

The Nonprime Mortgage Crisis and Positive Feedback Lending

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(Brief excerpt from two larger projects)

“Talk” paper (w. Jennifer Coupland)

Model paper with Simon Gervais

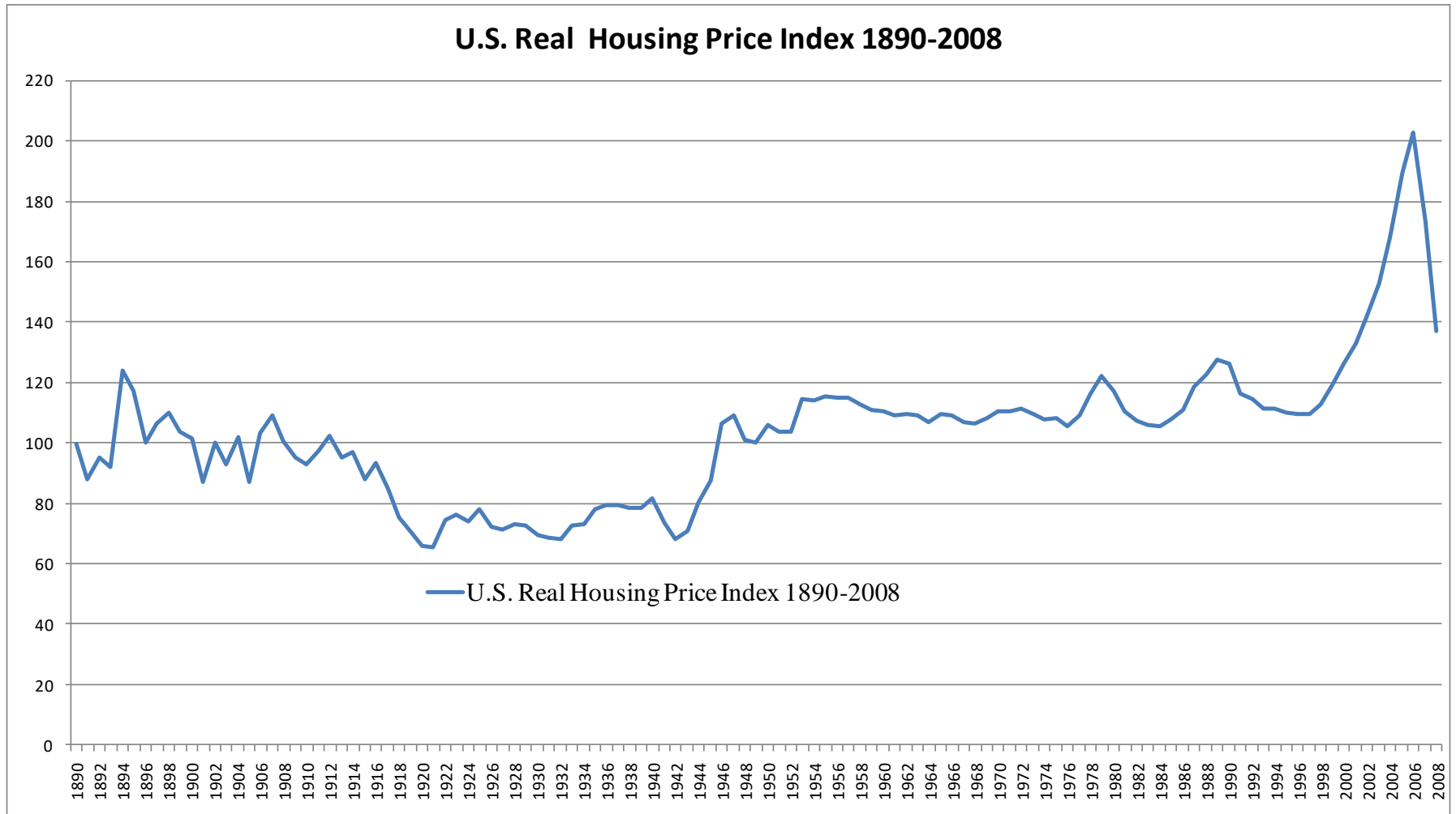
2007-2009 financial crisis

- Multiple causes, but US housing bubble was big piece
- Focus on securitization of “nonprime” (subprime and Alt-A) mortgages
- Gorton (2009):
 - “The [2007-2009] credit crisis was sparked by a shock to fundamentals, **housing prices failed to rise.**”

Mundane event → huge shock. How??

The US housing bubble

U.S. Real Housing Price Index 1890-2008

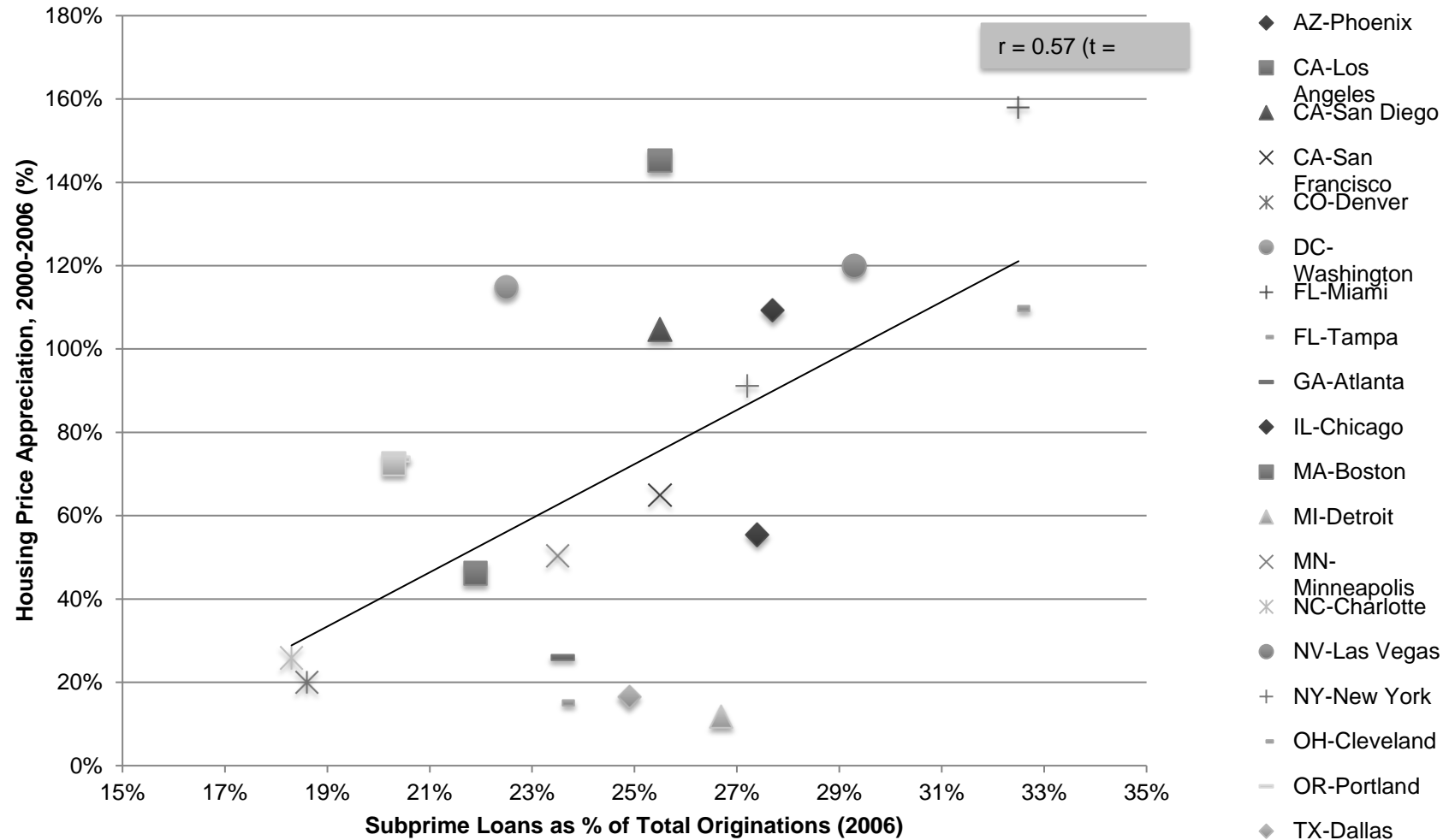


Source: Case-Shiller index

Subprime and Alt-A lending

- Categories blur, but:
 - Subprime = bad credit
 - Alt-A = ok credit, but low documentation
 - “liar” & NINJA (no income, no job or assets) loans
- Volume soared 2000-2006
 - became large % of total market, dominant share in some markets
 - Loan terms became ever flakier

Helped to drive overall prices



Main claims

1. **Obvious** that we **might** be in a housing bubble
 - Not we **were**, just might be (at **far above** the $< .001$ prob. that rating agencies should consider in providing AAA ratings)
2. **Knowable** that rating agency models ruled this out
 - But no one asked (why not??)
3. **Known or knowable** that rating agencies applied “out of model” adjustments (to already flawed models)
 - How often, how large = plausibly knowable, had anyone asked
4. **Known** that nonprime default rates would soar in a sustained housing or economic downturn
 - no sale, no refinance → many borrowers can't repay
5. **Known** that loan terms were getting flakier
 - Lo- and no-doc, interest only, negative amortization, “option” ARMs, teaser rates, high loan/value, high loan/(alleged) income, etc.

Main claims (2)

6. *Known* that subprime securitization structures were untested in a serious downturn

- Market was new since mid-1990s; small until early 2000s
- Known that correlations rise in a crisis (East Asia, LTCM)

7. *Known* “originate to distribute” model

- originators had minimal “skin in game”
- Securitizers had none (except tranches they couldn’t sell)

8. *Knowable* that securitization might shut down

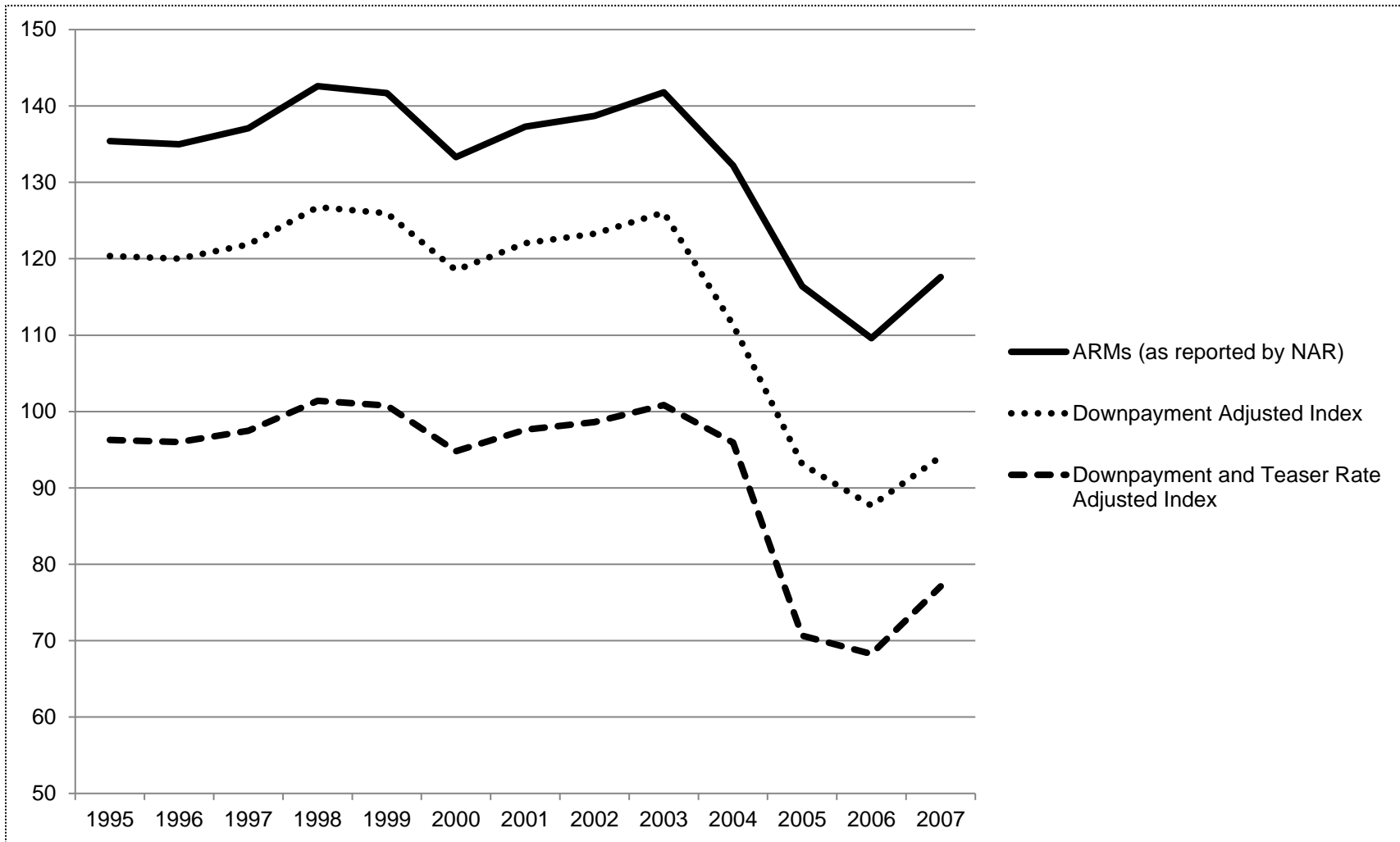
- Failed once, in 1990s
- If it does, nonprime is dead; prices must fall

Positive feedback: Knowable, not focused on

Nonprime loans had vicious positive feedback

- Defaults would rise sharply if prices merely flat
 - That would drive forced sales, foreclosures, tighter lending standards, shutdown of flaky loans
- Which would drive price declines
 - Which would drive more forced sales, foreclosures, tighter lending standards, shutdown of nonprime securitization
- Which would drive price declines
 - Which would drive . . . But you get the point

Adjusted NAR affordability index



Nonprime as Ponzi scheme

- Lend to people who (often) can't repay from income
 - High Loan-to-Value ratio
 - Often no recourse (depends on state law)
 - Escalating payments
 - Teaser rates; interest-only and negative amortization loans
 - Loan to income ratio based on teaser rate
 - Income often fake too
 - Large, hidden fees to originators
 - Incentives to induce overborrowing, refinancing
 - Worsening performance/quality by origination year
- **Median** loan-to-value for securitized “purchase” loans
 - subprime: 90% in 2003 to **100%** by 2005
 - Alt-A: 90% in 2003 to **95%** by 2006

Typical unaffordable loan

Moderate income borrower, limited assets

- Loan/value = 100%
- payments/ (alleged) income = 40%
- post-teaser reset = +30%

- **post-teaser:**

- **payments/(alleged) income > 50%!!**

- ➔ Many can't pay

- Median refinance loan/value = 80%

- prepayment penalty (need to finance that too)

- ➔ many can't refinance if prices are flat

Originate to Distribute

- Originators to bankers to money managers (for investors)
 - Securitization = main exit for originators
 - Bankers: need “product” to package and resell
- Securitization became a huge business
 - New entry fueled demand for “product”
 - Origination standards dropped
- Marketability required good ratings
 - ~80% AAA, 7% AA-A, 10% BB & BBB “mezzanine”; 3% equity
- “residual” equity – supposed to be held by originator, but
 - “phantom equity” < originator fee
 - often wasn’t held by originator
 - often repaid from early cash flows, not truly “residual”

Who bought the mezzanine?

- Often no one!
- Repackaged into “Mezzanine CDOs” (Coval, Jurek & Stafford, 2009; Citibank, 2007)
 - Most of those were AAA-rated too (Jian, 2007)
- CDO mezzanine → often repackaged as CDO² or sold into bank-managed SIVs
- 10% mezzanine for MBS → 1-2% mezzanine in CDO → $\leq 0.5\%$ in CDO²
- Banks held some of this “toxic waste”
 - found a few fools to buy some of it

Ponzi scheme survives if prices rise

- Borrowers can refinance or sell at a gain
 - Originators earn a new fee
- Scheme totters if prices are flat
 - Defaults rise, prepayments slow
 - Borrowers can't refinance
 - Forced sales push prices down
- Collapses if prices fall
 - Borrowers can't repay or cover loan by selling

Core hidden assumption: no price declines

- Rating agencies assumed: no *nationwide* decline in *nominal* home prices
 - hadn't happened since Great Depression
- But a thin story:
 - real price declines ***had*** happened
 - model those declines, with low inflation, get different results
 - last two real rises were followed by declines
 - current real rise (thru 2006) was huge
 - last large real rise, **without** later decline, was 1940s
- No nominal decline was possible, even likely
 - But as basis for AAA stress test???
 - Yet bankers sold that story, and money managers and rating agencies bought it

Why Did the Bubble Get So Big?

Why did . . .

- Smart money managers buy this stuff?
- Smart investors give funds to these managers?
- Smart investment bankers securitize this stuff?
 - they're supposed to be “reputational intermediaries”
 - why did they eat their own cooking?
- Smart insurers sell cheap credit protection?
 - AIG and the “monoline” insurers
- Rating agencies bestow AAA ratings?
- Originators resell $< 100\%$ of their loans?
 - Countrywide, IndyMac, WaMu, Wachovia, . . .

Some investors saw the problems

- **John Paulson** (Economist interview, March 2009):
 - “it was obvious that a lot of the [MBS and mezzanine CDO] stuff . . . was practically worthless at the time of issuance”
- **Steven Eisman** (quoted in Lewis (2008)):
 - “The thing we couldn’t figure out is: It’s so obvious. Why hasn’t everyone else figured out that the [subprime] machine is done?”
- **Fairfax** (Canadian insurer): \$2B gain from shorting CDS on MBS (Fairfax annual meeting slides, 2007-2009)
- **Magnetar Capital** (ProPublica, 2010):
 - Sponsored synthetic CDOs, held equity + short side of synthetics

Answer: “It’s the incentives, stupid.”

Or if you prefer, Upton Sinclair:

“It is difficult to get a man to understand something when his salary depends on his not understanding it.”

Why misplaced incentives? Gotta be . . .

- Agency costs
 - at firm level
 - for individuals within firms
 - across the sale chain
 - information costs limit monitoring
- Externalities
 - spillover benefits from due diligence
 - systemic risk

Regulatory response 1: Need to limit positive feedback lending

- Highly dangerous, large externalities
- Cf. portfolio insurance, which sparked 1987 stock market crash

So far:

- No one is talking about positive feedback lending as a core driver of the crisis
- No steps to limit it the next time

Response 2: Due diligence

- Today: no explicit due diligence standard for semi-private 144A offerings
 - No explicit liability for non-diligence
- Value of due diligence:
 - Rub noses in the obvious
 - Harder to ignore
- Diligence by whom?
 - Lenders (if plan to resell)
 - Securitizers
 - Rating agencies

Response 3: Disclose models, data

- Rating agencies should explicitly disclose:
 - Models
 - Model assumptions and justification
 - Data the rating agency relies on
- Same for securitizers

Response 4: Verification

- Require originators, securitizers, rating agencies, to verify:
 - After due diligence
 - Assumptions are reasonable
 - Models are reasonable
 - Data is reasonable choice for what one are modeling