Real Estate
... getting involved

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Nominal Justification
.. a summary

1. A high-yield investment
2. Ultimate hedge against inflation
3. Retirement planning
4. Tax considerations
5. Candide! (Grow your own garden)
Leverage and the tax advantage ...

Leverage will equal the inverse of the percentage of the down payment on a real estate purchase: \( L = \frac{1}{(\% \text{ down})} \)

Example: 20% down, \( L = \frac{1}{0.20} = 5 \), so if the house rises in value 10\%, your \textit{rate of return on investment} is 50\%.

$50,000 down on $250,000 ($200,000 loan). House rises 10\% to $275,000, your equity rises 50\% to $75,000.

Tax advantage: The interest payment on your loan and the property taxes you pay are deductible from your taxable income, federal and state, which will lower your taxes considerably and implicitly reduce your net payment for you home by 20\% or more.
The general tendency for real estate prices to rise explained by demographics

Suppplied constrained by land/water availability, regulation, etc.

Demand driven by demographics

... in high-growth states at least.
The Median and Average Prices for New Homes, U.S. all regions, 1963-2012

Even if not leveraged, this is a strong investment return, except for the tail end. If leveraged...

5.22% compounded annual percentage growth rate (ln) (median) *unleveraged*!

Components of a Monthly Payment
.. example for $120,000 30-year FRM

1. Interest
   √ $950
2. Principle Reduction
   √ $50

3. Property Taxes
   √ $120
4. Insurance
   √ $120

Impounds:

Values shown in red are tax deductible from both federal and state income taxes, in that they reduce your taxable income on Schedule D. This reduces the effective monthly payment by a percent equal to your marginal tax bracket (more or less).
## Fundamental Steps in Buying a Home

.. go right down the list

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1.   | Figure out the monthly payment that you can afford  
|      |   • based upon qualification criteria (later)  
| 2.   | Figure out the kind of loan that you would like and shop for rates  
|      |   • based in part upon your planned down payment  
| 3.   | Given 1 and 2, figure out the upper limit of the price range that you can afford.  
| 4.   | Decide between used or new after comparing both.  
| 5.   | Find the home.  
| 6.   | Find the lender (if not done in step 2).  
| 7.   | Find the escrow agent (often done for you).  
| 8.   | Shop for home insurance (highly variable).  

Financing the Dream
Real Estate Loans
Terms (reading)

.. real estate argot

- PMI
- Trust deed (1\textsuperscript{st} and 2\textsuperscript{nd})
- Equity
- Home equity loan
- Refinance
- Points
- Impounds
- Balloon payment
- APR
- ... and all types of loans
The old standards ... now they are back!!

Qualifying for Traditional Loans
.. documents needed & conditions

1. IRS 1040s (2 to 3 years)
2. Credit records (should be impeccable, target 750)
3. Balances for all financial accounts (although they can get this from the credit report)
4. List of all debts (also from the credit report)
5. Formal documentation of employment (like to see 2 to 3 years and they will check).
# Qualifying

## Down payment:
- 1%-2%
  - First time
- 5%
  - VA/FHA
- 10%
  - Buy-down and special qualifier loans, typically variable rate
- 20%
  - Conventional

## Income required:
This is a conservative standard and a rough rule of thumb, but loan payment should not take more than 30% to 35% of your net (after-tax) income and no more than 40% of your net income after debt service.

General advice: Before buying a house, keep debt to a minimum. Student loan debt can be a big negative.
Relaxed standards in recent years

In the real estate boom of the early 2000s, especially in 2004 through 2007, real estate lending standards essentially collapsed. Brokers found ways to qualify just about anyone for a home with teaser ARMs that had low initial starting rates and payments were for interest only … principle reduction kicked in after 3,5, or 7 years (typically). Additionally, you could qualify for these loans with no money down!!

What's the potential problem? With no money down the owner has no initial equity in the house at all. Many of these borrowers just qualified under these terms and can barely make their current house payment. They face the prospect of rising interest rates and reaching the trigger point where principle reduction kicks in, and unless prices have escalated so they can refinance, many will be in serious financial trouble.

In 2006, in addition to all of this above, lenders began to accept loan applications with no income documentation and they did not even do spot checks to seek evidence of fraud, which was widespread.
Wells Fargo loan rates December 3, 2013
$200,000 loan, zip code 91739, home purchase

<table>
<thead>
<tr>
<th>Product</th>
<th>Interest Rate</th>
<th>APR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conforming and FHA Loans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-Year Fixed</td>
<td>4.500%</td>
<td>4.673%</td>
</tr>
<tr>
<td>30-Year Fixed FHA</td>
<td>4.250%</td>
<td>5.936%</td>
</tr>
<tr>
<td>15-Year Fixed</td>
<td>3.500%</td>
<td>3.795%</td>
</tr>
<tr>
<td>5-Year ARM</td>
<td>3.000%</td>
<td>3.076%</td>
</tr>
<tr>
<td>5-Year ARM FHA</td>
<td>2.875%</td>
<td>3.888%</td>
</tr>
<tr>
<td><strong>Larger Loan Amounts in Eligible Areas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-Year Fixed</td>
<td>4.625%</td>
<td>4.755%</td>
</tr>
<tr>
<td>30-Year Fixed FHA</td>
<td>4.250%</td>
<td>5.887%</td>
</tr>
<tr>
<td>5-Year ARM</td>
<td>3.250%</td>
<td>3.124%</td>
</tr>
<tr>
<td><strong>Jumbo Loans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-Year Fixed</td>
<td>4.125%</td>
<td>4.237%</td>
</tr>
<tr>
<td>5-Year ARM</td>
<td>2.375%</td>
<td>2.808%</td>
</tr>
</tbody>
</table>

**Note:** These are one-point loan rates.
Rock-bottom rates in 2012

5/1 ARM

Our 5/1 adjustable-rate mortgage (ARM) has a starting interest rate that is fixed for the first five years, and then adjusts up or down on a yearly basis following this period. Choosing an ARM normally provides a lower interest rate than a fixed-rate mortgage at the beginning of the loan, which means initial monthly payments will be lower.

Features
- Fixed payment for the first five years (payment may increase after this period)
- 45-day rate lock
- Low lifetime cap
- No negative amortization
- No prepayment penalty
- No private mortgage insurance (PMI) option

from the SchoolsFirst site, November 27, 2012
30-year fixed rate
... the safe bet

- **Features**
  The interest rate and payment are fixed nominally for 30 years.

- **Advantage**
  No uncertainty, payments fixed, wonderful during inflations, great tax advantage.

- **Disadvantage**
  Rates a little higher than other options, often hard to get with less than 20% down.
15-year fixed rate (or 10 or 20) ... building equity quick

<table>
<thead>
<tr>
<th>Features</th>
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<tbody>
<tr>
<td>The interest rate and payment are fixed nominally for 15 (or 10 or 20) years.</td>
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<table>
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<tr>
<th>Advantage</th>
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<tr>
<td>Rates lower than 30-year FRM, equity accumulates faster, sometimes wiser for retirement planning</td>
</tr>
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</table>

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<tbody>
<tr>
<td>Monthly payments about 18% to 20% higher than 30-year FRM, but each year offers less of a tax break (amount going to interest is lower, to principal reduction is higher).</td>
</tr>
</tbody>
</table>
80-10-10 and similar FRM
... less cash down, avoid PMI

<table>
<thead>
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<th>Features</th>
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<tr>
<td>✓ Conventional 30-year or 15-year FRM for 80% of loan value.</td>
</tr>
<tr>
<td>✓ 10% down</td>
</tr>
<tr>
<td>✓ 10% financed on 2nd mortgage at higher interest</td>
</tr>
<tr>
<td>✓ also 80-15-5 etc.</td>
</tr>
</tbody>
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<table>
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<tr>
<td>Lower down payment and no PMI.</td>
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<th>Disadvantage</th>
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<tr>
<td>2nd mortgage at higher rate, fairly high monthly payment.</td>
</tr>
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</table>
5/25s and 7/23s
... often used for 2nds

- **Features**
  Amortized as though a 30-year FRM (same payment) but loan expires in 5 or 7 years with *ballon payment* (which implies refinancing then) of balanced with 90% of principal still owed.

- **Advantage**
  Offered at low rates (they are short-term loans) and OK if you think you will be selling your house (or will be able to refinance if a 2nd mortgage).

- **Disadvantage**
  You have to sell or refinance in a few years and you don’t know what the market will be like then.
30-year /15 year ARMs
... adjustable rate mortgages

- **Features**

  Variable rates, often adjusted periodically (i.e. once a year) to some designated interest rate measure, like the “11th district cost of funds,” often with caps, teasers (*with prepayment penalties*), and buydowns.

- **Advantage**

  Rates often low, easier to get, typically have low or no down payment.

- **Disadvantage**

  You bear all inflation and interest risk, loans are hard to understand, often have hidden risks and charges.
More Loan Jargon (from ARMs)

- **Cap** - The highest level that the interest rate can go on an ARM.

- **Teaser** - A below-market interest rate offered on an ARM (typically) in order to attract the borrower and qualify the borrower for the loan; always connected to an early payback penalty. The teaser rate, which may be as low as 1%, will last from a few months to a couple of years, after which the loan reverts to market or above-market adjustable rates, either in step adjustments (staircase) or in one adjustment.

- **Staircase** - (See above) multiple steps from a teaser rate to a full rate

- **Buydown** - A subsidy by a home-builder for the first few months of a loan.
Negative Amortization
... staircase loans

➢ **Purpose**

*Easier qualifying*, makes earlier years easier, but deceptively so – this were a big part of the mortgage meltdown.

➢ **Features**

Payments in the first few (i.e. 5) years so low that they don’t even cover interest obligation. Deficiency is added to principal each month so loan balance grows. Then payments begin to increase (the staircase) until principle reduction is achieved, then payment is fixed for duration of loan at a variable or fixed rate, whatever the contract specifies. These loans have huge *early payment penalties.*
Subprime Loans

Subprime loans earned many headlines in early 2007 because of their soaring default rates. Subprime loans are loans that require virtually no documentation from the borrower - no income verification or other qualifying documentation listed on our earlier slide. These loans are almost always marketed with very low teaser rates that either step up to above market variable rates or to market rates after negative amortization. The teaser subprime loan will always have an expensive cashout penalty for the first few years (because the lenders are not stupid). Subprime loans are largely financed by mortgage pools and sold to buyers who otherwise would not qualify for a loan. In became clear in early 2007 than many truly unqualified borrowers and speculators had borrowed with subprime loans and, because real estate appreciation had stopped, they were unable to meet monthly payments when the loans stepped up. This guaranteed sizeable default and foreclosure rates beginning in 2007 and continuing to the present (Winter 2010).
Leverage: continuous investment rate of return on owner-occupied real estate

\[
\ln\left(\frac{DP + (PV - PP)}{DP}\right)\left(\frac{1}{t}\right) = r
\]

where

- **DP**: down payment
- **PV**: present value
- **PP**: purchase price
- **t**: time in years

\[
\ln\left(\frac{40 + (154 - 140)}{40}\right)\left(\frac{1}{3}\right) = 10\%
\]

example

Three years ago you paid $40K down to buy a house for $140K that is now worth $154K. Your compounded yield is 10%...

... of course this works in **both** directions.
Formula for the monthly payment of a fixed rate mortgage (FRM)

Derived from summing a geometric series:

\[ MP = \left[ LP \left( 1 + \frac{r}{12} \right)^n \left( \frac{r}{12} \right) \right] \frac{n}{\left( 1 + \frac{r}{12} \right)^n - 1} \]

where \( MP \) is the monthly payment, \( LP \) is the loan principle, \( r \) is the loan rate, and \( n \) is the number of payments.

Example of a $100,000 30yr FRM financed at 7% … Note!!
you must convert annual rate to monthly: \( .07/12 = .00583 \)

Note: With an ARM, this is simply recalculated every time the rate changes given the number of payments remaining.
Payment Composition
(30 year FRM, $665 per month)
...shown a different way
Formula for calculating the maximum loan value that you can afford

\[ MMV = MP \left[ \frac{12}{r} - \frac{12}{\left(1 + \frac{r}{12}\right)^n} \right] \]

\[ $100,000 = 655 \left[ \frac{12}{0.07} - \frac{12}{\left(1 + \frac{0.07}{12}\right)^{360} \times 0.07} \right] \]

down payment, the maximum home value is $125,000. If calculated using a percentage down (PD), then

\[ MHV = \frac{MMV}{1 - PD} = 125K = \frac{100K}{1 - 0.2} \]

Two things to remember:

1. The monthly payment should be no greater than 30% to 35% of your income.
2. Here you are calculating the maximum mortgage value (MMV), not the maximum home value (MHV). Take into account the down payment. So if you have $25,000 for a down payment, the maximum home value is $125,000. If calculated using a percentage down (PD), then
Using the mortgage calc ... 

**Part 1 – What will my payment be?**

- Principal: 250,000.00
- Points: 2.0
- Point Value: 5,000.00
- Loan Amount: 255,000.00
- Term (yrs): 30
- Rate: 5.000%
- Payment: 1,368.90

**Part 2 – Can you afford this?**

- Max Monthly: 1,600.00
- Desired term: 30
- Rate (%): 5.000%
- Max Loan: 298,051
- Points (%): 2.0
- UnAdj Max Loan: 292,206
- Net Max Loan Balance: 292,206
- Down Payment %: 10
- Max Home Value: 324,674
- Memo Down Payment: 32,467

\[ MP = \left[ LP \frac{\left(1 + \frac{r}{12}\right)^n \left(\frac{r}{12}\right)}{\left(1 + \frac{r}{12}\right)^n - 1}\right] \]