/2 % + 0 discount points. (with a 30 day lock)

As before:

Step 1 Determine the up-front amount the consumer will be receiving.

- ❶ .01875 * \$280,000 = \$5,250
- ❷ .01 * \$280,000 = \$2,800
- ❸ 0 * \$280,000 = \$0

Step 2 Determine the monthly interest and principle payment for each financing plan.

- | | | |
|------------------|-----------------------|-----------------------|
| ❶ PV = \$280,000 | ❷ PV = \$280,000 | ❸ PV = \$280,000 |
| N = 30*12 = 360 | N = 30*12 = 360 | N = 30*12 = 360 |
| I = 6%/12 = .50% | I = 5.75%/12 = .4792% | I = 5.50%/12 = .4583% |
| PMT = \$1,678.74 | PMT = \$1,634.00 | PMT = \$1,589.81 |

Step 3 Determine the amount of the present value received.

- ❶ \$280,000 + \$5,250 = \$285,250
- ❷ \$280,000 + \$2,800 = \$282,800

$$\textcircled{3} \quad \$280,000 + \$0 = \$280,000$$

Step 4 Calculate the effective yield by using the present value received in Step 3.

$\begin{aligned} \textcircled{1} \quad PV &= \$285,250 \\ PMT &= (\$1,678.74) \\ N &= 360 \\ I &= .4856 * 12 = 5.83\% \end{aligned}$	$\begin{aligned} \textcircled{2} \quad PV &= \$282,800 \\ PMT &= (\$1,634.00) \\ N &= 360 \\ I &= .4516 * 12 = 5.65\% \end{aligned}$	$\begin{aligned} \textcircled{3} \quad PV &= \$280,000 \\ PMT &= (\$1,589.81) \\ N &= 360 \\ I &= .4583 * 12 = 5.50\% \end{aligned}$
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The results can be somewhat misleading. Alternative one appears to provide the highest cost, but only if mortgagor stays the full thirty years. As before, if the holding period is significantly less, the ordering will likely change. In this case, the longer the anticipated stay in the property, the more expensive the effective rate will be for the two alternatives that involve negative points. If the borrower believes they will move in the short-term or that if interest rates will be increasing, then receiving negative points is a relatively good investment. As the next section will indicate, how long you stay in the property will have a dramatic impact on the effective costs (See Appendix A).

2. *The Break-Even Analysis*

As in the previous section, consider a hypothetical \$280,000 mortgage loan. The mortgage broker offers the following financing options:

Step 1 Determine the up-front amount the consumer will be receiving.

$$\textcircled{1} \quad .01875 * \$280,000 = \$5,250$$

$$\textcircled{2} \quad .01 * \$280,000 = \$2,800$$

$$\textcircled{3} \quad 0 * \$280,000 = \$0$$

Step 2 Determine the monthly interest and principle payment for each financing plan.

$\begin{aligned} \textcircled{1} \quad PV &= \$280,000 \\ N &= 30 * 12 = 360 \\ I &= 6\% / 12 = .50\% \\ PMT &= \$1,678.74 \end{aligned}$	$\begin{aligned} \textcircled{2} \quad PV &= \$280,000 \\ N &= 30 * 12 = 360 \\ I &= 5.75\% / 12 = .4792\% \\ PMT &= \$1,634.00 \end{aligned}$	$\begin{aligned} \textcircled{3} \quad PV &= \$280,000 \\ N &= 30 * 12 = 360 \\ I &= 5.50\% / 12 = .4583\% \\ PMT &= \$1,589.81 \end{aligned}$
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Step 3 Determine the difference in payments, specifically with regard to the par rate.

$$\Delta \textcircled{1} - \textcircled{3} = \$1,678.74 - \$1,589.81 = \$88.93 \text{ per month}$$

$$\Delta \textcircled{2} - \textcircled{3} = \$1,634.00 - \$1,589.81 = \$44.19 \text{ per month}$$

Step 4 Determine the number of monthly payments (*i.e.* “ Δ ”) necessary to recover the discount points received (\$5,250 or \$2,800).

1	PV = \$5,250	2	PV = \$2,800
	PMT = \$88.93		PMT = \$44.19
	I = 3 ½ %/12		I = 3 ½ %/12
	N = ? = 64.88 \approx 65 months		N = ? = 70.16 \approx 71 months

For the two alternatives that allow for a present receipt of points assuming a 3 ½ % reinvestment rate, we find the “breakeven point” is 65 and 71 months respectively. If the mortgagor plans to be in the house *longer* than five and a half years, it would be better to avoid receiving the points. This type of analysis does suffer from the same type of problem that the effective yield calculations have with regard to a holding period less than maturity.⁸

Similar to the analysis involving the payment of points, the payback period analysis of the receipt of points is independent of the amount borrowed, but is influenced by the assumed reinvestment rate. If, for example, the monthly additional payment were not discounted at all (substitute a 0% reinvestment rate in Step 4) we find that it would take 59 months to recover the initial investment. Conversely, if the interest rate increased dramatically say to 9%, the payback period would increase to 78 months, extending the period in which the mortgagor could stay in the property without being economically disadvantaged.

The break-even analysis presented allows the consumer an opportunity to intuitively understand in terms of time, whether an investment would appear to be advantageous or not. As contrasted with the effective yield analysis—that analysis produces a rate of return that may or may not be very helpful given the small probability that the mortgage would be held to full maturity. Having presented both methods in the classroom, the overwhelming sentiment expressed by the students is that the break-even analysis is easier to understand.⁹ Also of note is the obvious but sometimes overlooked fact that with the payment of points, the mortgagor has to stay with the property a minimum of time in order to recoup the investment payment. Conversely when the consumer receives points in the form of a YSP, the investor needs to realize that one needs to vacate the property in order to make the rate of return on the receipt of the points higher. Thus, paying points provides an incentive to remain on the property, while the receipt of points provides an incentive to move or refinance.

Finally, the asymmetric nature of the positive and negative points should be noted. From Table 1, the buy-down of ¼ point required 1¼ points, whereas the payment from the lender was only 1 point for a ¼ higher interest rate. By focusing on the payback method, the number of months that a borrower benefits from the negative points, is considerably shorter than the time period necessary to pay back the points given to the lender. What this implies is that the lender is willing to “bid” only so much, while “asking” a higher present value amount for the privilege of paying a lower interest rate, analogous to the bid-asked spread prevalent in most transactions. Given the nature of the prepayments from a lender to the borrower/broker it is not surprising that

the “payback period” for the YSP is shorter than the payback period for the payment of conventional points.

C. *Discussion of the Yield Spread Premium*

When the Real Estate Settlement and Procedures Act (RESPA) was enacted in the mid-seventies, most residential mortgages were originated, funded, and held by banks, saving and loans, and to a lesser degree, mortgage bankers. The growth of the Federal National Mortgage Association (“Fannie Mae,” FNMA) and the Government National Mortgage Association (“Ginnie Mae,” GNMA) led to the subsequent development of the secondary mortgage market, substantially changing the landscape by allowing these functions to be separated and performed by different entities. In particular, the origination function is now performed by retail mortgage brokers in many cases.¹⁰

As part of the origination function the mortgage broker usually initiates the loan application, credit report, property appraisal, property survey, verification of employment, verification of bank deposits, and usually counsel clients on available loan types. The broker processes the information and sends to the lender (who actually funds the loan) to review and make a final credit decision. If a borrower contracts directly with the lender, the borrower must compensate the lender for performing the origination function; if they contract indirectly through a mortgage broker, they must compensate the mortgage broker for performing the origination function.

The most common form of broker compensation is an origination fee *paid by the borrower* at closing (*e.g.*, 1% of the loan amount).¹¹ However, many brokers may also receive indirect compensation *paid by the lender*, in the form of a yield spread premium, or negative points. As previously demonstrated the yield spread premium is nothing more than a contractual arrangement whereby the borrower agrees to pay a higher than par rate for the life of the loan, in exchange for a present lump sum, commonly expressed as a point value of the loan value. These points can be result in payments to the borrower or in many cases payments to the mortgage broker. From Table 1 the wholesale price sheet provided to a mortgage broker indicates that the par rate for a 30 day lock is 5.5%. The “par rate” refers to the rate offered to the broker who the lender will fund 100% of the loan with no premiums or discounts offered to the broker for a particular set of terms (*e.g.* credit rating, lock-in period, loan maturity, *etc.*). If the borrower agrees to pay a contract interest rate of 6.0%, the difference (or at least part of it) in this case 1 7/8 points can be paid to the broker, borrower or any combination of the two.¹² As the name “yield spread premium” implies, the larger the difference or spread between the wholesale par rate and the agreed upon contract rate, the larger the premium to the broker or possibly the actual borrower.

Yield spread premiums do have legitimate uses for some cash-strapped homebuyers. Rather than paying closing costs up-front, (which include broker compensation such as origination fees, appraisals, and other pre-pays) these expenditures can be “financed” over the loan’s term via a higher contract rate of interest. Quite often the lender pays the mortgage broker’s compensation at closing through a YSP, and then recovers this cost over time from the borrower by receiving a loan with a slightly higher interest rate. Financing options and products such as “no fee, no point” loans depend on the feasibility of the YSP to compensate the loan officer for their services; in turn, the borrower does not have to pay this cost out of pocket at closing, allowing them to purchase a home with less money down.

There is also the possibility of adding the amount of closing fees to the principal balance of homeowner's mortgage loan. However this approach may not be available if the borrower's loan-to-value ratio has already reached the maximum permitted by the lender. YSPs may also be a favorable financing option for borrowers that expect to refinance or move in the near term. For these individuals, the disadvantage of a slightly higher contract rate (and hence slightly higher monthly payment), is far outweighed by the sharp reduction in up-front closing costs; obviously this benefit is greater for very short-term loans, or buyers who move or refinance every few years.

YSPs are not necessarily used in all cases to lower the borrower's up-front closing costs. Some brokers (or lenders) who have been compensated by reasonable loan origination fees and other direct payments also receive the YSP is paid *in addition to* the borrower-paid origination fee.¹³ Many borrowers do not consent to or even realize they are paying a YSP via a higher contract rate of interest. Even though RESPA requires disclosure of all compensation paid to lenders and mortgage brokers *as part of the settlement transaction* the manner in which the YSP is disclosed is obscure. While direct compensation (*e.g.* processing fees, origination fees, discount points, *etc.*) is included in the GFE and HUD-1 with the borrower's total settlement costs, the YSP is shown in the *margin* and denoted P.O.C. (paid out of closing), and is *not* added in the borrower's total settlement costs. This notation system is easily missed, or misunderstood by many borrowers.

To further complicate matters, RESPA does *not* require disclosure of fees paid in *secondary market transactions*. Mortgage bankers, credit unions and thrifts, as well as mortgage brokers that fund loans with their own funds or use a warehouse line of credit, are not required to disclose compensation they might receive from the *subsequent sale* of mortgage loans in the secondary market.¹⁴ This markup is considered part of the lenders internal record-keeping, leaving a substantial segment of the mortgage industry under no obligation to disclose YSPs at all.

Most mortgage buyers need to understand that the best protection against unknowing paying a YSP is to ask for the wholesale rate sheet. Once the consumer has this information, it is still up to the consumer to ask how the YSP will be distributed and why. Even though many brokers will argue that information is proprietary, there are more than enough lending professionals that are willing to share this information that consumers should shop for a broker that is willing to be upfront with their fees.¹⁵

IV. CONCLUSIONS

In a review of six undergraduate real estate textbooks, we found coverage of the YSP completely omitted; with only two textbooks discussing the impact of paying points on the effective yield calculation. This paper examined the mathematics underlying the decision to both pay and to receive points (*e.g.* YSP). In both point scenarios, the traditional calculation of the effective yield was compared to a break-even or discounted payback period that may provide more useable information to the average consumer.

Most mortgages are refinanced or are paid off early for a variety of reasons, but usually never held until maturity. Rather than contract for an adjustable rate mortgage (ARM), if a mortgagor believes that there is a strong possibility that such a refinancing may happen, it may be advantageous to accept negative points, especially if the borrower would use them to pay for closing costs. While the effective yield analysis may be better suited for comparing different

mortgages, the breakeven analysis provides a means for evaluating the time-horizon where upon the consumer would be best served—an analysis that can be done independently of any other mortgage. This can be extremely helpful to the consumer as most borrowers are not even aware of the concept of the YSP and how the break-even point can be calculated. Finally, continual exposure about the YSP and how it works is an important aspect that most real estate books do not discuss. Given the magnitude of the dollars involved in mortgage lending, it is imperative that consumers receive as much information as possible about this misunderstood concept.¹⁶

APPENDIX A—Effective Yield with a Holding Period less than Maturity

Assume that the holding period will be 10 years. As before, we have the following

- ❶ a 30-year mortgage at 5 ¼ % + 1 ¼ discount points. (with a 30 day lock)
- ❷ a 30-year mortgage at 5 3/8 % + 5/8 discount points. (with a 30 day lock)
- ❸ a 30-year mortgage at 5 ½ % + 0 discount points. (with a 30 day lock)

Step 1 Determine the up-front amount the consumer will be paying.

- ❶ .0125 * \$280,000 = \$3,500
- ❷ .00625 * \$280,000 = \$1,750
- ❸ 0 * \$280,000 = \$0

Step 2 Determine the monthly interest and principle payment for each financing plan

- | | | |
|-----------------------|------------------------|-----------------------|
| ❶ PV = \$280,000 | ❷ PV = \$280,000 | ❸ PV = \$280,000 |
| N = 30*12 = 360 | N = 30*12 = 360 | N = 30*12 = 360 |
| I = 5.25%/12 = .4375% | I = 5.375%/12 = .4792% | I = 5.50%/12 = .4583% |
| PMT = \$1,546.17 | PMT = \$1,567.92 | PMT = \$1,589.81 |

Step 3 Determine the amount of the present value received.

- ❶ \$280,000 - \$3,500 = \$276,500
- ❷ \$280,000 - \$1,750 = \$278,250
- ❸ \$280,000 - \$0 = \$280,000

Step 4 Calculate the loan balance due at the end of 10 years (the present value of the remaining payments). This means that you use the months left on the loan at the end of twenty years.

①	$PMT = \$1,546.17$	②	$PMT = \$1,567.92$	③	$PMT = \$1,589.81$
	$N = 20 * 12 = 240$		$N = 20 * 12 = 240$		$N = 20 * 12 = 240$
	$I = 5.25\% / 12 = .4375\%$		$I = 5.375\% / 12 = .4792\%$		$I = 5.50\% / 12 = .4583\%$
	$PV = \$229,455.13$		$PV = \$230,289.79$		$PV = \$231,114.89$

Step 5

Calculate the effective yield by using the present value received in Step 3, along with the reduced monthly payments.

❶	PV = \$276,500	❷	PV = \$278,250	❸	PV = \$280,000
	PMT = (\$1,546.17)		PMT = (\$1,592.92)		PMT = (\$1,589.81)
	N = 120		N = 120		N = 120
	FV = (\$229,455.13)		FV = (\$230,289.79)		FV = (\$231,114.89)
	I = .4525*12 = 5.43%		I = .4648*12 = 5.58%		I = .4583*12 = 5.50%

Notice the spread between the two alternatives is much closer, *i.e.* 5.43% as compared to 5.58%, a difference of 15 basis points, as compared to the example in the text that produced 5.36% and 5.57%, a difference of 19 basis points.

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ENDNOTES

¹ In addition to Miller & Geltner and Ling & Archer, *supra*, the other text books consulted include, Terrence Clauretie and G. Sirmans, *Real Estate Finance, Theory and Practice*, 5ed., 2006; Geltner & Miller, *Commercial Real Estate Analysis and Investments*, 2001; Charles Jacobus, *Real Estate Principles*, 10th ed., 2006; John P. Wiedemer & Joseph Goeters, *Real Estate Investment*, 6th ed., 2003.

² See Mukherji [2005] for an example of a spreadsheet analysis.

³ FNMA stands for Federal National Mortgage Association (“Fannie Mae”), and FHLMC refers to Federal Home Loan Mortgage Corporation (“Freddie Mac”).

⁴ “15 Day” refers to the lock period.

⁵ See Miller & Geltner, *supra*, p. 390, for further explanation, especially with regard to an analysis that considers a term less than maturity.

⁶ For an in-depth analysis of how the assumed holding period affects the APR, see McClatchey and de la Torre [2006]. To see what the effective yield would be with a 10-year holding period, please refer to Appendix A. Notice the spread between the two alternatives is much closer, *i.e.* 5.43% as compared to 5.58%, a difference of 15 basis points, as compared to above, 5.36% and 5.57%, a difference of 19 basis points.

⁷ At times the yield spread premium can be referred to as “back-funded payments,” or “servicing release premiums.”

⁸ While the break-even point can provide good information to the consumer, if the anticipated holding period is less than both break-even points, *i.e.* 65 or 71 months, then the analysis would have to be redone with the shorter period in mind. In fact the authors would recommend that in scenarios that are close in results, both the effective yield to an anticipated time horizon, and a break-even analysis be done.

⁹ Much like the discussion of proper analysis with capital budgeting projects, textbooks usually laud the use of net present value, while deriding the use of the payback method. However, the payback method is still widely used even though it has a number of shortcomings. Practitioners realize that understanding in broad terms whether a project is acceptable is a valuable piece of information. Likewise, understanding how long it will take to payback an investment in a mortgage is also a valuable piece of information.

¹⁰ Lenders specialize in different types of loans to certain borrower types; a retail mortgage broker is able to shop multiple lenders for the best rate/fee combination specific to each client enabling them to perform the function more efficiently in many cases.

¹¹ These types of fees are typically paid directly by the borrower at settlement, and appear on the Good Faith Estimate (GFE) and Housing and Urban Development (HUD-1) Settlement Statement.

¹² The difference would be paid as a lump sum at the time of closing; that is, the lender would pay the broker all, or a portion of, the additional interest the lender will receive over the life of the loan, in present value terms.

¹³ If interest rates decline during the period between the initial price quote to the borrower and the lock date and the borrower is not aware of it, the broker can keep the loan at the same quoted rate, and retain the YSP as extra income. See Dr. Jack Guttentag’s website, Mtgprofessor.com for more information, and specifically the following entries of 10/3/01 and 4/22/02.

¹⁴ In these transactions, the loan originator and lender is outside of RESPA’s coverage under the secondary market exceptions found at 24 CFR 3500.5(b)(7), which states that payments to and from other loan sources following settlement are exempt from disclosure requirements and Section 8 restrictions.

¹⁵ Dr. Jack Guttentag's website, Mtgprofessor.com, also discusses the concept of an Upfront Mortgage Broker™ that is a voluntary program whereby an affiliated broker works with the credo of openly discussing the compensation model in full detail with the consumer, including the use of the YSP.

¹⁶ *See* de la Torre and McClatchey [2006] for an in-depth look at the regulation surrounding the average mortgage transaction, along with a discussion on the regulation of the YSP.