# Aligning Incentives

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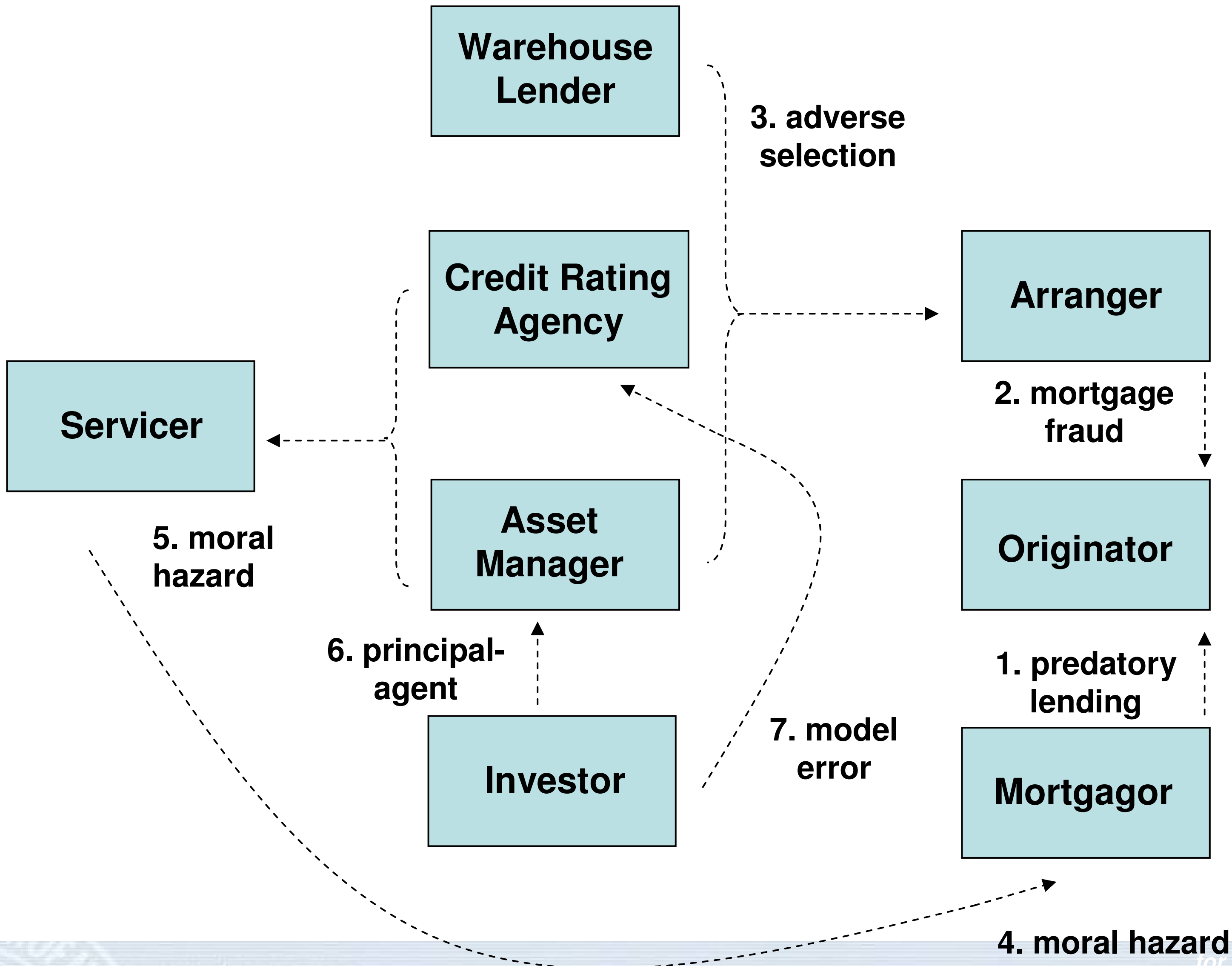
## The seven deadly frictions



# Friction #1: Predatory Lending

- Defined as the welfare-reducing provision of credit
- Results in “too much” lending
- Borrowers, especially those with bad credit, can be financially unsophisticated
- Some borrowers don't know best price, or can't make the right given the best prices
- Lenders (or brokers as their agents) can take advantage of this
- % of subprime mortgage with strong optionality*:

  2000 (2007): 0.1% (36.8%)

**Resolution:** state and federal anti-predatory lending laws, consumer protection regulation

# Steering Prime Borrowers to Subprime Loans

- **Ernst, Bocian, and Li (2008): "Steered Wrong: Brokers, Borrowers, and Subprime Loans"**
- Study 1.7 million mortgages produced between 2004 to 2006
- Use matched sample methods, comparing brokered and retail originations
- Note between 63 and 81 percent were brokered in 2006
- Conclude that brokered loans cost more (130 bps), and that the effect larger for subprime
- Recommend: ban YSP and prepayment penalties for subprime loans, hold lenders and investors accountable for broker behavior, establish clear broker duties to clients
- **Caveat:** YSP can be used to fund closing costs

# Prepayment Penalties Benefit Borrowers

**Mayer et al (2007): "The Inefficiency of Refinancing: Why Prepayment Penalties are Good for Risky Borrowers"**

Borrowers with prepayment penalties obtain rates that are as much as 0.8% lower than similar borrowers with fully prepayable mortgages, with the largest reductions going to the riskiest borrowers.

Controlling for ex-ante risk, borrowers with prepayment penalties default at a much lower rate.

Risky borrowers without prepayment penalties are much more likely to repay their mortgage in response to a positive shock to house prices than other borrowers, explaining why lenders charge a premium for these borrowers.

# The Case of Payday Lending

- **CRL (2006): Financial Quicksand: Payday lending sinks borrowers in debt...**

Ninety percent (90%) of payday lending revenues are based on fees stripped from trapped borrowers, virtually unchanged from our 2003 findings. The typical payday borrower pays back $793 for a $325 loan.

- **Morse (2007): "Payday Lenders: Heroes or Villians?"**

Communities with payday lenders show greater resilience to natural disasters: foreclosues, births, deaths, alcohol and drug treatment

- **Morgan (2006): "Defining and Detecting Predatory Lending"**

Borrowers in states that permit more payday lending are less likely to be denied credit generally and have lower delinquencies

# ...but current problems are larger than predation

**Subprime loan performance remains horrific and is not improving despite massive rate cuts (which offset hybrid ARM resets)**

"the percentage of loans facing reset in the 3rd Quarter of 2009 that are currently delinquent jumped from 21.4% to 28.5%. While delinquency rates increase during the early life of a loan pool, this worsening trend confirms our initial assessment that very weak underwriting and mortgage origination fraud, and not simply payment resets, has been the primary cause for elevated subprime loan delinquencies for loans originated through at least the middle of 2007."

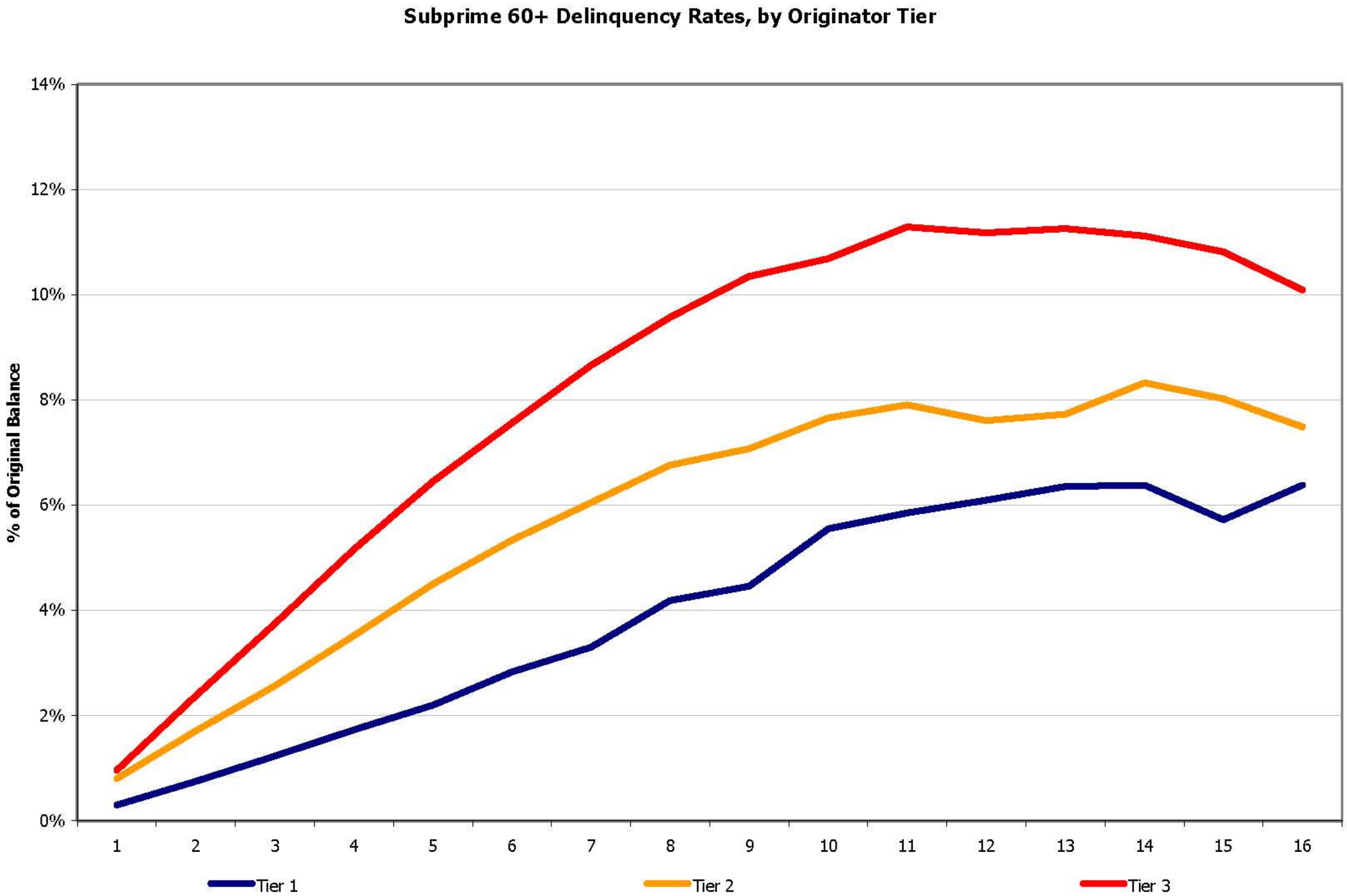
State Foreclosure Prevention Working Group, April 2008

# Friction #2: Predatory Borrowing

- The originator has an informational advantage over the arranger with regard to the quality of the borrower
- Originator and borrower can collaborate to overstate income, misrepresent occupancy, hide other details
- Fast home price appreciation (HPA) increases returns to speculation, criminal activity, reduces the cost of fraud to lenders

**Resolution:** due diligence of arranger, representation & warranties of originator, capital and other business lines of originator

# Performance by Tier



# Evidence from Early Payment Defaults

- **Fitch (2007): "The Impact of Poor Underwriting Practices and Fraud in Subprime RMBS Performance"**

Identified 45 early payment defaults from 2006 and studied the loan files, finding evidence of widespread:

occupancy misrepresentation

suspicious items on credit reports

incorrect calculation of debt-to-income ratios

poor underwriting of stated income for reasonability

first-time homebuyers with questionable credit and income

# Cash-back Financing

- **Ben-David (2008): "Manipulation of Collateral Values by Borrowers and Intermediaries"**

Document that highly leveraged borrowers more likely to

- buy a property which signals willingness of seller to give cash back
- pay full listing price or more
- to default

but pay the same interest rate, implying investors did not price this behavior

# Lax Screening

- **Seru et al. (2008): "Did Securitization Lead to Lax Screening? Evidence from Subprime Loans?"**

The authors document that securitized loans with FICO scores above 620 default more frequently than securitized loans with scores just below 620, but only for low documentation loans

# Final Thoughts on Predatory Borrowing

- Investors need to ensure that someone is monitoring originator underwriting practices
- It is costly (and subject to free-rider problems) for investors to do this themselves
- It would be natural for the rating agencies to formally rate originators in the same fashion they do for servicers, acknowledging the impact that the originator risk factor has on the mortgage pool loss distribution
- This rating presumably would not only involve audits of loan pools, but would impose capital requirements on originators so reps and warranties have value
- However, this could be done by any credible third party

# Friction #3: Adverse selection

- Arranger has an informational advantage with regard to the quality of the mortgage loans vis-a-vis the warehouse lender and the investor
- This friction makes secured funding costly and fragile, and can severely limit the ability of the arranger to warehouse and securitize the loans in times of stress
- **Resolution:** due diligence of investor and lender; arranger reputation; credit spreads; funded o/c; ratings of RMBS; short-term funding; collateral (i.e. repo transactions)

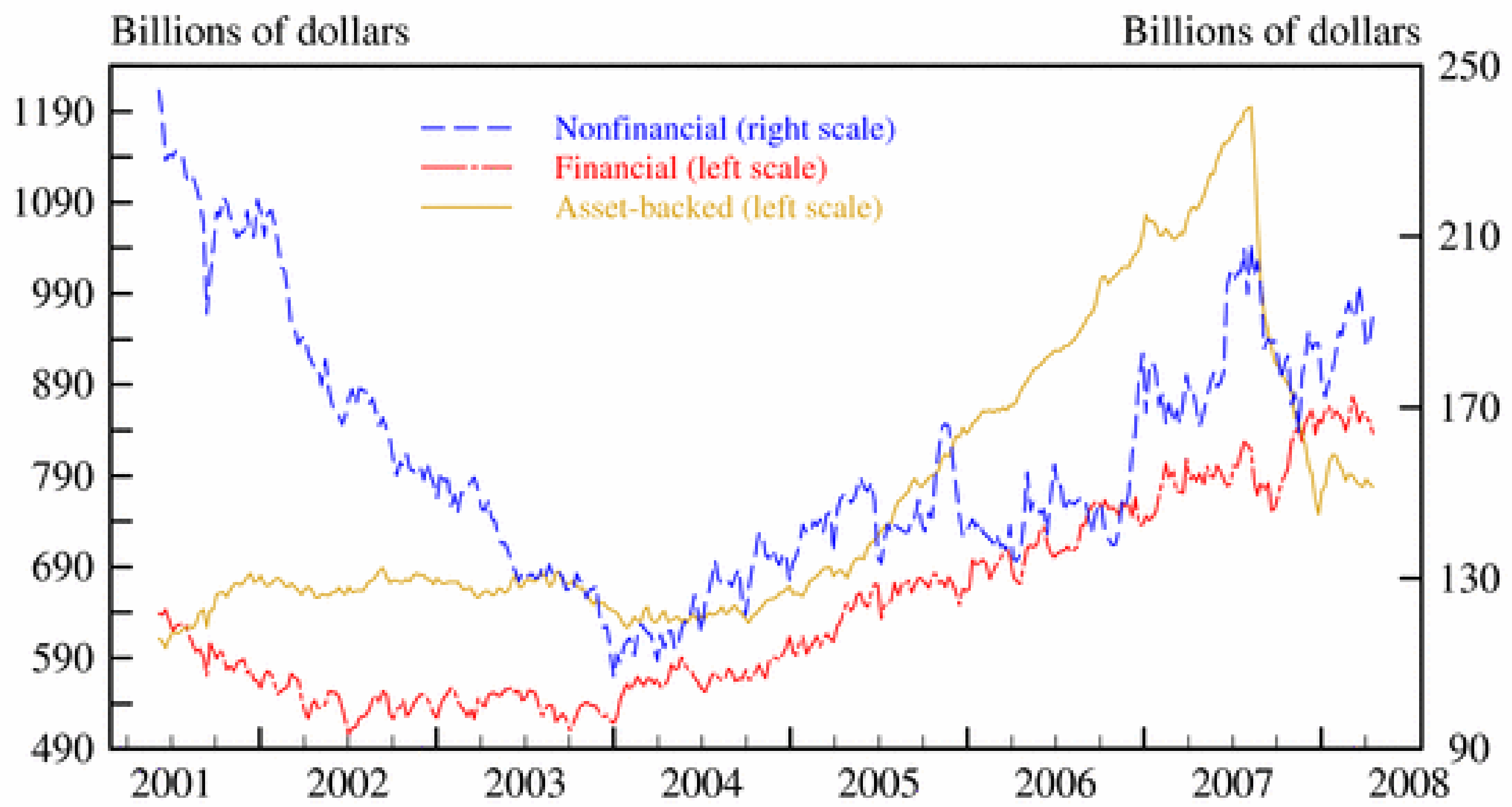
# Warehouse Lending

- The demands of warehouse lenders crippled hundreds of originators in the first half of 2007. For example, New Century (#2 subprime originator and MBS issuer in 2006) defaulted in April as lenders refused to extend further credit

THE MORTGAGE LENDER
Implode-o-Meter™
*Tracking the housing finance breakdown: a saga of corruption, hypocrisy, and government complicity.*

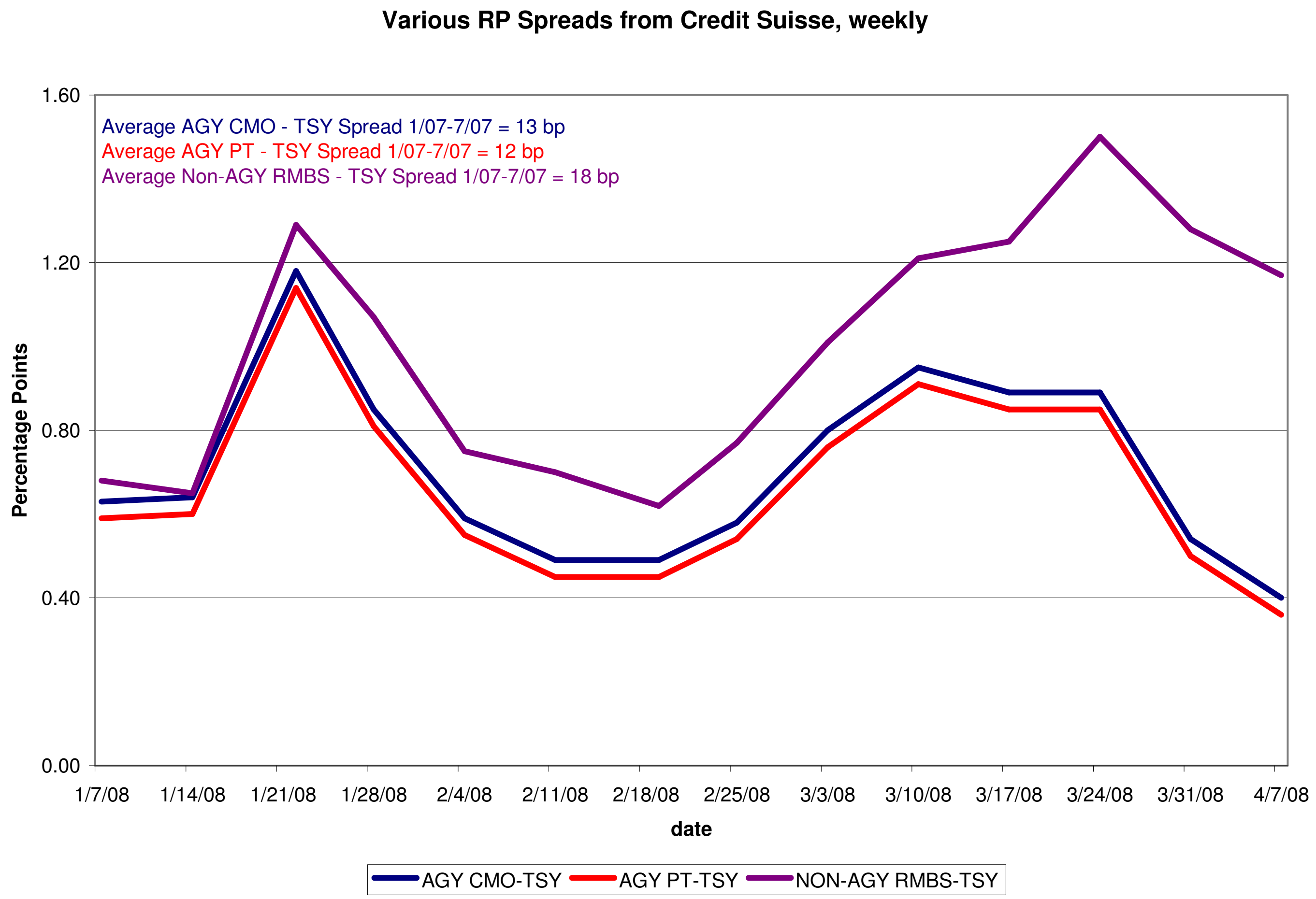
# Asset-backed Commercial Paper

- ABCP funding disappeared in August 2007 as investors became nervous about (nonprime) mortgage exposure



# Secured Lending

- Repo credit evaporated for investment banks in March 2008, leading to the run on and rescue of Bear Stearns



# Insider Trading in RMBS

- **Drucker and Mayer (2007): "Inside Information and Market Making in Secondary Mortgage Markets"**

The authors document that underwriters of prime RMBS exploit inside information when trading in the secondary market. Underwriters bid on a majority of their own tranches, but the ones on which they do not bid perform worse ex post.

# The Adverse Effect of Hedging

- **Ashcraft and Santos (2007): "Has the CDS Market Lowered the Cost of Corporate Debt?"**

The authors document that the onset of CDS trading is followed by an increase in the cost of syndicated loans and bonds, especially for risky and opaque firms where retained loan share is important for resolving information problems between the lead bank and other members of the syndicate.

# Final Thoughts on Adverse Selection

- Adverse selection could be minimized through the resolution of other informational frictions
- In addition, investors could demand that arrangers disclose their hedges of retained tranches
- The central bank has responded aggressively to the liquidity problems created by adverse selection with a number of new liquidity facilities (term discount window, term auction facility, term securities lending facility, primary dealer credit facility)

# Friction#4: Moral Hazard of Borrower

- Occurs generally in the presence of unobserved effort and limited liability
- With significant declines in home prices, many homeowners will find the value of their homes to be smaller than the amount they owe on their mortgages
- Underwater but performing borrowers are unable to sell their homes without bringing cash to closing.
- Some borrowers who can afford their mortgage payments could find it in their interest to exercise their option to walk away

**Resolution:** limits on leverage, principal modifications

# http://www.youwalkaway.com/

## Is foreclosure right for you?

If you are facing or considering foreclosure, you're not alone.

## Ask Yourself...

Are you stressed out about your mortgage payments?
Do you have little or no equity in your home?
Have you had trouble trying to sell your house?
Is your home sinking under the waves of the real estate crash?
What if you could live payment free for up to 8 months or more and walk away without owing a penny?
Unshackle yourself today from a losing investment and use our proven method to Walk Away.

**If you QUALIFY for our plan:**

**Your lender WILL NOT be able to call you in attempt to collect!**
**Your lender WILL NOT be able to collect any deficiency or loss they may receive by you walking away!**
**You WILL be able to stay in your home for up to 8 months or more without having to pay anything to your lender!**
**You CAN have the foreclosure REMOVED from your credit!**

**It's important to act now before it's too late!**

**Let us help you.**

# Evidence of Borrower Moral Hazard

- **Performing borrowers asking for loan modifications**
- **Changes to pecking order of payments**

A 2007 report by Experian documented some evidence that consumers are more likely to pay their credit cards and auto loans than their mortgages

# The Impact of Bankruptcy Reform

- **Morgan et. al. (2008): "Bankruptcy Reform and Subprime Foreclosures"**

In Chapter 7, households with credit card and mortgage debt have unsecured debts (like credit cards) expunged, and keep assets with value below the exemption, which typically included equity in their home

However recent bankruptcy reform has made it more difficult for a borrower to file Chapter 7 through a means test, which has shifted the balance of power between mortgage lenders and unsecured lenders

The authors document that there has been a larger increase in subprime foreclosures in states with higher bankruptcy exemptions

# Final Thoughts on Moral Hazard of Borrower

- There is growing concern that significant price declines will leave millions of homeowners underwater, which will be followed by a widespread walking away from homes. This would obviously severely amplify the current downturn in housing.
- Solutions to this potential problem generally involve the write-down of principal by lenders
- Mortgage Forgiveness Debt Relief Act of 2007 prevents the IRS from collecting taxes on mortgage principal write-downs, making this friction worse by giving households more bargaining power

# Friction #5: Moral Hazard of Servicer

- Servicer effort and quality has important impact on losses
- Servicer compensated on basis of loans under management and not borrower performance
- Potential tension between servicer and investors in the decision to modify/foreclose
- Servicer has an incentive to inflate reimbursable expenses
- Servicer not fully compensated for the labor costs of loan modifications
- When the demand for modifications is high, servicer might be slow to add costly resources

**Resolution:** pooling & servicing agreement; reputation/value of servicing rights; servicer quality ratings (rating agencies); master servicer

# Servicers and the Equity Tranche

- **Mayer et al (2007): "Agency Conflicts, Asset Substitution, and Securitization"**

Using data on 357 commercial mortgage-backed securities deals, the authors show that when holding the first-loss position, special servicers appear to behave more efficiently, making fewer costly transfers of delinquent loans to special servicing, but liquidating a higher percentage of loans that are referred to special servicing

# The Limits of Loan Modifications

True sale (SFAS 140) requires that the servicer go bank to the bond holders to approve modifications else control has not shifted

However, the bondholders are widely-dispersed and have conflicting interests

It is in the interest of junior tranche holders to delay loss in order to avoid the writedown of bond principal.

The use of modifications instead of liquidations can trigger the release of o/c to equity tranche investors.

Limits on modifications are in place to protect senior investors from excessive "modification"

The November 2007 Treasury streamlined loan modification plan was an attempt to give servicers a "safe harbor" for delaying interest rate resets on hybrid subprime ARMs

# Final Thoughts on Servicer Moral Hazard

- For most secured loans, when the market value of the asset is less than the amount of the loan, the bankruptcy court can "cram down" the secured claim to the assets market value and leave the rest as an unsecured claim.
- First-lien mortgages generally cannot be crammed down in this fashion "in order to encourage the flow of capital into the home lending market]
- It might be difficult for a servicer to write down principal, even when it might result in a higher recovery value than foreclosure given constraints inspired by this friction in the pooling and servicing agreement.
- There have been recent proposals by Congress to permit such cramdowns in order to help the borrower and servicer reach the efficient outcome

# Friction #6: Principal-agent

- Asset managers (agent) act on behalf of investors (principal) who may not be financially sophisticated
- Asset managers develop investment strategies, conduct due diligence, find the best price

**Resolution:** investment mandates, evaluation relative to peer or benchmark, credit ratings, external consultants

# The ABS CDO problem

- **Adelson and Jacob (2008): "The Subprime Problem: Causes and Lessons"**

Until 1997 the vast majority of subprime RMBS used bond insurance as credit enhancement.

From 1997 to 2002, about half of deals used bond insurance and the other half used subordination as credit enhancement.

In 2004 ABS CDOs and CDO investors became the dominant class of agents pricing credit risk on subprime RMBS, displacing bond insurers and other sophisticated investors

CDOs were willing to accept loans that traditional investors would not have accepted, and originators began originating riskier and riskier loans.

**Evidence:** Compare monoline direct exposures to RMBS vs ABS CDO exposures

# Final Thoughts on Principal-Agent

- Most exposure from ABS CDOs was either retained by issuers or hedged with monoline insurers
- Key risk management failure was by relatively sophisticated investors who did not look to the underlying collateral and likely relied too much on the underlying credit ratings
- Re-securitization of RMBS likely obscured the presence of these frictions to the ultimate investors
- Investors who use credit ratings as an input to risk management should have an independent view on the efficacy of the ratings criteria
- As this exposure remained in the trading books of supervised institutions, this highlights an important failure in the supervision of risk management

# Friction #7: Model Error by the Rating Agencies

- Some investors lack the ability (or willingness) to evaluate the efficacy of rating agency models, which makes them susceptible to both honest and dishonest errors by the rating agencies
- Credit rating agencies are paid directly by issuers (but indirectly by investors), which could potentially create a race to the bottom with standards

**Resolution:** reputation

# Historical Downgrade Actions

| Negative rating action | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Subprime 1st lein | | | Subprime 2nd lein | | | Subprime all Lein | | |
| **Vintage** | **$** | **# tranche** | **# deals** | **$** | **# tranche** | **# deals** | **$** | **# tranche** | **# deals** |
| 2002 | 2.90% | 13.80% | 48.80% | 1.50% | 4.00% | 9.10% | 2.90% | 13.20% | 46.40% |
| 2003 | 1.70% | 10.10% | 38.50% | 0.70% | 2.90% | 11.10% | 10.60% | 9.60% | 36.50% |
| 2004 | 0.90% | 6.20% | 34.30% | 1.70% | 5.90% | 44.00% | 0.90% | 6.20% | 35.00% |
| 2005 | 0.60% | 3.60% | 20.90% | 3.30% | 18.50% | 85.40% | 0.70% | 4.90% | 28.00% |
| 2006 | 13.40% | 48.00% | 92.10% | 60.00% | 84.50% | 91.80% | 16.70% | 52.30% | 92.00% |
| **Positive rating action** | | | | | | | | | |
| | Subprime 1st lein | | | Subprime 2nd lein | | | Subprime all Lein | | |
| **Vintage** | **$** | **# tranche** | **# deals** | **$** | **# tranche** | **# deals** | **$** | **# tranche** | **# deals** |
| 2002 | 2.10% | 6.40% | 20.80% | 6.70% | 17.30% | 63.60% | 2.30% | 7.00% | 23.50% |
| 2003 | 2.80% | 8.60% | 26.40% | 9.20% | 30.10% | 83.30% | 2.90% | 10.00% | 30.50% |
| 2004 | 1.20% | 3.30% | 15.00% | 7.20% | 22.30% | 56.00% | 1.40% | 4.30% | 17.90% |
| 2005 | 0.00% | 0.00% | 0.00% | 5.30% | 9.60% | 39.60% | 0.20% | 0.90% | 4.40% |
| 2006 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **Source:** Moodys (26 October 2007) | | | | | | | | | |

# The Key Mistakes

- **Underestimated the severity of the housing downturn**

Housing markets were historically local, but securitization created correlation which did not previously exist

- **Used limited historical data**

Could not accurately estimate the response of borrowers to significant price declines

- **Ignored the originator risk factor**

Did not respond to the arbitrage of rating criteria by weak originators

- **Ignored the refinancing stress risk factor**

Never anticipated the complete evaporation of refinancing opportunities

# Final Thoughts on Model Error

- Credit ratings play a crucial role in securitization, and despite the horrific performance of RMBS and ABS CDOs, that will not change
- Rating agency errors could have been honest, but there is a perception in the marketplace that they were not, and that needs to be changed
- **What needs to be done:**

Better disclosure to investors of macro assumptions and the macro scenarios which break a tranche

More conservatism in asset classes with limited historical data

Formally rate originators for underwriting practices

Incorporate refinancing stress risk factor into rating analysis

# Final thoughts

- Resolving these seven frictions in the least costly fashion is crucial to repairing securitization and moving forward
- As the credit rating agencies play a crucial role in securitization and re-securitization, they are an important part of the solution
- Significant changes need to take place in the approach of investors to risk management and in the approach of regulators to supervision of this risk management
- A temporary provision for cramdowns of first-lien mortgages under the bankruptcy code seems like the most reasonable way to avoid unnecessary foreclosures in securitized loan pools

# Thoughts on the US Treasury proposal

- US banks and thrifts will likely be forced to write down capital by $200 to $300 billion, implying significant reductions in credit
- Liquidity problems largely reflect concerns about solvency of counterparties but there are also concerns about liquidity of solvent counterparties outside the safety net
- Program should aim to (a) improve lending capacity of banks and thrifts as well as (b) improve market functioning
- Target purchase of assets taking up large amounts of economic capital (large loss volatility) to accomplish (a) like 2nd liens with large leverage exposure to home prices
- Target purchases of assets with close ties to private sector originations of credit (and thus real activity) to accomplish (b) like ABS, CMBS municipal bonds, and investment-grade corporates
- Can't transfer meaningful credit risk without exposing taxpayer to substantial risk of loss.