Trade-offs in Designing Accounting Standards

Prepared for the PAC Conference
University of Toronto, Mississauga

Haresh Sapra
University of Chicago

June 21, 2024

Outline

- Conventional role of accounting.

Outline

- Conventional role of accounting.
- Insights from my research.

Outline

- Conventional role of accounting.
- Insights from my research.
- Two trade-offs in designing accounting standards:

Outline

- Conventional role of accounting.
- Insights from my research.
- Two trade-offs in designing accounting standards:

1. *More timely but less precise information.*

Outline

- Conventional role of accounting.
- Insights from my research.
- Two trade-offs in designing accounting standards:

1. *More timely but less precise information.*
2. *More complex but less shared information.*

Outline

- Conventional role of accounting.
- Insights from my research.
- Two trade-offs in designing accounting standards:

1. *More timely but less precise information.*
2. *More complex but less shared information.*

- Concluding Remarks.

Role of Accounting

- Higher transparency e.g., via CECL and fair value accounting is desirable as it reduces information asymmetry between firms' insiders and outsiders...

Role of Accounting

- Higher transparency e.g., via CECL and fair value accounting is desirable as it reduces information asymmetry between firms' insiders and outsiders...
- This, in turn, allows outsiders to discipline firms:

Role of Accounting

- Higher transparency e.g., via CECL and fair value accounting is desirable as it reduces information asymmetry between firms' insiders and outsiders...
- This, in turn, allows outsiders to discipline firms:
  - market discipline and/or regulatory discipline.

Role of Accounting

- Higher transparency e.g., via CECL and fair value accounting is desirable as it reduces information asymmetry between firms' insiders and outsiders...
- This, in turn, allows outsiders to discipline firms:
  - market discipline and/or regulatory discipline.
- A gradual shift towards fair value accounting and recent adoption of CECL $\Longrightarrow$ benefits of disclosing timelier information loom large.

Role of Accounting

- Higher transparency e.g., via CECL and fair value accounting is desirable as it reduces information asymmetry between firms' insiders and outsiders...
- This, in turn, allows outsiders to discipline firms:
  - market discipline and/or regulatory discipline.
- A gradual shift towards fair value accounting and recent adoption of CECL $\Longrightarrow$ benefits of disclosing timelier information loom large.
- But timelier information is inherently imprecise and potentially complex. *What are the costs of relying on such information?*

Insights from my research

1. Accounting is not a mapping from states of nature to observed numbers: what we measure, how we measure changes the very states of nature that we are measuring.

Insights from my research

1. Accounting is not a mapping from states of nature to observed numbers: what we measure, how we measure changes the very states of nature that we are measuring.
2. In the presence of multiple imperfections, simply addressing one of the imperfections need not improve economic efficiency: in illiquid markets, addressing information asymmetry between insiders and outsiders via fair value accounting may magnify the negative effects of relying on imprecise information.

Insights from my research

1. Accounting is not a mapping from states of nature to observed numbers: what we measure, how we measure changes the very states of nature that we are measuring.
2. In the presence of multiple imperfections, simply addressing one of the imperfections need not improve economic efficiency: in illiquid markets, addressing information asymmetry between insiders and outsiders via fair value accounting may magnify the negative effects of relying on imprecise information.

- Therefore, when we debate accounting issues such as increasing transparency, it is important to be clear on *both* the nature of the imperfections and their real consequences.

Fair value accounting improves transparency. . .

- Fair value reflects current terms of trade between willing parties and therefore reflects current risk profile:

Fair value accounting improves transparency. . .

- Fair value reflects current terms of trade between willing parties and therefore reflects current risk profile:
  - Disclosing current risk profiles of loans provides market discipline leading to better allocation of resources.

But fair value measurements are inherently imprecise...

- Loans do not trade in deep and liquid markets:

But fair value measurements are inherently imprecise...

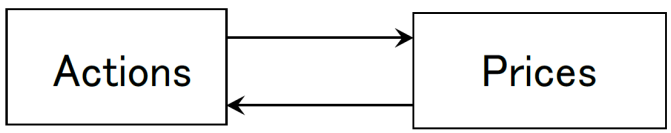
- Loans do not trade in deep and liquid markets:
  - Relying on imprecise measurements can *further damage price accuracy. How?*

Dual Role of Prices...

- Reflection of fundamentals

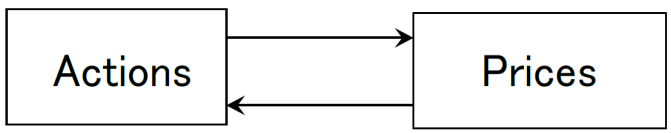
Dual Role of Prices...

- Reflection of fundamentals
- Influences actions



Dual Role of Prices...

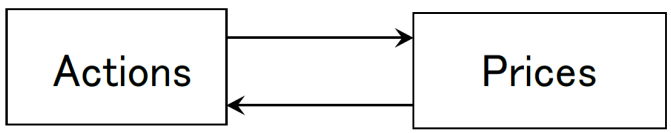
- Reflection of fundamentals
- Influences actions



- Reliance on market prices *distorts* market prices.

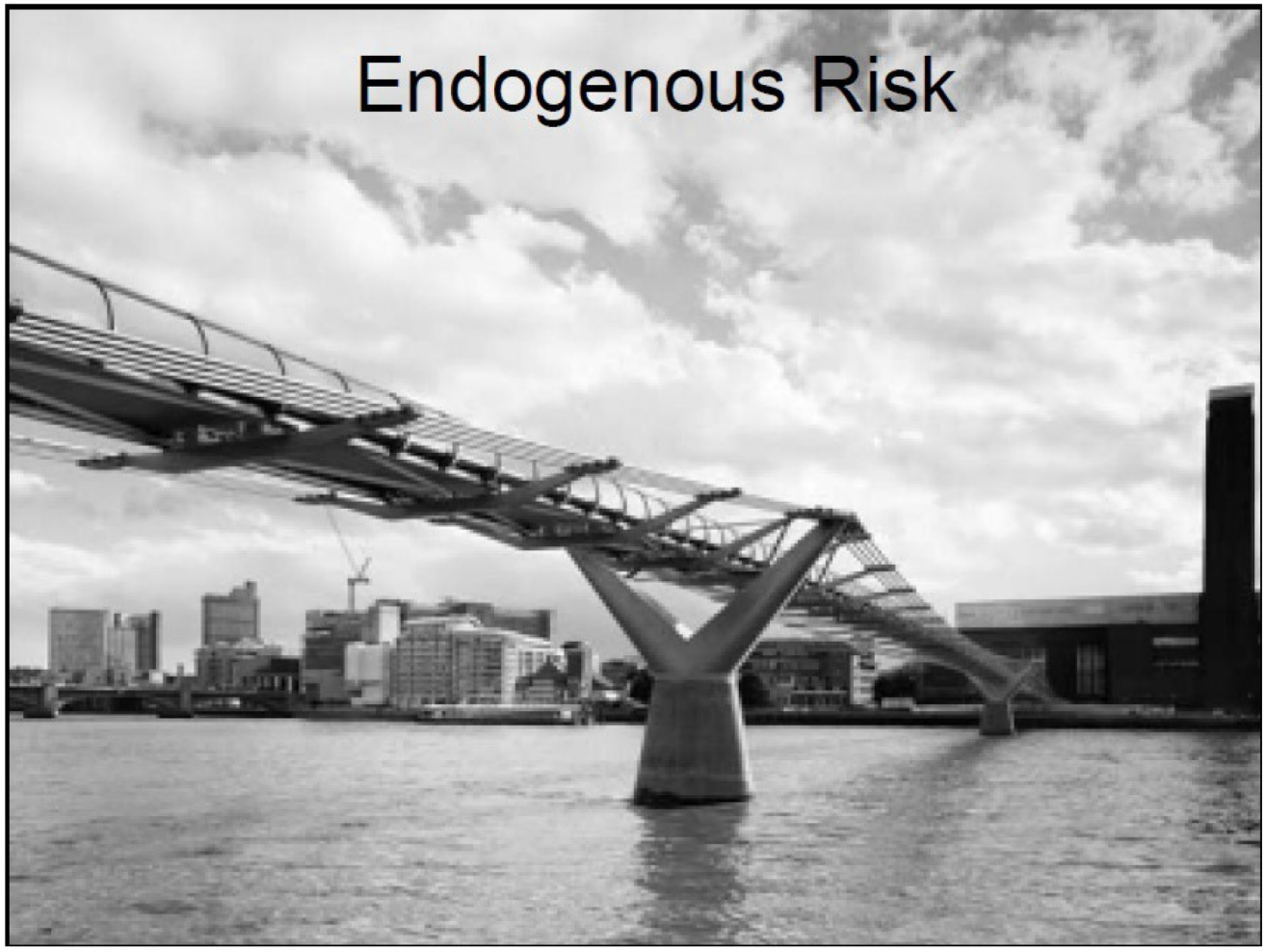
Dual Role of Prices...

- Reflection of fundamentals
- Influences actions



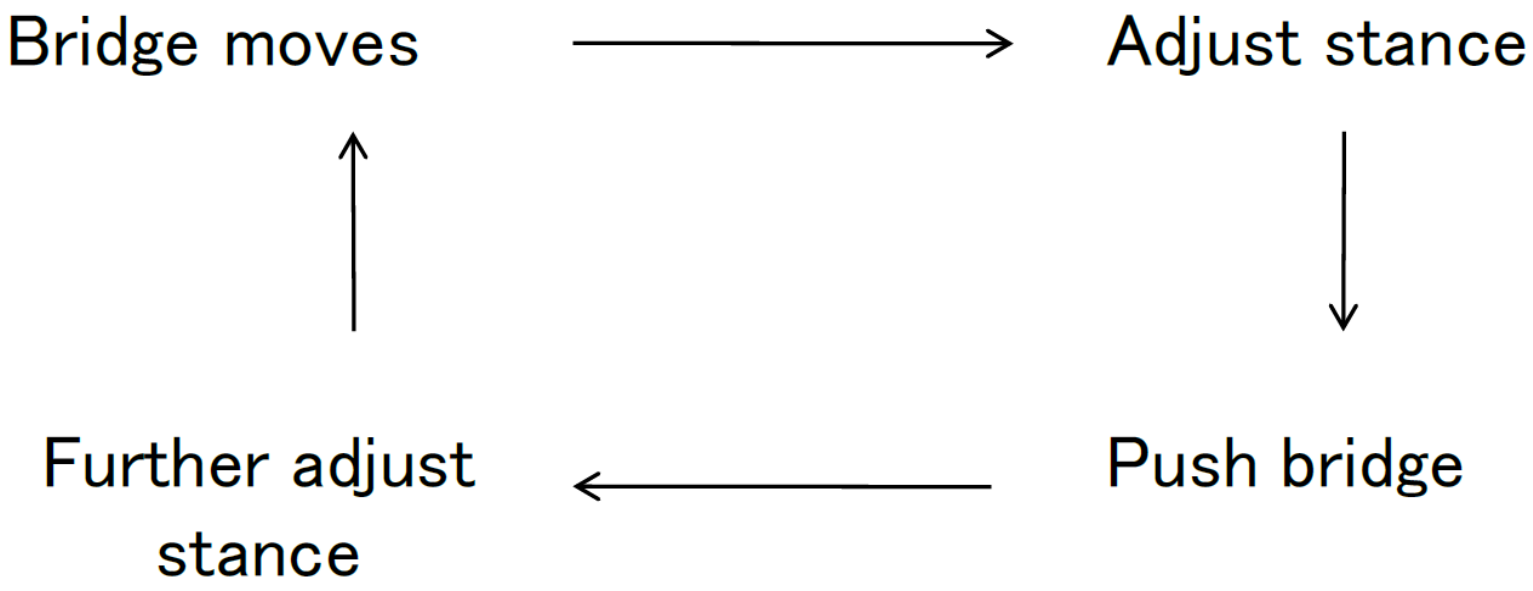
- Reliance on market prices *distorts* market prices.
  - Endogenous Risk

Lessons from the Millenium Bridge



- If individual steps are independent events. . .

- If individual steps are independent events...
  - ...then the probability is close to zero.


Bridge moves
Adjust stance
Push bridge
Further adjust stance

Exogenous Risk vs. Endogenous Risk

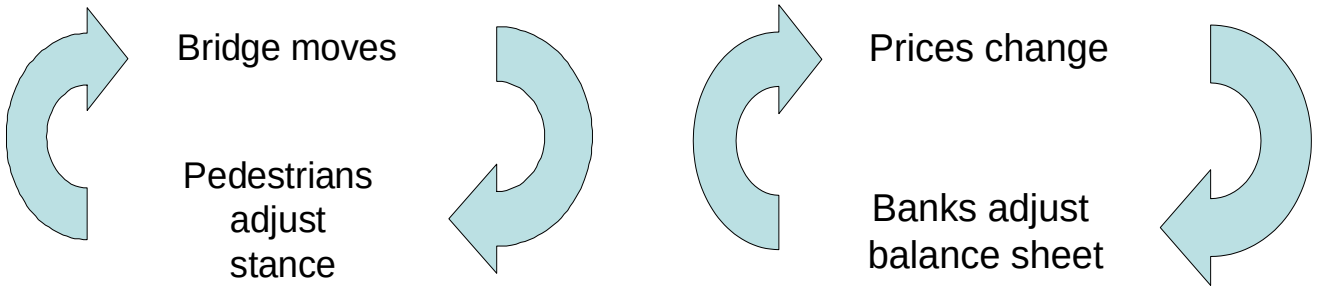
Endogenous Risk

- Risk from shocks generated and amplified *within* the system

in contrast to…

Exogenous Risk

- Risk from shocks from *outside* the system


Bridge moves
Pedestrians adjust stance
Prices change
Banks adjust balance sheet

Fair value accounting synchronises actions....

- Banks are at the cutting edge of price sensitive incentive schemes and price sensitive risk management schemes.

Fair value accounting synchronises actions....

- Banks are at the cutting edge of price sensitive incentive schemes and price sensitive risk management schemes.
- And fair value accounting ensures that any prices changes affects performance metrics...

Fair value accounting synchronises actions....

- Banks are at the cutting edge of price sensitive incentive schemes and price sensitive risk management schemes.
- And fair value accounting ensures that any prices changes affects performance metrics...
- So when the bridge moves, banks adjust their stance more than they used to, and fair value accounting ensures that *they all do it at the same time*.

Historical cost vs. Fair value measurements

- Historical cost Accounting: decisions *not sensitive enough* to market prices.

Historical cost vs. Fair value measurements

- Historical cost Accounting: decisions *not sensitive enough* to market prices.
  - Induces gains trading: e.g., Savings and Loans crises of the 1980s or the Japanese Banking Crisis of the 1990s.

Historical cost vs. Fair value measurements

- Historical cost Accounting: decisions *not sensitive enough* to market prices.
  - Induces gains trading: e.g., Savings and Loans crises of the 1980s or the Japanese Banking Crisis of the 1990s.
- Fair Value Accounting: decisions may be *too sensitive* to market prices especially when those fair values are based on imprecise measures.

Historical cost vs. Fair value measurements

- Historical cost Accounting: decisions *not sensitive enough* to market prices.
  - Induces gains trading: e.g., Savings and Loans crises of the 1980s or the Japanese Banking Crisis of the 1990s.
- Fair Value Accounting: decisions may be *too sensitive* to market prices especially when those fair values are based on imprecise measures.
  - Exacerbates endogenous risk and destabilizes financial markets: the financial crisis of 2008

Should banks' balance sheets be marked to market?

- Consider a bank whose securities are continuously marked to market on its balance sheet. Price changes would show up immediately as changes in net worth:

Should banks' balance sheets be marked to market?

- Consider a bank whose securities are continuously marked to market on its balance sheet. Price changes would show up immediately as changes in net worth:
  - What are the reactions to changes in net worth?

Should banks' balance sheets be marked to market?

- Consider a bank whose securities are continuously marked to market on its balance sheet. Price changes would show up immediately as changes in net worth:
  - What are the reactions to changes in net worth?
  - What are the aggregate consequences to such reactions?

Suppose the bank is targeting a constant leverage....

Targeting Constant Leverage

Initial balance sheet

Assets	Liabilities
Securities, 100	Equity, 10
	Debt, 90

Assume price of debt approximately constant. Suppose the security price increases by 1% to 101.

Assets	Liabilities
Securities, 101	Equity, 11
	Debt, 90

Leverage falls to

$$\frac{101}{11} = 9.18$$

If bank targets **constant leverage**, it must take on additional debt of D to purchase D worth of securities on the asset side so that

$$\frac{\text{assets}}{\text{equity}} = \frac{101 + D}{11} = 10$$

The solution is $D = 9$. In other words, the bank takes on additional debt worth 9, and with this money purchases securities worth 9.

The demand curve is upward-sloping.

The new balance sheet looks like this.

Assets	Liabilities
Securities, 110	Equity, 11
	Debt, 99

The leverage is now back up to 10.

The mechanism works in reverse, too. Suppose there is shock to the security price so that

Assets	Liabilities
Securities, 109	Equity, 10
	Debt, 99

Leverage is too high $(109/10 = 10.9)$.

Sell securities worth 9, paydown debt of 9.

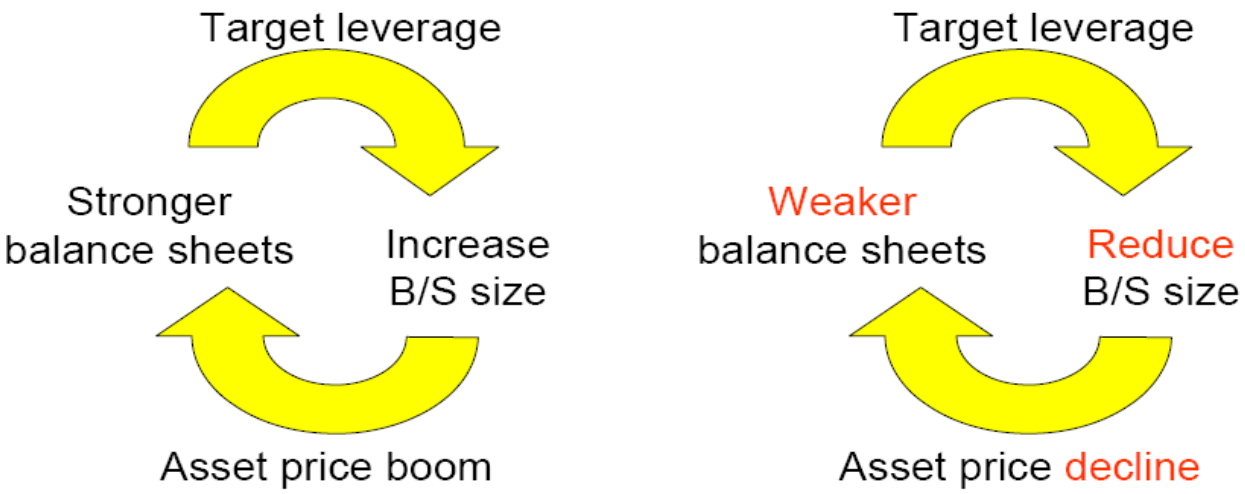
Assets	Liabilities
Securities, 100	Equity, 10
	Debt, 90

Back to leverage of 10.

Supply curve is downward-sloping.

What is the aggregate impact of perverse demand and supply curves?

Aggregate Impact



If leverage is procyclical, then amplifying effect is that much larger.

Transparency versus financial stability

- From a transparency perspective, the shift to a fair value measurement regime is desirable. . . .

Transparency versus financial stability

- From a transparency perspective, the shift to a fair value measurement regime is desirable. . . .
- However, when banks' management have short-term incentives, fair value measurements induce pro-cyclicality while historical cost accounting induces counter-cyclicality.

Transparency versus financial stability

- From a transparency perspective, the shift to a fair value measurement regime is desirable. . . .
- However, when banks' management have short-term incentives, fair value measurements induce pro-cyclicality while historical cost accounting induces counter-cyclicality.
- From a financial stability perspective, any actions that dampens financial cycles and mitigates pro-cyclicality are desirable.

Potential Solutions

- Put frictions on the bridge:

Potential Solutions

- Put frictions on the bridge:
  - Make capital requirements countercyclical by tying regulatory capital to loan losses from expected loss models such as CECL?

Potential Solutions

- Put frictions on the bridge:
  - Make capital requirements countercyclical by tying regulatory capital to loan losses from expected loss models such as CECL?

- Give pedestrians on the bridge balancing frames: Alter the way financial institutions react to short-run price changes:

Potential Solutions

- Put frictions on the bridge:
  - Make capital requirements countercyclical by tying regulatory capital to loan losses from expected loss models such as CECL?
- Give pedestrians on the bridge balancing frames: Alter the way financial institutions react to short-run price changes:
  - Should bank regulators intervene in the way boards set compensation contracts for banks' insiders?

Complexity vs. Shared Understanding

- Information models typically assume that all investors have unlimited ability to understand and process information.

Complexity vs. Shared Understanding

- Information models typically assume that all investors have unlimited ability to understand and process information.
- Communication through accounting standards rests on share understanding...

Complexity vs. Shared Understanding

- Information models typically assume that all investors have unlimited ability to understand and process information.
- Communication through accounting standards rests on share understanding...
- However, in practice, investors differ in their ability to process and understand information:

Complexity vs. Shared Understanding

- Information models typically assume that all investors have unlimited ability to understand and process information.
- Communication through accounting standards rests on share understanding...
- However, in practice, investors differ in their ability to process and understand information:
  - This is particularly true for forward-looking information that rely of complex estimates.

Complexity vs. Shared Understanding

- Information models typically assume that all investors have unlimited ability to understand and process information.
- Communication through accounting standards rests on share understanding...
- However, in practice, investors differ in their ability to process and understand information:
  - This is particularly true for forward-looking information that rely of complex estimates.
- Given *heterogeneity* in information processing, what are the consequences of disclosing more forward-looking information?

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :
  - Both types are rational. However, type S can fully process and therefore understand complex information while type U cannot process complex information.

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :
  - Both types are rational. However, type S can fully process and therefore understand complex information while type U cannot process complex information.

- Consider a bank that discloses information to such market participants about the expected loss on its loan portfolio.

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :
  - Both types are rational. However, type S can fully process and therefore understand complex information while type U cannot process complex information.

- Consider a bank that discloses information to such market participants about the expected loss on its loan portfolio.
  - While type S can fully integrate the expected loss information, type U is unable to do so, resulting in information asymmetry.

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :
  - Both types are rational. However, type S can fully process and therefore understand complex information while type U cannot process complex information.

- Consider a bank that discloses information to such market participants about the expected loss on its loan portfolio.
  - While type S can fully integrate the expected loss information, type U is unable to do so, resulting in information asymmetry.
  - Note that such information asymmetry arises *even though the expected loss is public information.*

Complexity vs. Shared Understanding

- A market consists of two types of market participants: Sophisticated (S) and Unsophisticated (U) :
  - Both types are rational. However, type S can fully process and therefore understand complex information while type U cannot process complex information.

- Consider a bank that discloses information to such market participants about the expected loss on its loan portfolio.
  - While type S can fully integrate the expected loss information, type U is unable to do so, resulting in information asymmetry.
  - Note that such information asymmetry arises *even though the expected loss is public information.*
  - Note that if type S also has private information about the loan performance, then disclosing the expected loss information exacerbates the degree of information asymmetry between S and U.

Complexity vs. Shared Understanding

- Given such information asymmetry, type U's trade less aggressively in the bank's equity relative to type S lowering the liquidity of the market for the bank's equity.

Complexity vs. Shared Understanding

- Given such information asymmetry, type U's trade less aggressively in the bank's equity relative to type S lowering the liquidity of the market for the bank's equity.

- The more complex the expected loss information, the less liquid the market for the firm's equity.

Complexity vs. Shared Understanding

- Given such information asymmetry, type U's trade less aggressively in the bank's equity relative to type S lowering the liquidity of the market for the bank's equity.
- The more complex the expected loss information, the less liquid the market for the firm's equity.
- Optimal communication results in a trade-off:

Complexity vs. Shared Understanding

- Given such information asymmetry, type U's trade less aggressively in the bank's equity relative to type S lowering the liquidity of the market for the bank's equity.
- The more complex the expected loss information, the less liquid the market for the firm's equity.
- Optimal communication results in a trade-off:
  - To improve the liquidity of the market for the bank's equity, disclosure of expected loss information should be less complex or coarser so that it leads to shared understanding by both types of market participants.

Complexity vs. Shared Understanding

- Given such information asymmetry, type U's trade less aggressively in the bank's equity relative to type S lowering the liquidity of the market for the bank's equity.
- The more complex the expected loss information, the less liquid the market for the firm's equity.
- Optimal communication results in a trade-off:
  - To improve the liquidity of the market for the bank's equity, disclosure of expected loss information should be less complex or coarser so that it leads to shared understanding by both types of market participants.
  - But in making the information coarser, there is necessarily a loss in transparency.

Concluding remarks

- Accounting has far-reaching consequences not just for the working of financial markets but also for bank stability.

Concluding remarks

- Accounting has far-reaching consequences not just for the working of financial markets but also for bank stability.
- As accounting standards rely on more forward-looking information, accounting metrics will necessarily rely more and more on complex estimates...

Concluding remarks

- Accounting has far-reaching consequences not just for the working of financial markets but also for bank stability.
- As accounting standards rely on more forward-looking information, accounting metrics will necessarily rely more and more on complex estimates...
  - future research need to better understand the consequences of relying on such information.