The Nature of Liquidity Provision: When Ignorance is Bliss*

Presidential Address, Chicago
January 5, 2012

Bengt Holmstrom, MIT

*Based on joint work with Tri Vi Dang and Gary Gorton

Common view of causes of crisis

- Wall Street greed and wrong incentives
- Securitization created complex, opaque ABS
- Originate-and-distribute caused reckless lending
- Ratings poorly informed and mechanical (Li-formula)

Michael Lewis (“The Big Short”)

- How could Wall Street trade without knowing really anything?

Near-universal call for more transparency

Why did no one ask questions?

- Unlikely that thousands of greedy Wall Streeters colluded or failed to ask out of ignorance
- Must be purposeful, but why?
- Suggested answer:

  “No Questions Asked” = Liquidity (in money markets)

Implications of NQA

- Neglected risks by design (ignorance is bliss)
- Potential for panic (infrequent, shocking)
- Transparency matters, but not the way commonly thought
- Role for public monitoring

Outline

1. Ignorance is (almost) bliss

2. A model sketch

3. Panic – a shift in beliefs

4. What info perspective delivers

Part I: Ignorance is (almost) bliss

Nature of liquidity provision

- Money markets high velocity markets
  - No time for questions; (over $1 Tn of repo rolled over every morning in tri-party repo market)
  - Shared understanding, trust-based
- Stock markets very different
  - Can wait to trade shares
  - Much more money spent on analyses
  - Even minute information relevant
  - Price discovery through continuous trading
  - Thrives on heterogeneous beliefs

A common, but false inference

Widely agreed:

Symmetric information (about payoffs) => liquidity

A common, but false inference

Widely agreed:

Symmetric information (about payoffs) => liquidity

But:

Transparency ≠> Symmetric information

A common, but false inference

Widely agreed:

Symmetric information (about payoffs) => liquidity

But:

Transparency ≠> Symmetric information

Because private info may become more relevant:

Symmetric information often easier to achieve through shared ignorance (+ guarantees)

Examples of purposeful opacity

- De Beers and diamonds (Milgrom-Roberts 1992)
- coarse bond ratings; Li-formula
- standards, language (Morris-Shin, 2009)
- 19th century clearinghouses (Gorton, 1988)
- money market funds (NAV lag/frequency)
- money (most opaque of all)
- securitization (DeMarzo, 1995)

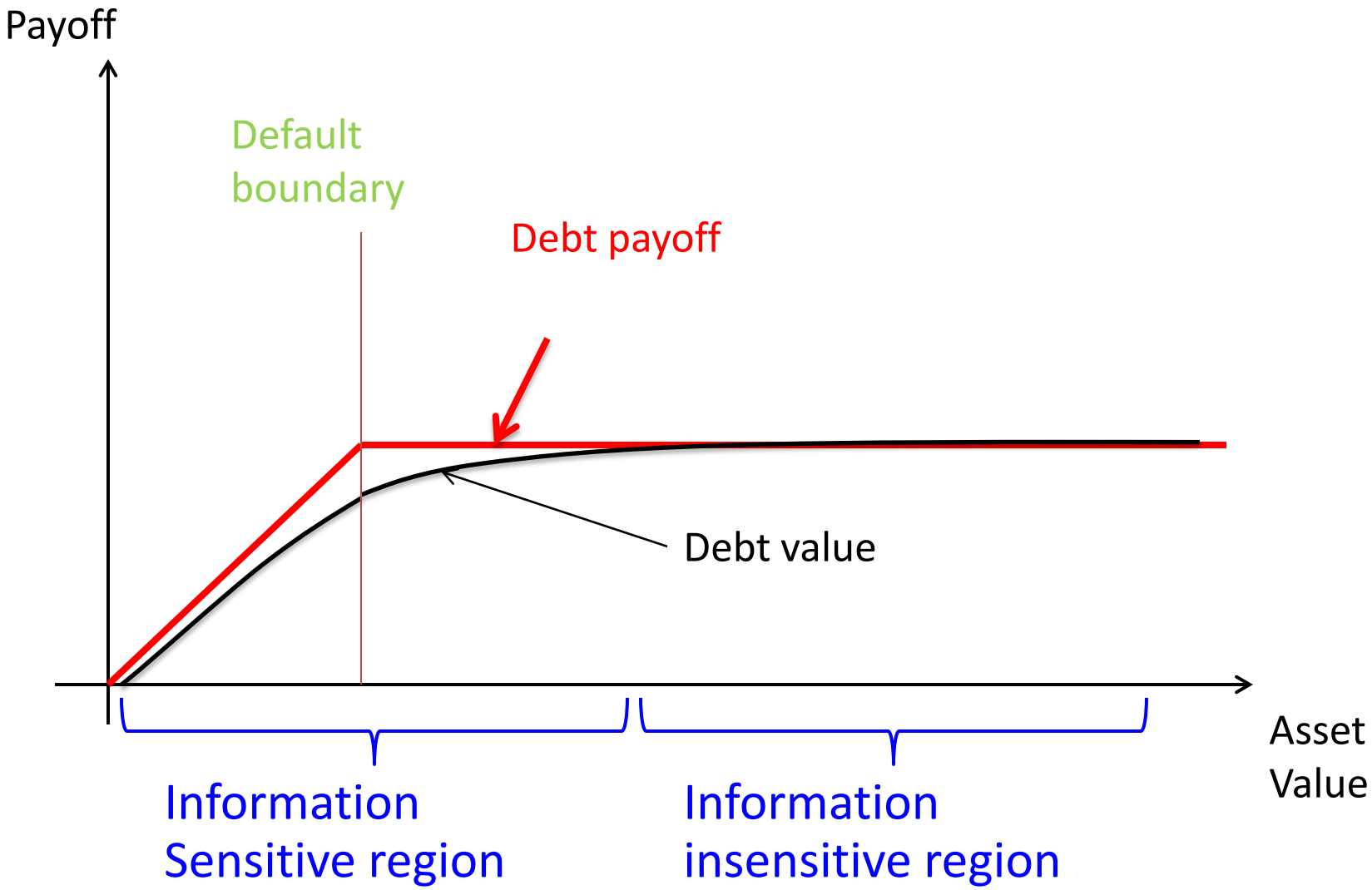
Implications for liquidity provision

- Use securities that are insensitive to private information
  - makes private information irrelevant
  - reduces incentive to acquire information

- Use securities that are insensitive to public information
  - reduces volatility that could shatter shared understanding

$\Rightarrow$ Debt preferred instrument especially when
  - well collateralized (assets, reputation)
  - certified/guaranteed (AAA, underwritten)
  - collateral has low volatility (mortgages)
  - "equity" not traded

Debt and information sensitivity



An uneasy trade-off

- Relying on debt, securitization, coarse ratings, mechanical rules… makes sense in good times

But….

- pushes risk into tail
- hides systemic risk

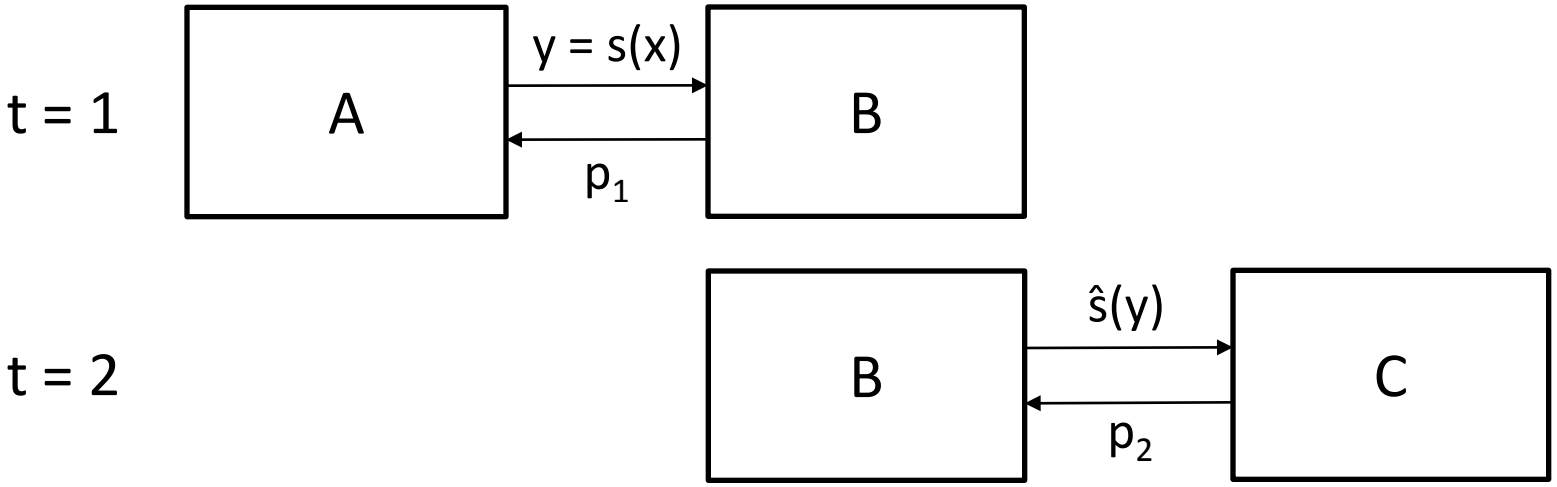
The social trade-off: Coarse information and shared understanding enhance liquidity, but increase the risk and cost of a crisis. Transparency can do reverse

Part II: A model sketch
(Dang, Gorton, Holmstrom, 2009)

Builds on/relates to

- Gorton and Pennacchi (1990) – but with optimality of debt and tail risk
- Townsend (1979) – debt is information insensitive
- Hirshleifer (1971), Andolfatto (2009) – ignorance may be good
- Kiyotaki-Wright (1989), Banerjee and Maskin (1994) – choosing a medium of exchange
- Pagano-Volpin (2008) – choice of transparency

Trading game



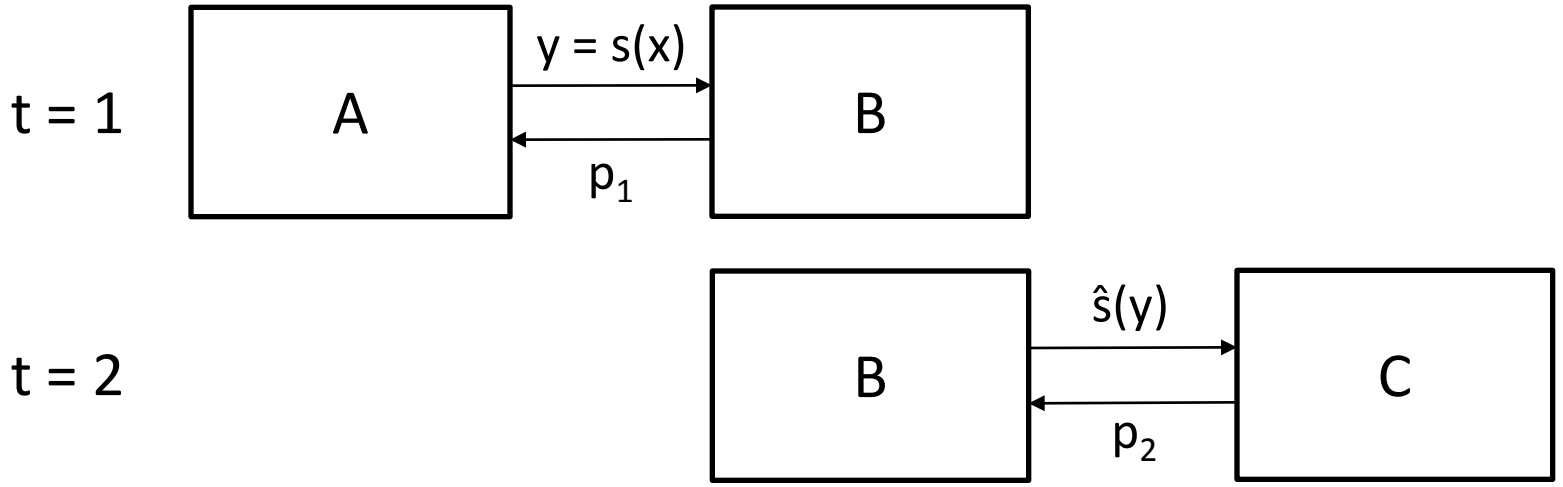
$U_A = C_{A1} + C_{A2} + C_{A3}$ (0,0,X)

$U_B = C_{B1} + \alpha C_{B2} + C_{B3}$ (w,0,0)

$U_C = C_{C1} + C_{C2} + C_{C3}$ (0,w,0)

$\alpha > 1$ only purpose for trade

Trading game (cont)



Information

t = 1 : Symmetric information. Distribution of X is F(x)

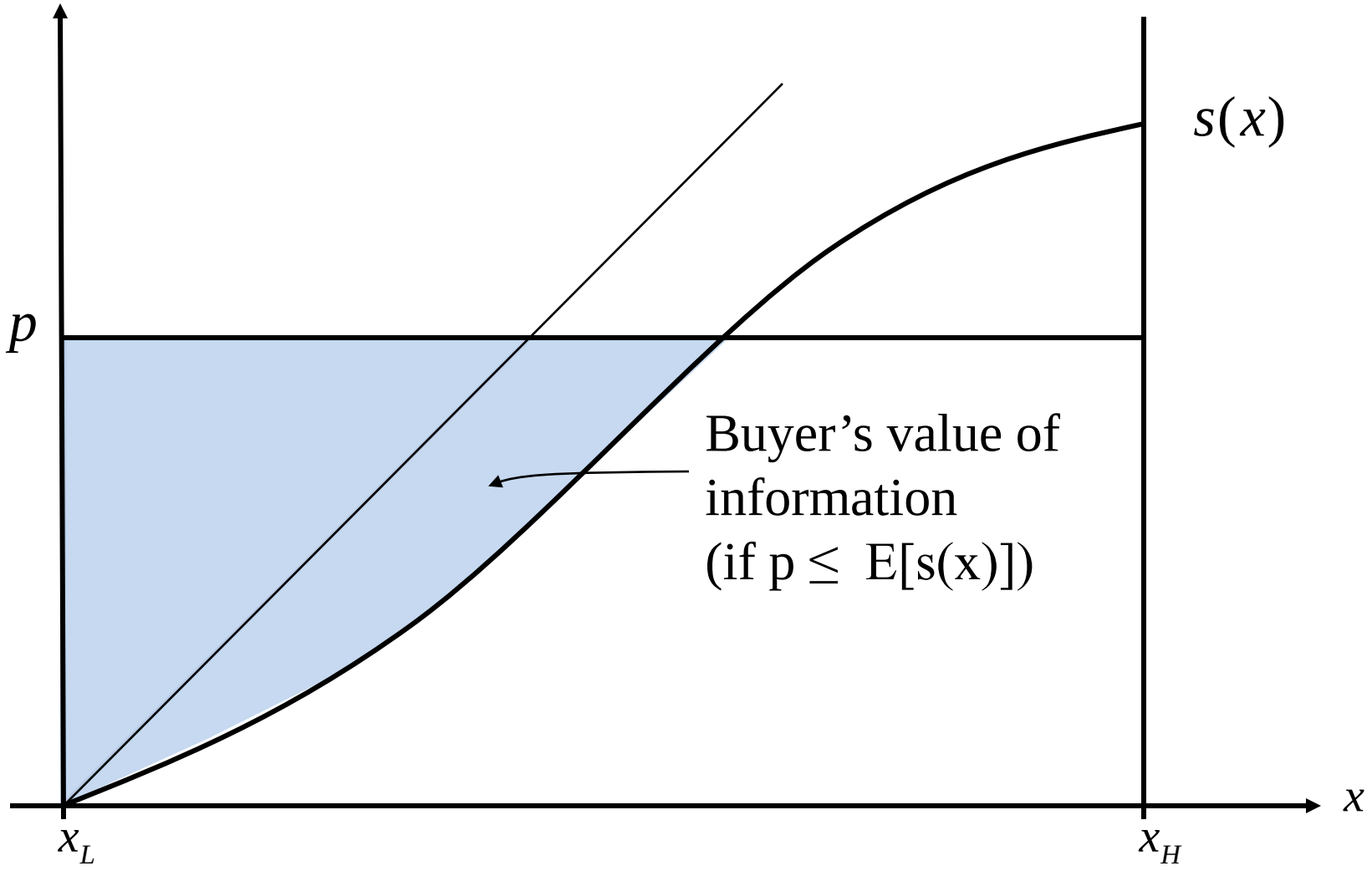
t = 1.5 : Public information z arrives → F(x|z)

t = 2 : Agent C can learn x **at cost γ** before accepting contract
(Interpretation: lower **γ** = higher transparency)

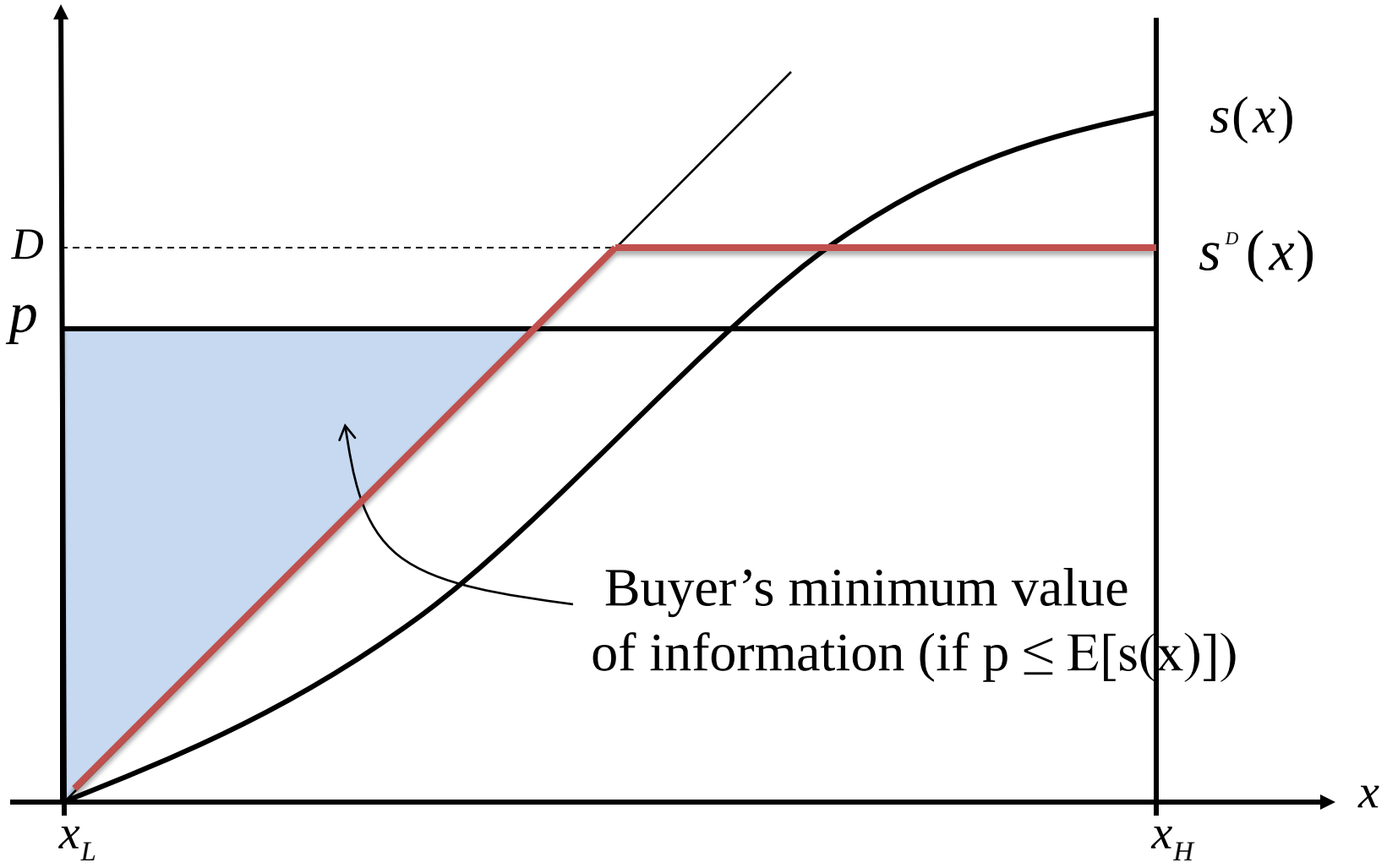
Problem

Max $E(C_{B2})$, by choice of s(x), subject to E(s(x)) = constant

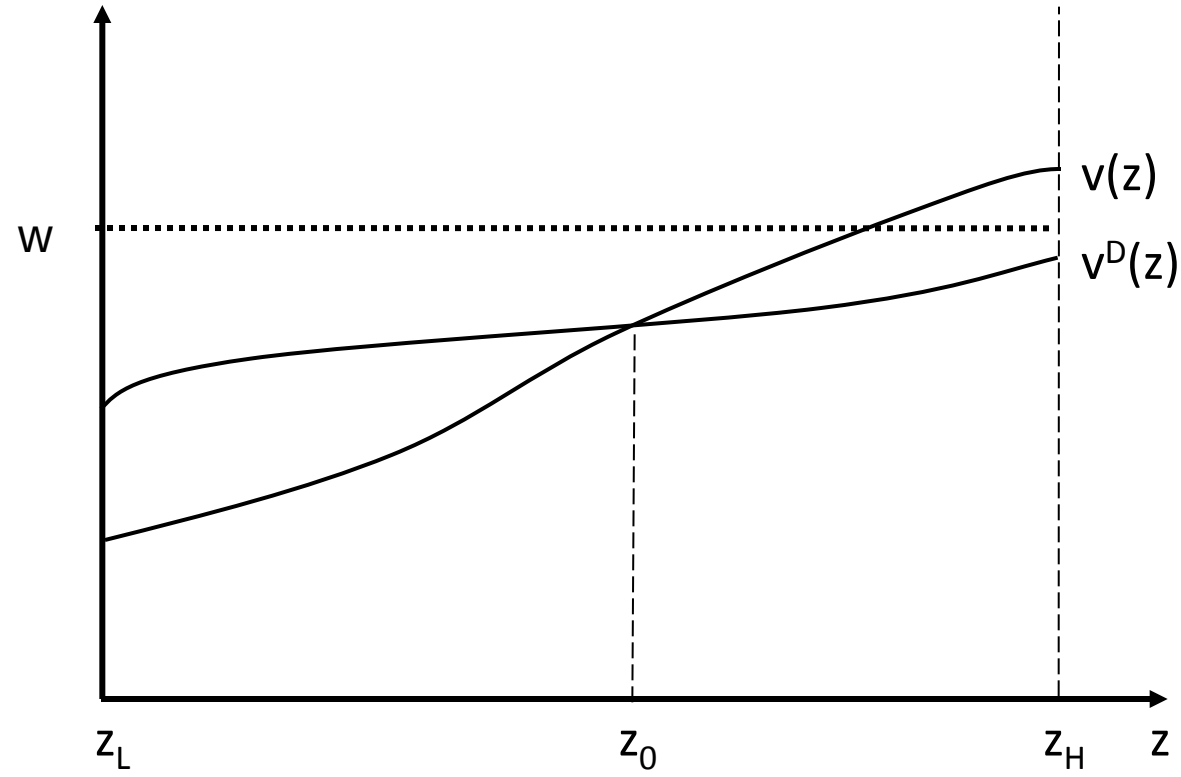
Information (acquisition) sensitivity



Debt is least information sensitive



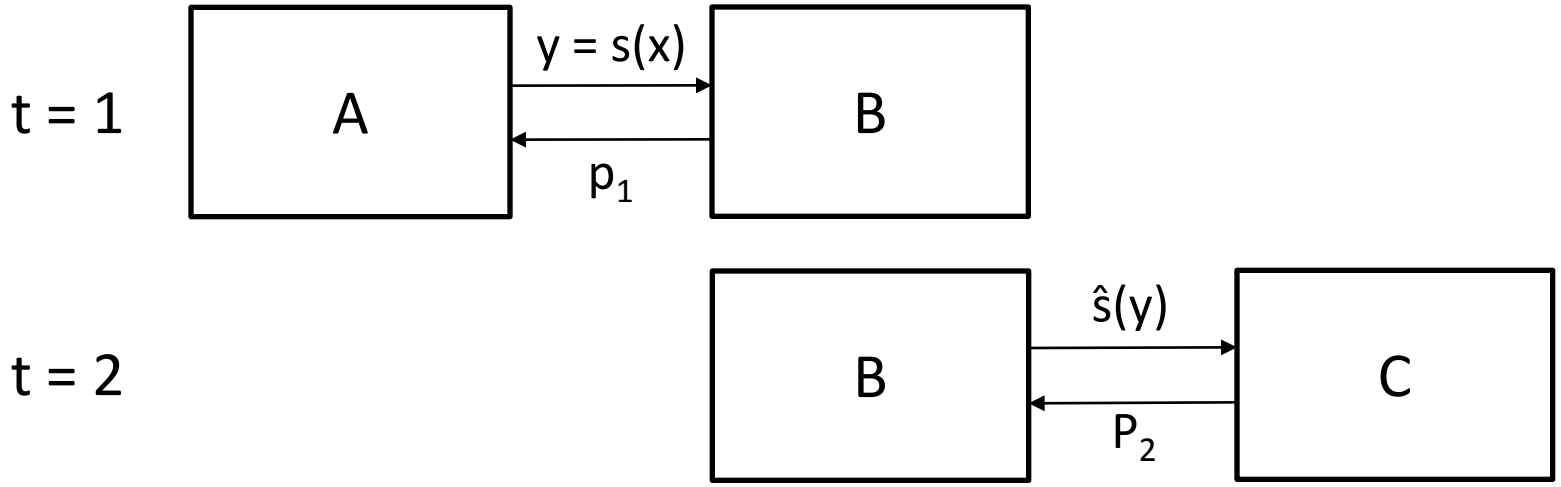
Debt also least sensitive to "news" (DeMarzo, Kremer, Skrzypacz, 2005)



$s^D(x) = \min\{D, x\}$ is debt contract with face value D

$v(z) = E(s(x)|z)$, $v^D(z) = E(s^D(x)|z)$; $v(z_0) = v^D(z_0)$ as $z_0 \sim$ prior

Main result



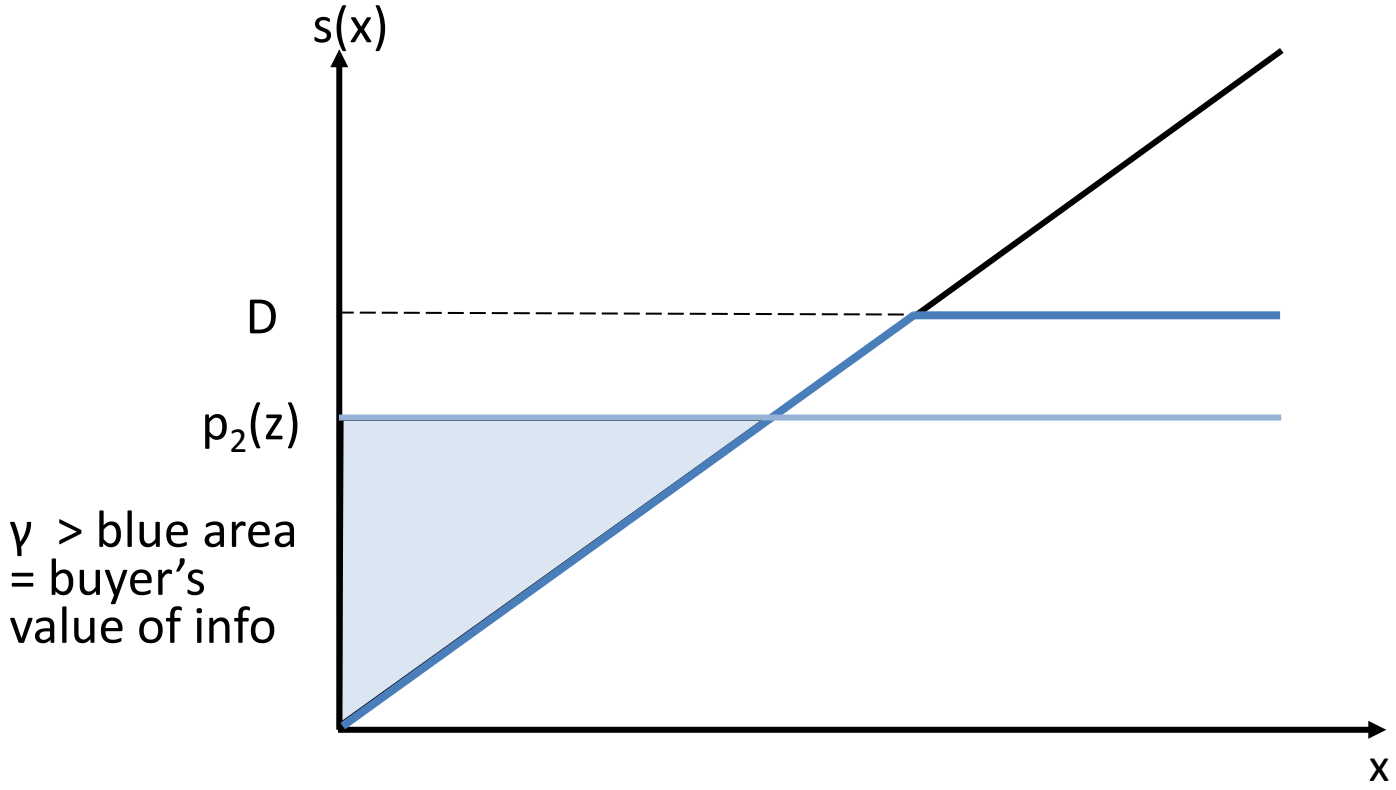
t = 1: A sells debt tranche to B for $p_1 = w$

t = 2: (i) Good news. B resells slice of debt tranche to C worth $w < p_2(z)$

(ii) Bad news case I: B resells all of debt tranche to C worth $p_2(z) < w$

(iii) Bad news case II: B cannot sell all of debt to C, because it would trigger information acquisition. Sells tranche worth $p_2 < p_2(z)$

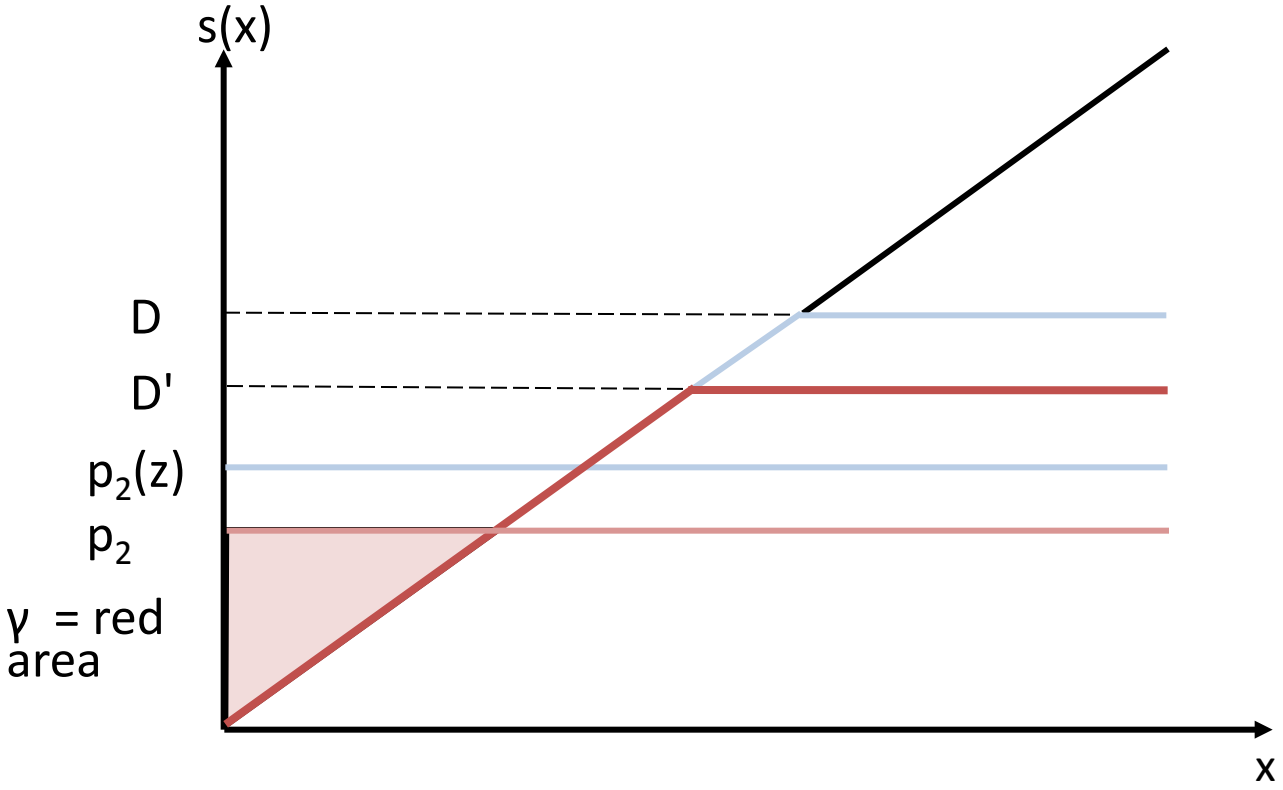
B-C game case 1: No write-downs



$p_2(z) = \min\{v^D(z), w\}$

γ = cost of information

B-C game Case 2: Fear of adverse selection leads to “double-whammy”



Value of debt drops: $p_2(z) < p_1$

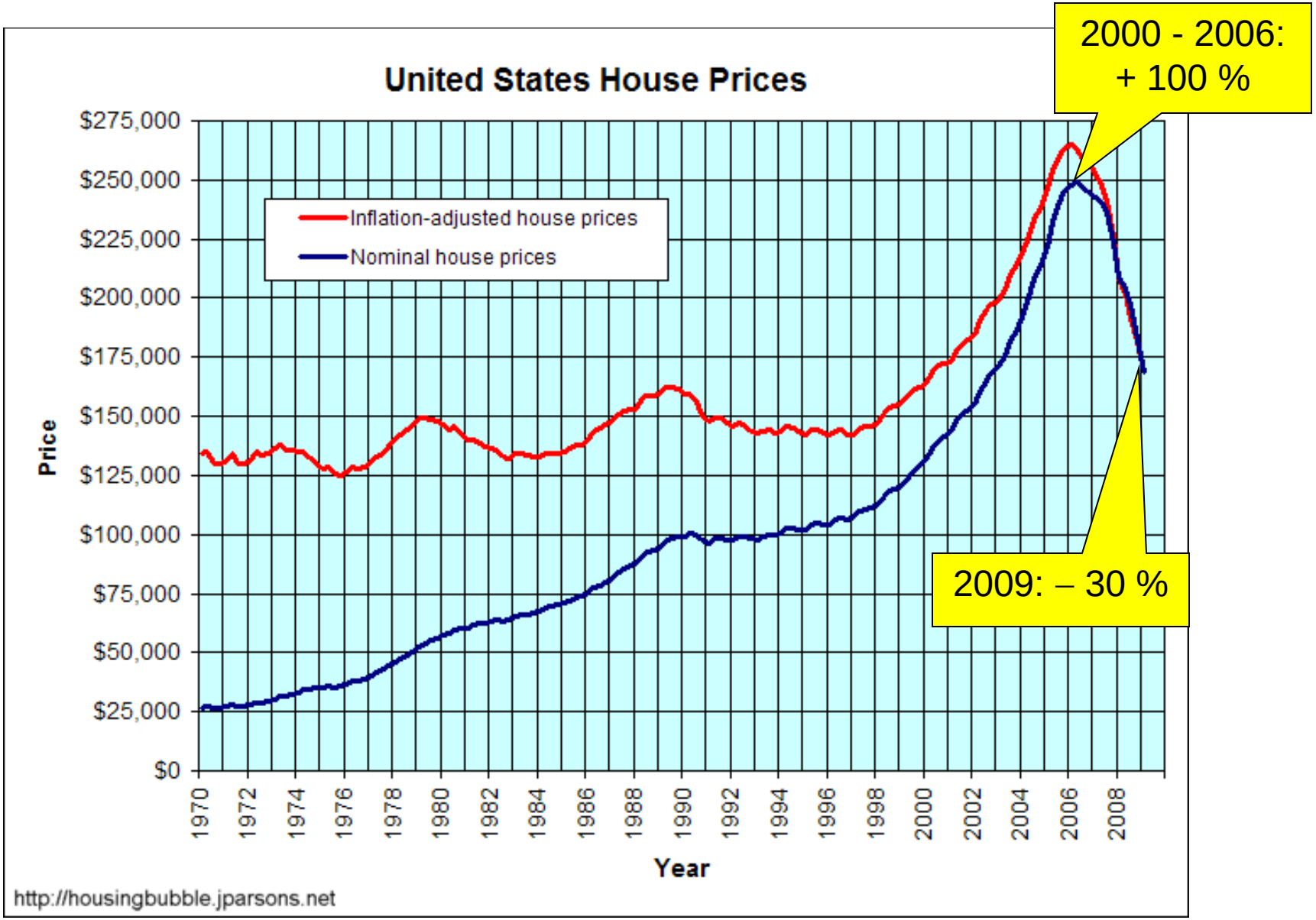
Additional write-down: $p_2 < p_2(z)$; $D' < D$

What the model delivers and doesn't

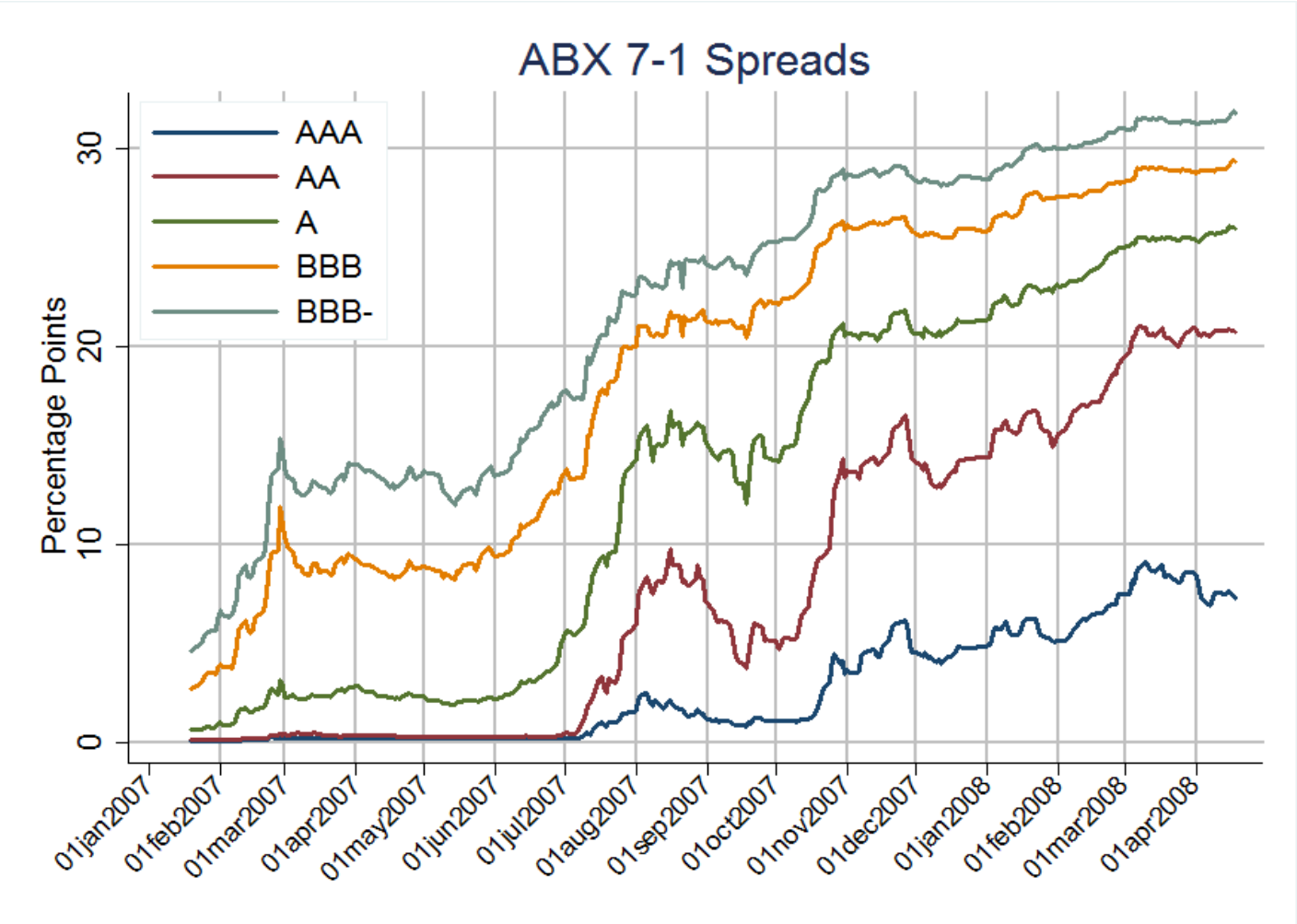
- Ignorance can be good
- Debt optimal – for two reasons:
  - Maximum resilience against a.s.
  - Minimum volatility
- Private information turning relevant with bad news
- Reduced trade, but no a.s.
- Tail risk, but no risk-liquidity trade-off (Pagano-Volpin 2009)
- No initial information asymmetry – Transparency can make private information less relevant

Part III: The panic

Early signs of crisis: housing

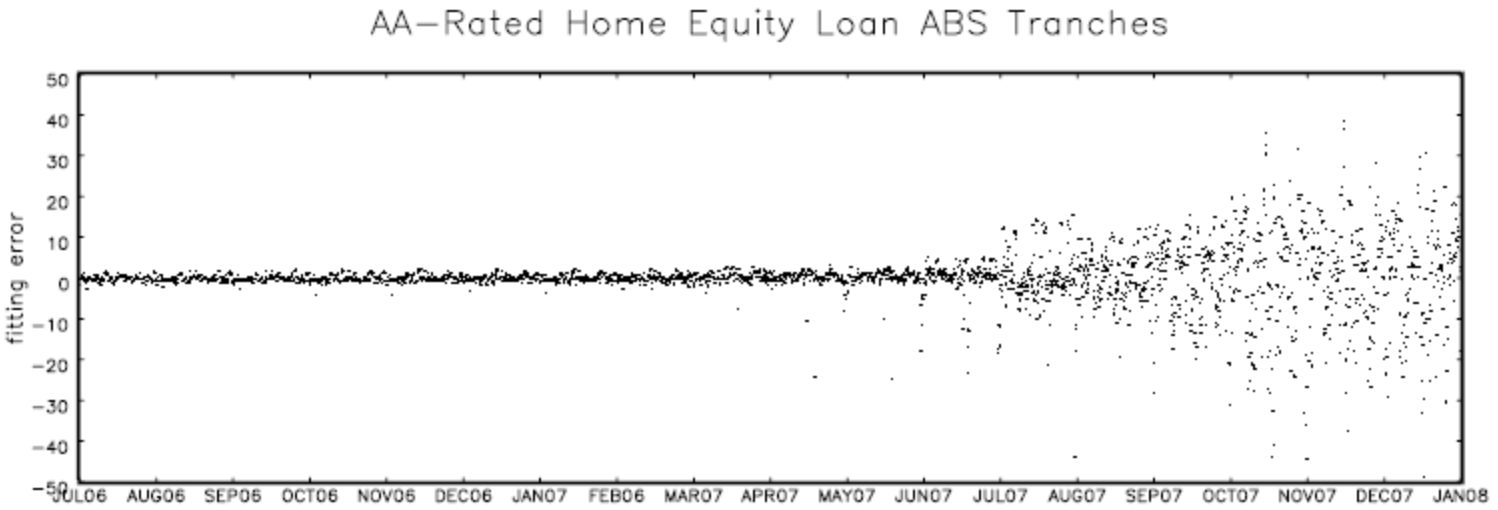


Signs of asset impairment – subprime spreads



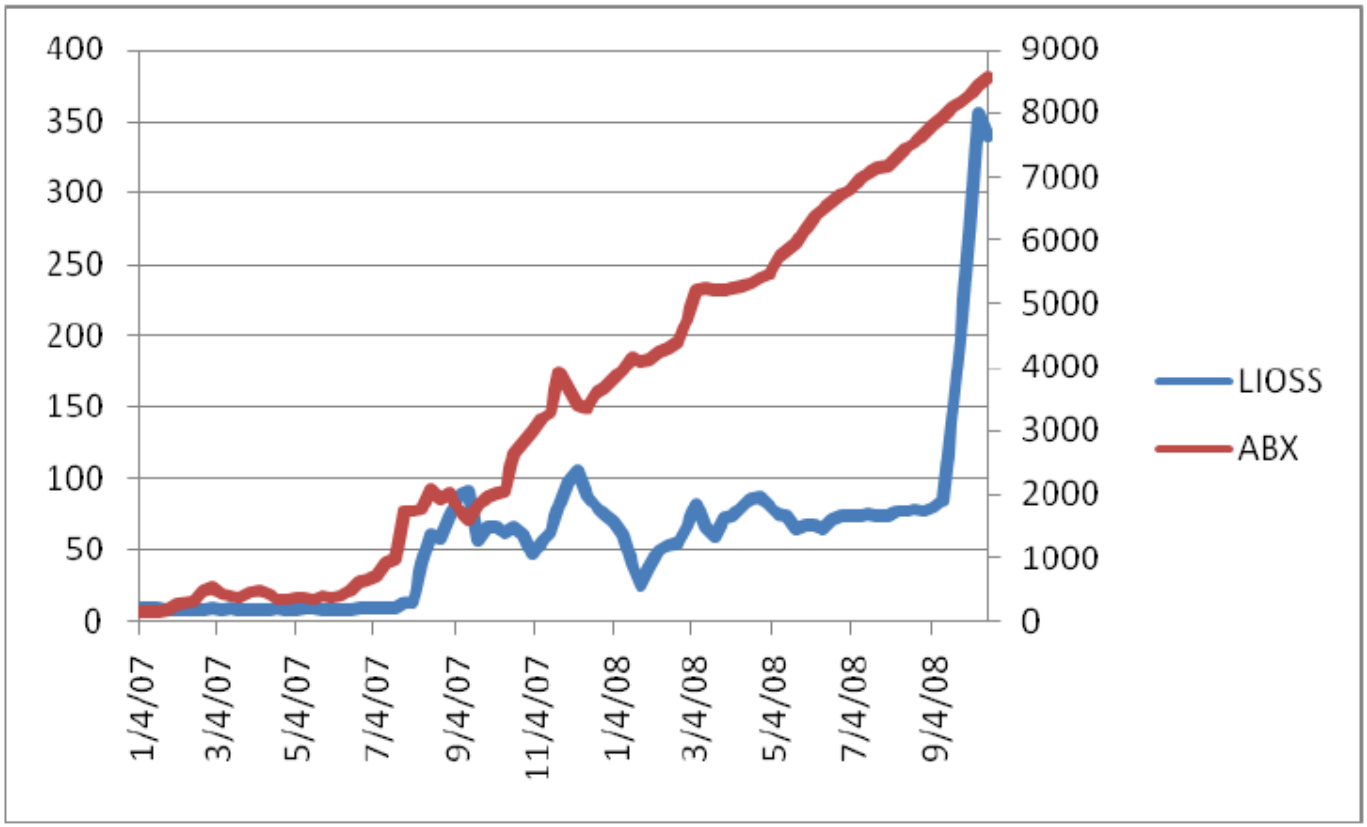
Heterogeneity among AA Home Equity Loan tranches Aug 2006-Jan 2008

- Ex ante: shared understanding (No Questions Asked)
- Shock: BSC subprime fund collapsed Jul 2007; release of "trapped information" (Caplin-Leahy 1995)
- Ex post: increasing heterogeneity as private information becomes relevant



Perraudin-Wu (2008)

A scary picture: Asset impairment vs systemic risk



Notes: ABX is for the 2006-1 BBB tranche. LIOSS on left-hand Y-axis, ABX spreads on right-hand y-axis.

Source: Gorton (2009)

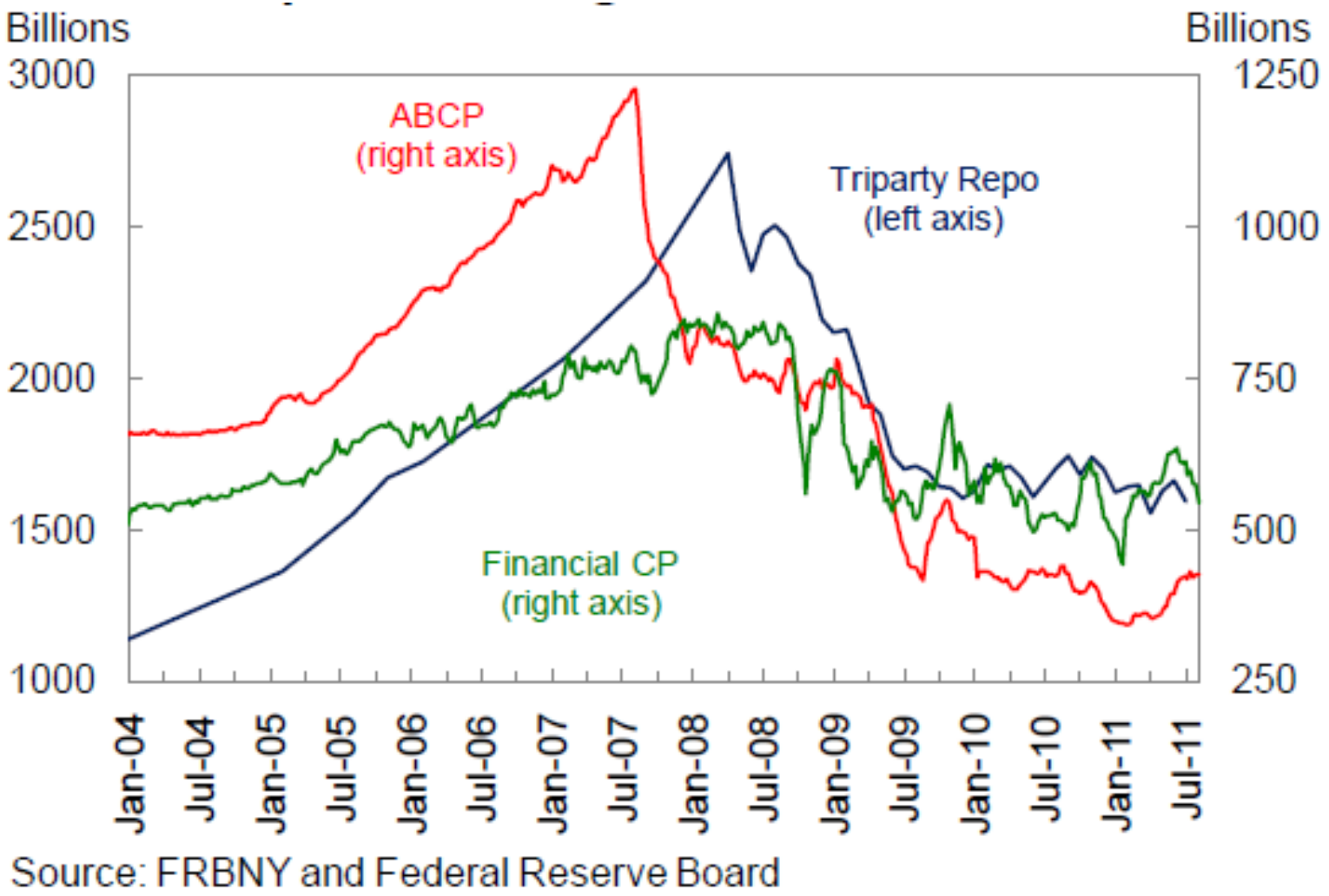
Interpretation: two information shocks

- Trapped info unleashed (Caplin-Leahy, 1994)
  - Discontinuity with switch from NQA to private information becoming relevant

- Stage 1: Information contagion across assets
  - Collapse of Bear Stern fund => broad skepticism about ABS
  - Bad information hits related asset groups, because debt hides information common across assets

- Stage 2: Spread to systemic
  - Collapse of Lehman eroded system guarantee
  - Complexity of system (Caballero-Simsek, 2010)

Why did ABCP collapse not cause panic?



Source: FRBNY and Federal Reserve Board

Part IV: What info perspective delivers

Main messages

- Liquidity = No Questions (need to be) Asked
- “Neglected risks” by design – debt with guarantees in place of transparency
- Transition from information irrelevant to information relevant state => discontinuity
- Information about systemic risk hidden, supporting external monitoring
- Opaque systems expand liquidity ex ante, but increase risk of crises

Some policy implications

- Don't regulate based on crisis state alone ; two states
- More transparency/info sensitivity => less liquidity (in NQA sense), but that may be good:
  - MMMF – daily NAV, because liquidity should be reduced!
- Reduced transparency in bad times (historically)
  - Putting toxic assets in bigger, recapitalized bags
  - Clearinghouses in 19th century
  - Bad banks in Scandinavian crisis 1991-92
- Stress tests – but always with corrective action
  - Illustrative mistake: EU vs US

THANK YOU!