Rosetree

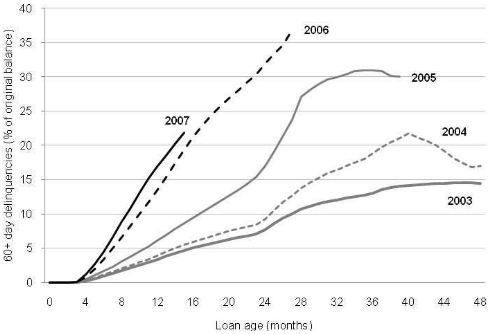
FINC-460 Investments

Kellogg School of Management

Introduction

- Rosetree needs to evaluate an investment opportunity:
- Mortgage loan portfolio with $65m face value.
  - ↪ Moderate credit quality: average FICO score of 679 versus
    - U.S. median: 723
    - average FICO for borrowers in 2006 is only 625
  - ↪ First lien loans
    - 89% of the properties are owner occupied
    - 59% of loans are original home purchases
  - ↪ No loans in default, 13 loans are 30-day delinquent
  - ↪ Only 50/175 loans in the portfolio have full documentation
  - ↪ Many of the loans were originated in early 2007

Origination year and delinquency



- Many of the loans were originated in early 2007 when credit standards were particularly low and delinquency rates exceeded those of other vintages
- See IMF, Global Financial Stability Report, October 2008, http://www.imf.org/external/pubs/ft/gfsr/2008/ 02/index.htm

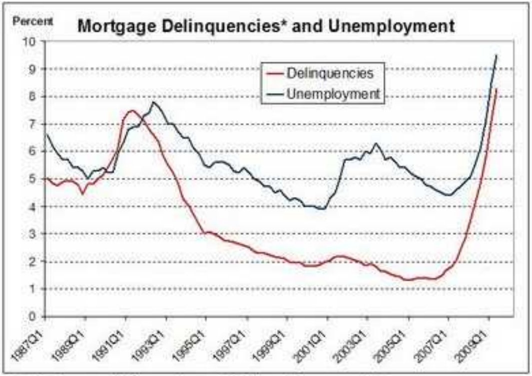
Valuing the mortgage portfolio

- To value the loan portfolio, we need to discount the expected cashflows at the 'appropriate' discount rate
- Cashflows from the portfolio are:
  - ↪ Principal repayment
  - ↪ Interest
  - ↪ Liquidation proceeds
- What are the risks affecting each component of cashflows?
  - ↪ Delinquencies and liquidation proceeds correlate with the state of the economy
  - ↪ Compare to the 1980's were most risk was due to prepayment (interest rate risk)
- Rosetree's analyst team provided cashflow forecasts under three scenarios...

Three economic scenarios

- Slow Recovery Scenario:
  - ↪ Subprime and Jumbo borrowers continue to face difficulty obtaining credit
  - ↪ Housing prices see a peak to trough decline of 19% (additional 10% decline)
  - ↪ For all of 2008 real GDP is 1.3%
  - ↪ Unemployment peaks at about 6.0%
  - ↪ Growth is 2.9% in 2009
- Moderate recession scenario:
  - ↪ Deterioration in credit quality extends to prime mortgages
  - ↪ Credit to the mortgage market dries up and there is a large housing crash
  - ↪ Housing prices see a peak to trough decline of 25% before turning around in late 2009 (additional 16% decline)
  - ↪ For all of 2008 real GDP is 1.0%
  - ↪ Unemployment peaks at about 7.5% in late 2009
- Severe recession scenario:
  - ↪ Deterioration in the mortgage market spreads to other markets, and the availability of all credit dries up
  - ↪ Housing prices see a peak to trough decline of 35% to 40%, and markets do not stabilize until the middle of 2010 (additional 31% decline)
  - ↪ Real GDP is negative in 2008
  - ↪ Unemployment peaks at 9% in 2010

Mortgage delinquencies and unemployment



** Mortgages delinquent over 30 days at commercial banks*

- Subprime delinquency rates correlate with unemployment

Loan modification

- Rosetree believes it can add value through loan modification
  - ↪ principal forgiveness
  - ↪ lowering the interest rate
  - ↪ restructuring a mortgage into senior and junior components where the senior component could be resold in the secondary market.
- How does loan modification create value for lenders?
  - ↪ modifications change borrower behavior: with a more affordable mortgage, homeowners are less likely to “walk away” given their strong preference to remain in their homes.
  - ↪ deadweight costs of financial distress and foreclosure are substantial, and loan modifications lower probability that these costs will be incurred.
  - ↪ positive externalities from loan restructuring: foreclosures often lead to property damage which can negatively affect the value of the surrounding homes.
- Why doesn’t the current lender not directly negotiate modifications with its borrowers?

The environment

- Rosetree is an advantageous position relative to other players
  - ↪ In mid 2008, U.S. banks have $13.3 trillion of assets
  - ↪ $3.9 trillion is in whole residential mortgage loans.
  - ↪ Equity capital is $1.3 trillion, hence banks are leveraged 10:1.
  - ↪ What would happen if banks incurred $500 billion losses?
- Purchasers of loans require considerable capital as well as expertise in valuation and the capability to service loans

Valuation

	1995-2007	2005-2007	
		I	II
Mean Asset Beta	0.18	0.63	0.63
Risk-Free Rate	3.3%	3.3%	3.3%
Equity Risk Premium	5%	5%	10%
Discount Rate	4.20%	6.47%	9.65%

- Let's use the average market beta of REITs to calculate the market beta of the loan portfolio
- For the equity premium, use historical mean of 5%
- Should we use a higher equity premium?

Valuation

Economic Scenario:	Discount Rate				
	4%	6%	10%	15%	20%
Slow Economic Growth	56,175	51,422	43,856	36,900	31,748
Moderate Recession	56,042	51,115	43,332	36,245	31,040
Severe Recession	43,978	41,005	36,048	31,215	27,441
— (with Renegotiation)	53,616	48,889	41,430	34,649	29,676

- Rosetree analysts put no probabilities on each of the three scenarios. So we computed the value of the portfolio, conditional on each scenario
- Given our beliefs about the relative likelihood of each outcome, we could take a weighted average