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Statement of integrity: By typing the names of all group members in the text boxes below, you confirm that the assignment submitted is original work produced by the group (excluding any non-contributing members identified with an "X" above).	
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Introduction

A mortgage is the most accessible and common source of raising capital in today's market space. It helps all kinds of customers ranging from a working class individual to large Multinational Corporations(MNCs) in raising much needed capital to fulfill their respective interests. Through this project we aim to study the characteristics of this financial product while aiming to identify its ideal "Target Customer Base" based on the customer"s easily identifiable characteristics.

Two Basic types of Mortgages

1. **Fixed Rate Mortgages-** is characterized by its mortgage rate being fixed. It is very well structured and gives the borrower certainty with respect to the amount of payment to be paid and when it has to be paid.(1)

2. **Adjusted Rate Mortgages-** is characterized by its mortgage rate being variable based on one or the other financial indicator.. This class of mortgages is also quite well structured (theoretically, it can also be customized to the customers needs/financial situation) but has variable payment schedules due to the changing interest rates. This allows for the possibility of gaining from the 'Refinancing' opportunity if you think that the adjustable mortgage rate will be going further up. In that case, you can refinance this mortgage at a slightly higher but fixed mortgage rate hence limiting the borrower's liability to increasing mortgage rates. For example, in the case of 7-1 ARM, the borrower should look for this opportunity once the first 7 years of low payment are up and the borrower see the adjusted mortgage rate rising in the near future.(2) In our case of ARM 7-1, we took the initial 7 years mortgage rate as 3% (lower than in the case of mortgage 1) and then the mortgage rate will adjust on the basis of the maxima mortgage rate from the preceding year ensuring maximum gain for the lender.(Refer to the reference sheet for the table with yearly maxima of 30 year US mortgage rates)

Basic nature of "Mortgage Rate"

The "Mortgage rate" represents the lowest interest rate at which a lender is willing to part with his capital. This 'Mortgage Rate" (3)constitutes of the following:

1. **Risk free rate -** represents the safest return on investment, mostly associated with government bonds.

2. **Inflation premium -** is associated with the prevalent inflation in the economy. This ensures that the lender's capital doesn't depreciate in value. Higher the inflation rate, higher would be this premium.

3. **Default risk premium -** is associated with the reliability of the borrower. It is mostly based on the borrower's past financial history and credit score. Lower the Credit score of the borrower, higher would be this premium.

4. **Liquidity premium -** is to compensate the lender for forgoing their current liquidity. Higher the amount borrowed, higher would be this premium.

5. **Maturity premium -** is to compensate the lender for the amount of time they are forgoing their capital for, especially in long term mortgages.

Comparison between Mortgages *(based on the discussed properties of 'Mortgage Rate')

	Fixed Rate - 4% Term - 30 years	Fixed Rate - 2.5% Term - 20 years	7-1 Adjustable Mortgage Rate (ARM)
Principal	$ 1 Million	$ 1 Million	$ 1 Million
Installment Amount	$ 4,774.15 [Fixed]	$ 5,299.03 [Fixed]	$ 4,216.04 - $ 6,298.33 [Variable]
Total Interest Paid	$ 0.72 Million	$ 0.27 Million	$ 1.25 Million
Holding Period for the Asset	Long [Fixed Interest Period 30 years]	Medium [Fixed Interest Period 20 years]	Short [Fixed Interest Period 7 years]
Risk of debtor	Low	Moderate	High
Income Growth of debtor (Expected)	Low	Moderate	High

a) **Between the two FRMs**

As we can see, the first four premiums will be the same for both cases. Only the 'Maturity premium' will differ for the two mortgages as they both have different terms of maturity. So, the one with a higher term will have a higher 'Mortgage rate', as evidenced in the above case. The shorter term in this case would imply faster payment of the principal and an overall less aggregated interest payment. Whereas a 30 year mortgage may lead to higher aggregate interest payout but it involves lower individual payments due to the principal being spread out over the larger number of years.

Ideal Customer for 30 years FRM- A couple or a family, with very stable but barely sufficient income, investing in buying a home with an aim to settle down in the very home itself. This mortgage would allow them to plan their day to day expenditures better due to more numerous but smaller in amount mortgage payments.

Ideal Customer for 20 years FRM- would be a well off family or medium scale business which would want to save on higher aggregate interest payment by paying out the principal 10 years earlier. For example: A recently married couple, financially quite stable, investing in a home would like to be done with paying mortgage payment as early as possible so as to move on with other investments.

b) Between 30 year FRM and 30 year 7-1 ARM

Due to the flexibility offered by the ARMs they generally have higher aggregate interest payment but this also helps with restructuring the payment schedule, making it highly customizable.

Ideal Customer for 30 years ARM- would be a newly employed individual at the start of his career with not much Capital but great future prospects. Then this 7-1 ARM allows this individual to pay less in the early years while he's still growing in his field and pay more later when he/she is well settled in their profession. This individual could also gain from refinancing this ARM into a FRm if he believes that the variable mortgage rate will increase with time.

References

1. https://www.mortgagecalculator.org/calcs/7-1-arm.php#
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3. https://corporatefinanceinstitute.com/resources/fixed-income/default-risk-premium/
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