The Nature of Liquidity Provision: When Ignorance is Bliss*

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*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) $\Rightarrow$ liquidity
A common, but false inference

Widely agreed:
Symmetric information (about payoffs) => liquidity

But:
Transparency $\not\Rightarrow$ Symmetric information
A common, but false inference

Widely agreed:
Symmetric information (about payoffs) => liquidity

But:
Transparency $\neq$ 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

⇒ 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

Payoff

Asset Value

Default boundary

Debt payoff

Debt value

Information Sensitive region

Information insensitive region
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

\[ y = s(x) \]

\[ \hat{s}(y) \]

\[ t = 1 \]

\[ t = 2 \]

\[ U_A = C_{A1} + C_{A2} + C_{A3} \quad (0,0,X) \]

\[ U_B = C_{B1} + \alpha C_{B2} + C_{B3} \quad (w,0,0) \quad \alpha > 1 \text{ only purpose for trade} \]

\[ U_C = C_{C1} + C_{C2} + C_{C3} \quad (0,w,0) \]
Trading game (cont)

Information
- \( t = 1 \): Symmetric information. Distribution of \( X \) is \( F(x) \)
- \( t = 1.5 \): Public information \( z \) arrives \( \Rightarrow F(x | z) \)
- \( t = 2 \): Agent C can learn \( x \) at cost \( \gamma \) before accepting contract
  (Interpretation: lower \( \gamma \) = higher transparency)

Problem
- Max \( E(C_{B2}) \), by choice of \( s(x) \), subject to \( E(s(x)) = \text{constant} \)
Information (acquisition) sensitivity

Buyer’s value of information (if $p \leq E[s(x)]$)
Debt is least information sensitive

Buyer’s minimum value of information (if $p \leq E[s(x)]$)
Debt also least sensitive to “news” (DeMarzo, Kremer, Skrzypacz, 2005)

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

\[ v(z) = E(s(x)|z), \quad v^D(z) = E(s^D(x)|z) ; \quad v(z_0) = v^D(z_0) \] as \( z_0 \sim \) prior
Main result

\[ y = s(x) \]

\( t = 1: \) 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

\[ s(x) \]

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

\[ \gamma = \text{cost of information} \]
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

United States House Prices

2000 - 2006: + 100%
2009: − 30%
Signs of asset impairment – subprime spreads

ABX 7-1 Spreads

Percentage Points

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?
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!