The Collateral Link between Volatility and Risk Sharing
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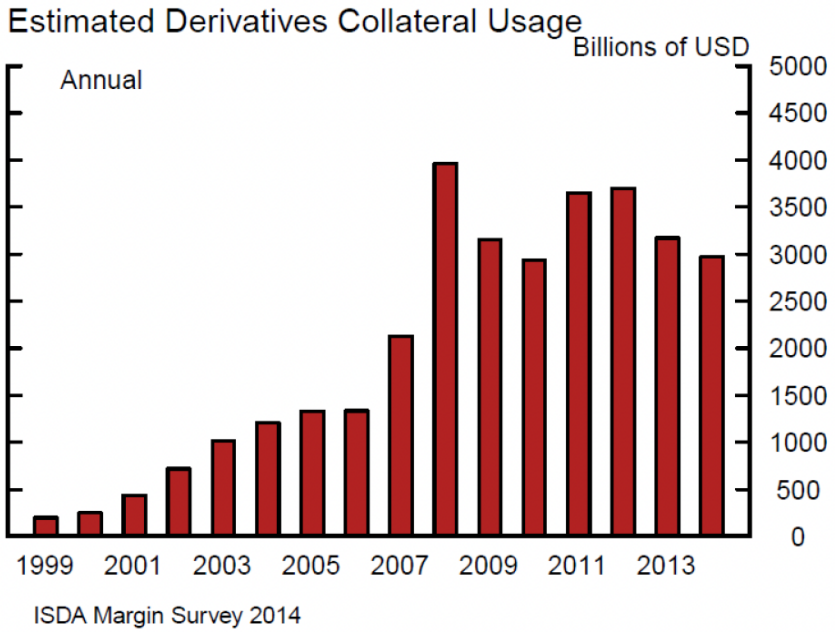
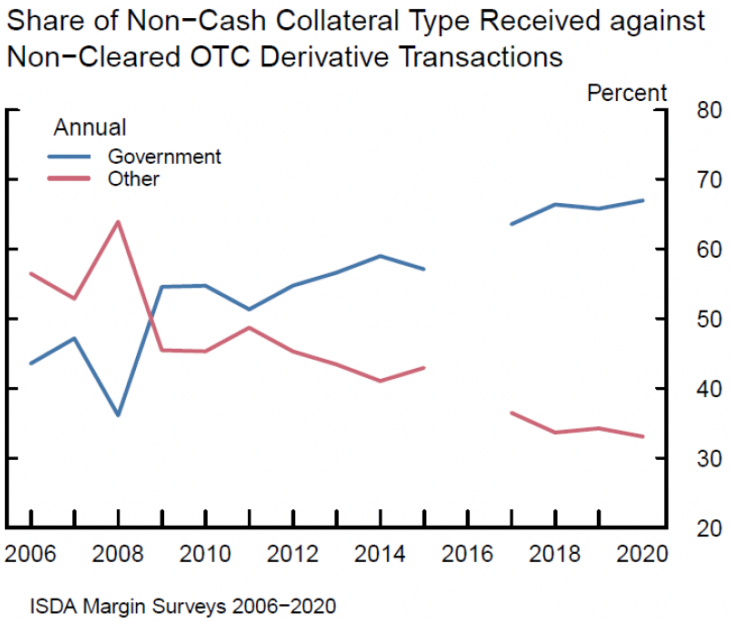
The Rise of (Government) Collateral

Figure 1: Use and Composition of Collateral





- What are the implications from changes in collateral *composition*?

The Dual Roles of Collateral

1. Idiosyncratic risks $\rightarrow$ need for risk-sharing
   - In the model, endowment shocks are perfectly negatively correlated
   - Creates demand for insurance/risk-sharing
   - Similar to Allen and Gale 00: banks in different regions use interbank loans to insure against idiosyncratic liquidity shocks
   - Key difference: insurance must be fully collateralized
     - promises an agent can make $\leq$ lowest value of collateral
   - $\rightarrow$ risk-sharing depends on the value of collateral

The Dual Roles of Collateral

1. Aggregate volatility shocks $\rightarrow$ store of value
   - There is volatility in the aggregate endowment over time
   - Need for consumption smoothing over time
   - Private asssets: payoff proportional to aggregate endowment
     - When aggregate endowment is low $\rightarrow$ payoff is low
   - Public assets: (short and long-term) government bonds always pay at par independent of the aggregate endowment
     - Government can raise taxes to pay off public debt

Key Insights/Findings

1. Many public and private assets serve dual roles as
   1. collateral to share idiosyncratick shocks intratemporally
   2. stores of value to smooth aggregate shocks intertemporally

   which intrinsically ties risk-sharing to aggregate volatility

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   - the intertemporal price of public asset increases
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3. Low aggregate volatility increases the creation of private collateral $\rightarrow$ risks lower risk-sharing when aggregate volatility rises

It's a great paper!

- Thought-provoking
  - Highlights connection between safe assets as store of value and collateral for risk-sharing
- Policy-relevant
  - Highly-relevant for regulations around collateral and financial stability

1. Government Bond Supply vs Collateral Composition

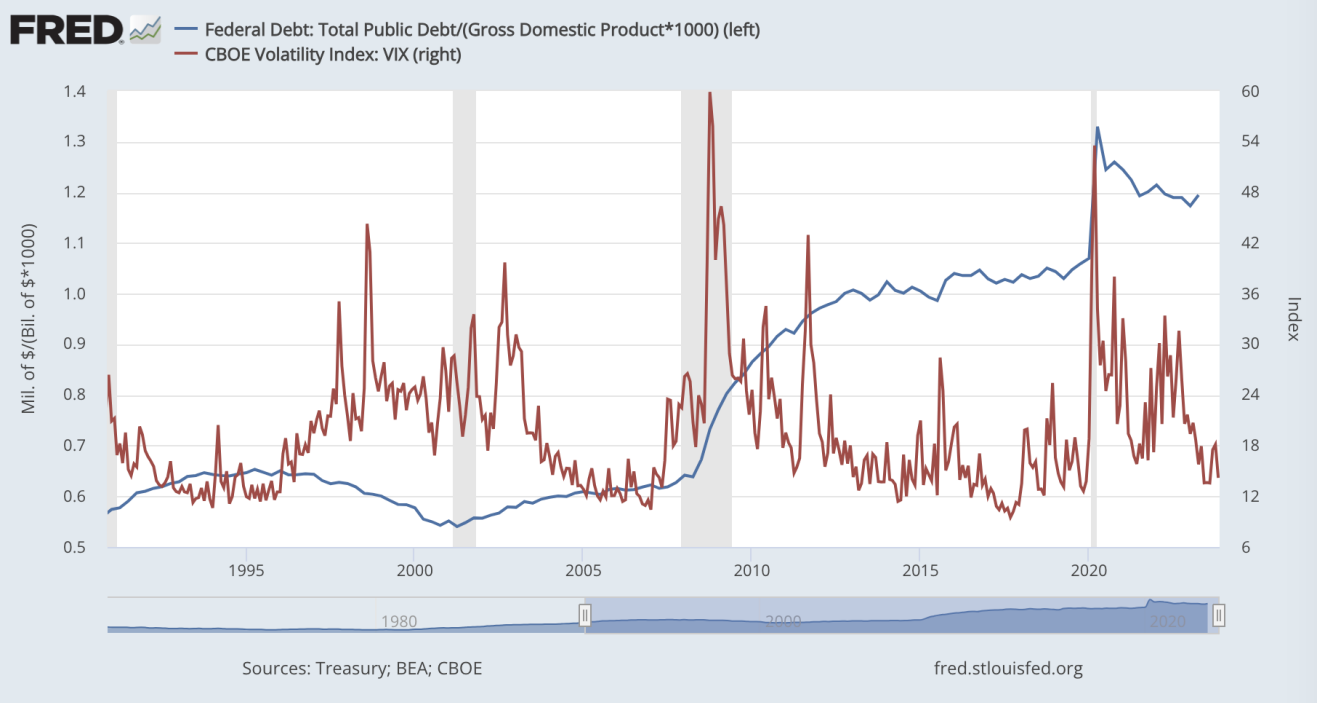
- Private to public collateral ratio is an important statistic in the paper the determines the effect of aggregate volatility on risk-sharing
- Private to public collateral ratio could also decrease if there is more public assets supplied e.g. more Treasuries issued
- But what if the supply of pulic assets becomes so high that it is unsustainable? Private to public collateral ratio would be very low...
- ...but the public asset may then also become contingent on the aggregate endowment
- Thus, a very low private to public collateral ratio may mean public asset is no longer an asset with non-contingent payoffs

1. Government Bond Supply vs Collateral Composition

- The private/public collateral ratio is really about contingent/non-contingent payoff collateral ratio
- But whether payoffs are contingent on aggregate state varies with supply and thus feeds back into the private/public collateral ratio
- Suggest: incorporate issuance of public asset and its implications
- E.g. For the US case, assumption plausible so far, but what if Treasury issuance continues to rise...

2. Treasury Supply versus Aggregate Volatility

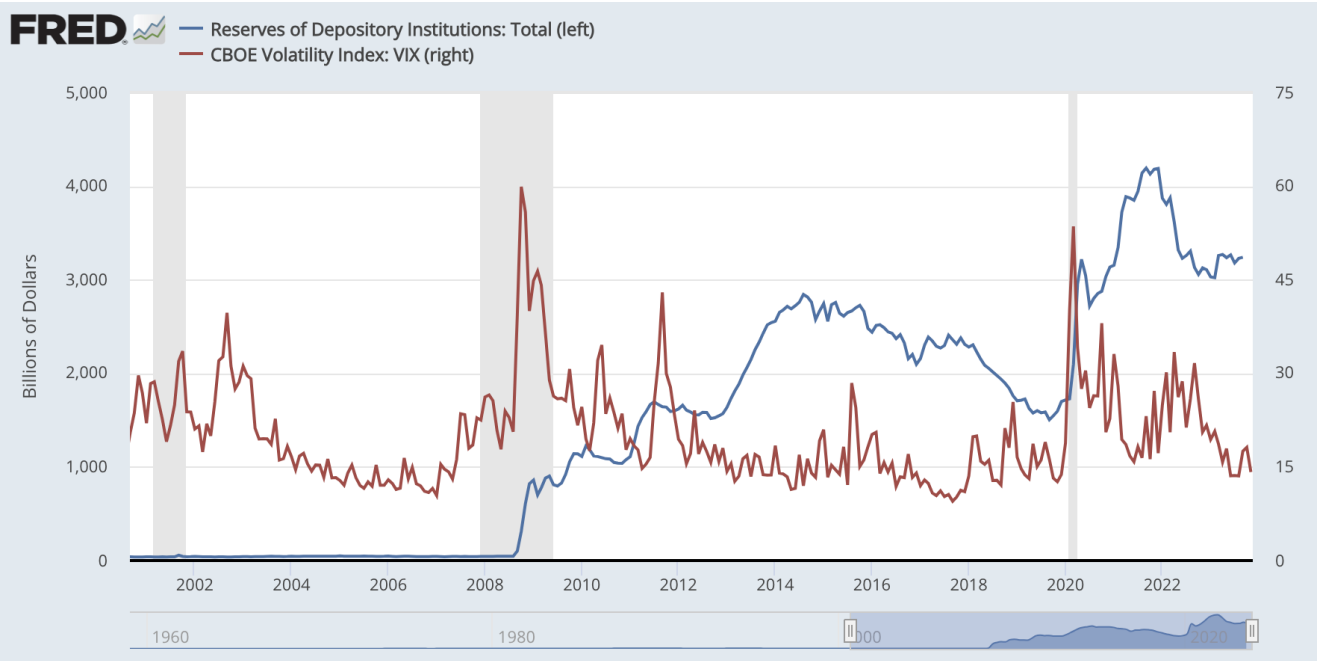
- Treasury issuance tends to increase during "bad" times - when aggregate volatility increases?



- If Treasuries remain "safe", does this increased issuance benefit risk sharing by alleviating the collateral constraints?
- Suggest: consider relationship between Treasury supply and aggregate volatility

Side note: QE

- But these "bad" times were also when (long term) Treasury markets were strained and QE was implemented to buy Treasuries (and corporate bonds in 2020)

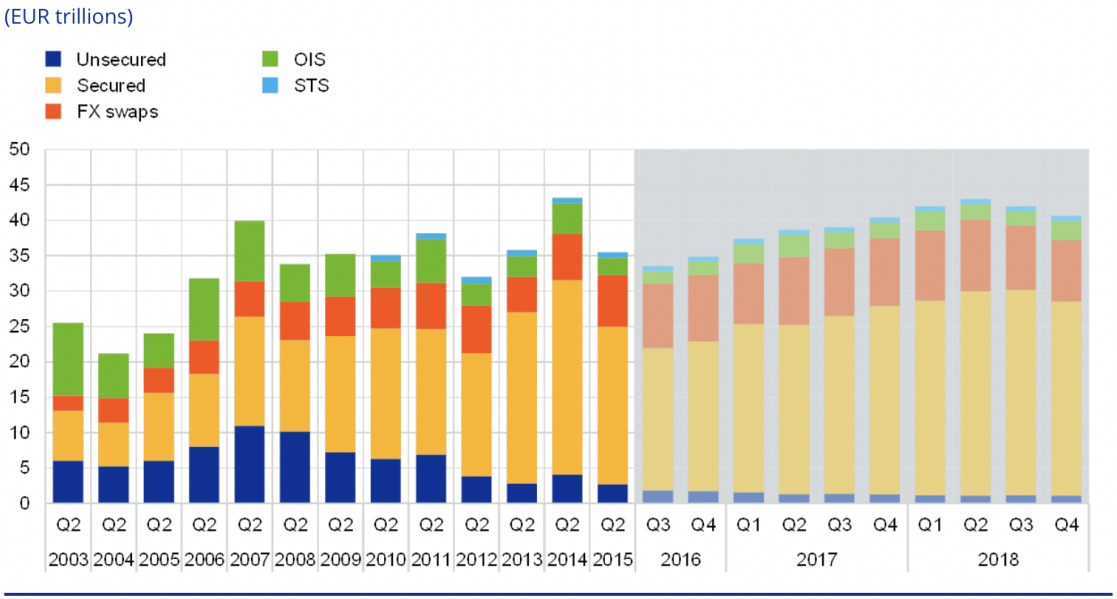


- Did QE boost collateral value and improve risk-sharing?

3. Collateralization

- We were not always in a "fully secured" world. E.g., interbank markets moved from unsecured to secured after 08 crisis

Market share of the cumulative volume per quarter per segment



3. Collateralization

- Insurance claims are assumed to be fully collateralized i.e. no unsecured contracts
- The proposed relationship between aggregate volatility and risk sharing varies with the degree of (required) collataterlization
- In practice, collateralization depends on the type of contract, regulation, time-period etc...
- Could be an interesting comparative statistic to show readers (and regulators) as an implication of increasing collateralization of risk-sharing contracts
    - The usual argument for requiring more collateral is often reducing counterpatrty risk

Conclusion

- Really a thought-provoking read - will make you connect the dots between safe assets as a store of value versus safe assets as collateral in risk-sharing!
- Suggestions
  - Incorporate issuance of public asset
  - Consider relationship between public asset supply and aggregate volatility
  - Discuss the extent of collateralization requirements