

# 1 Volatility Regression Results

Relationship between Volatility, Price to Book Ratio, and Market Volatility

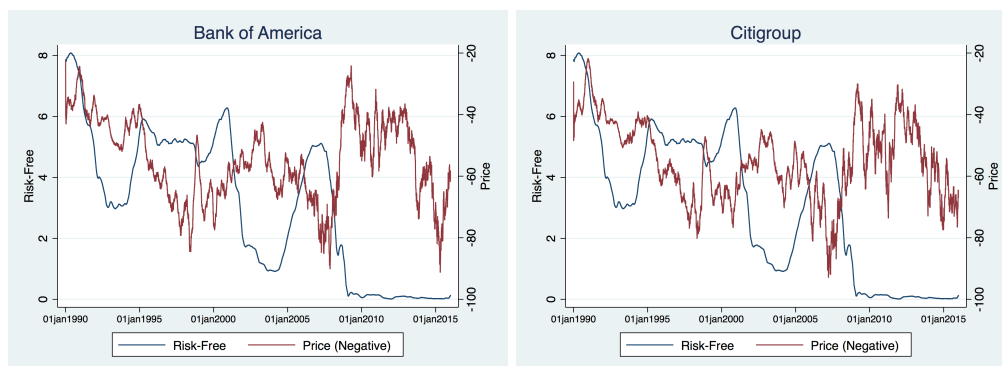
Dependent Variable is Bank Volatility, Annualized

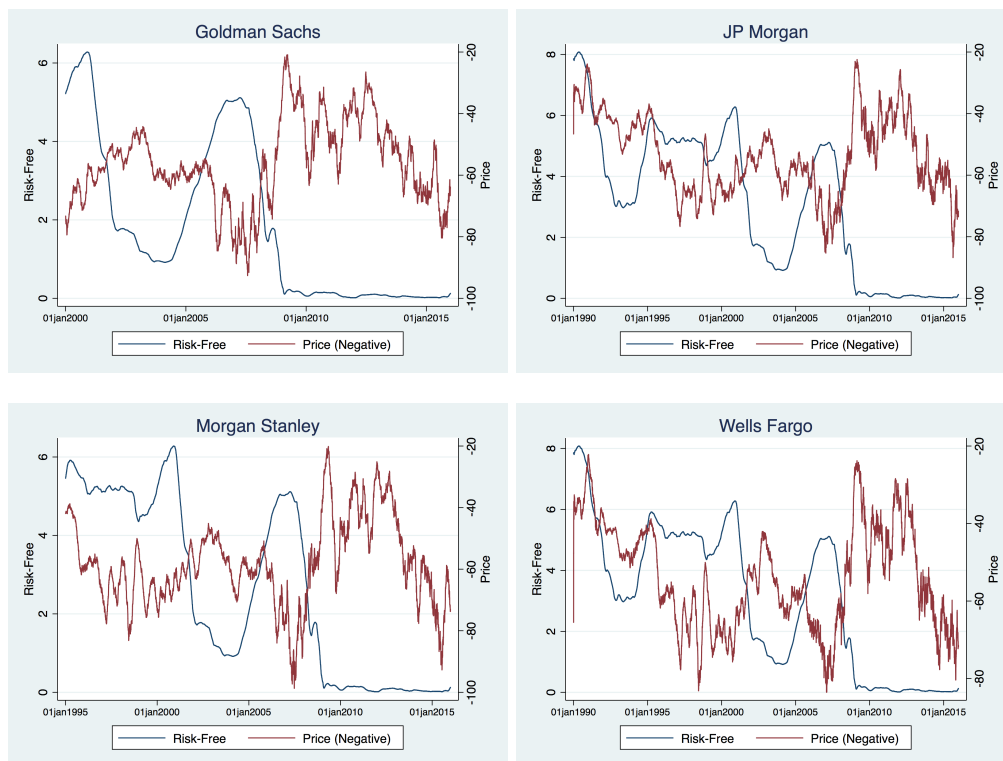
	(1) Bank of America	(2) Citigroup	(3) Goldman Sachs	(4) JP Morgan	(5) Morgan Stanley	(6) Wells Fargo
Price to Book	-7.751* (4.017)	-7.018* (3.653)	4.751** (2.116)	2.093 (3.602)	-0.0671 (2.171)	-7.226 (5.100)
Market Volatility	2.856*** (0.534)	3.296*** (0.491)	2.044*** (0.201)	2.484*** (0.225)	3.220*** (0.273)	2.439*** (0.464)
Constant	-2.820 (12.94)	-8.186 (12.27)	-10.92* (5.968)	-12.48* (6.886)	-14.53* (6.872)	2.324 (14.98)
R-squared	0.726	0.792	0.888	0.898	0.910	0.689
Observations	17	17	16	17	17	17

## 2 Why has franchise value gone down?

- Relationship between stock price and interest rates – looks like interest rate and stock price moves together, but not clear how we can disentangle regulation story from interest rate story.
- I've just looked at the correlation between movements in the stock price (both with and without dividing by the S&P 500) and movements in interest rate using the graphs below. I'm using a basic three-month moving average to smooth this data. For the risk-free rate, we're using the rate on a three-month treasury (as we do in our Baker-Wurgler calculations).

### 2.1 Bank stock price and risk-free rates





### 3 Main Comments

- Distinguish decrease in franchise value as coming from regulation vs. low interest rate environment
  - NOTE: See above, not sure how best to disentangle these two
  - Jan and Jim stressed this in their comments as well, as did Peter Sands. Based on his comments perhaps Sands has in mind how we can think about understanding relative importance.
- Philippon: how much of what you are observing is about disaster risk? Specifically, Philippon doesn't think that the risk of a macro disaster has increased, but he thinks the perceived risk of bank failures (the exposure of banks to macro risk) has increased.
- Bulow:
  - Jump process for modeling intangibles(?)
  - Add some more work on value/volatility of intangibles – specifically Jeremy thinks we can discuss BAML asset sale to meet capital requirement, converting intangibles to tangibles but with the impact on overall risk unclear
  - Document extent to which decline in intangibles is about reduced value of retail deposits
  - Some discussion of CDS/option deltas in the context of risk-neutral probabilities
- Peter Sands, Jeremy Stein and Andy Haldane make a similar point – that is it is possible that banks are safer from the perspective of regulators/taxpayers, while riskier from the perspective of equity/debt holders
  - Sands: “The fact that 7% core equity is now the default trigger level for Cocos gives an indication of where equity holders could expect significant dilution. If the bank's core equity ratio is 12%, the buffer from an equity holder's point of view is only 5%.”

- Stein: “I think you are a little too quick to equate stock prices falling to near-zero with bank failure. Especially given your focus on franchise value. One way for volatility to go up post DF is that franchise value has become very levered due to a much higher fixed cost base...This is one interpretation of Deutsche post-Brexit – it’s not that the market is literally worried about them failing, rather there is no confidence in their business model so small changes in economic environment lead to large changes in stock prices. But that need not be a solvency thing.”
- Haldane says that Jeremy’s view neglects the fact that based on this analysis you would have reached the same conclusion in early 2008 (that profit issue, not a solvency one) and would have been wrong, so doesn’t buy into this story as much.
- Peter Sands has a lengthy discussion of why he doesn’t buy the bank capital mismeasurement theory
  - I don’t fully follow it, so would be helpful to discuss.
- The COO of JPM said two things to you that you thought about incorporating:
  - Liquidity risk is way down
  - Subs of US banks are much safer than they used to be – Bulow says that maybe if you reduce cross-default this is good, but there is a separate question of whether there is enough total capital to support commercial banks’ assets, and he thinks probably not
- Paul Tucker thinks we should be talking more about subordinated debt.
- Broad conceptual issue (raised by Jeremy, Geithner, also the Konczal thing) – need to decide what we are for and rewrite conclusion accordingly. The point made by Konczal is that this paper is suggesting that we need higher capital requirements.

## 4 Natasha TBDs

- Bolster pre-crisis mismeasurement of risk as an explanation (FIRST PASS DONE)
  - Using 1995-2005 as the pre-period
  - Reference Yellen discussion of our paper here
- Add to discussion of BK the fact that right before they failed Lehman and Bear were doing fine (FIRST PASS DONE, not so true for Bear)
- More intelligent commentary about why PTB has decreased, per John Vickers comments (FIRST PASS DONE)
- Update Carney discussion per Vickers comments (FIRST PASS DONE)
- Be clear about different tests (beta vs. vol, etc.) from Bulow new note (FIRST PASS DONE)
- Add in stronger Jeremy Carney/Basel distinction to conclusion (FIRST PASS DONE)
- Temper on Euro per Peter Sands comments (FIRST PASS DONE)
- Konczal cites a few studies that suggest that the TBTF subsidy has decreased dramatically, probably good to mention at some point in paper (FIRST PASS DONE)