

Discussion of:  
“Geographic diversification and  
banks’ funding costs”  
by Levine, Lin and Xie (2017)

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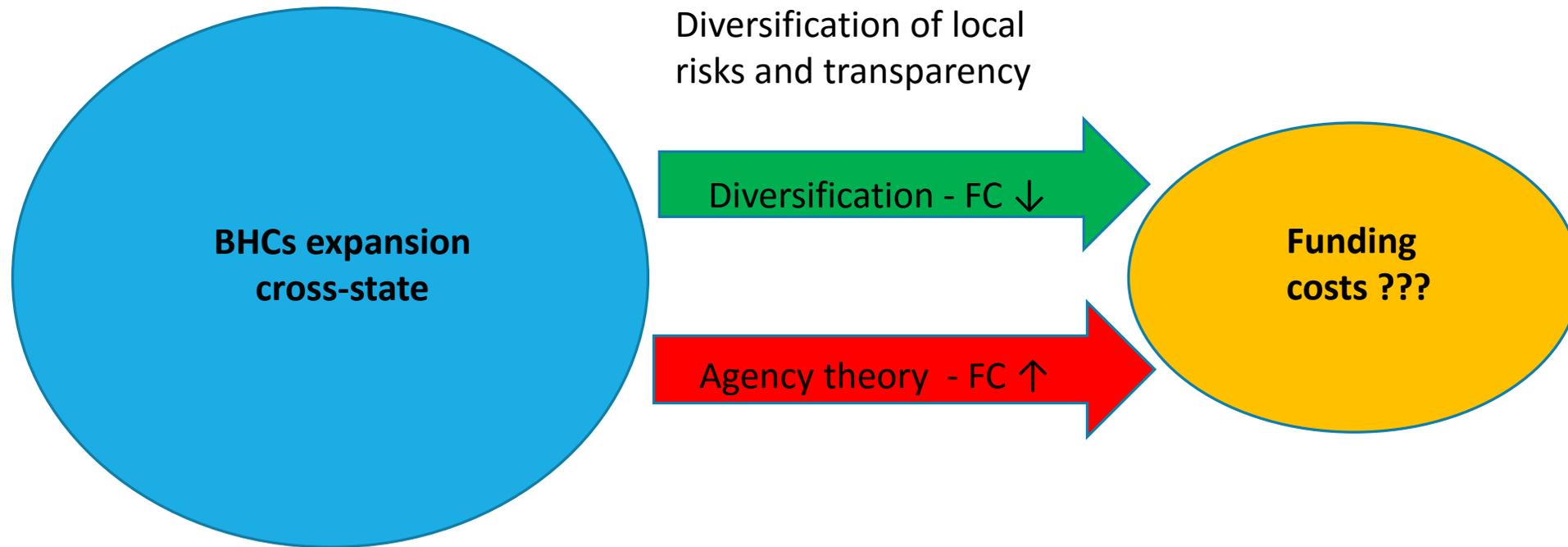
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# Objective of this paper

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# What the paper achieves:

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- **An extensive US-based study on the relationship between banks' funding costs and their geographic diversification patterns**

- Using a US sample of bank holding companies (BHCs) operating within 48 US states over 1986-2007
- Final sample containing 35,741 BHC-quarter obs on 915 unique BHCs

- **Specifically, documents and quantifies a consistent negative relationship between BHCs' cross-state diversification in their assets and funding costs**

- **Identifies a causal relationship**

- Using a two-step procedure for constructing an IV for geographic expansion at the BHC level and exploiting the dynamic process of interstate bank deregulation across US states from 1982 to 1995 following Goetz et al. (2013, 2016)

- **Key Findings:**

- IV helps to uncover the underlying inverse relationship between geographic diversification and the costs of their interest bearing liabilities, economically significant
- Funding costs are further reduced when banks expand into states with lower macro covariance (based on Fed's coincident index) and are more transparent (based on SEC 8K filings)
- Results are more consistent with a more dominant risk diversification story

# My overall impression

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- This is a nice straightforward paper, has plausible results consistent with my priors
- I learnt much institutional details from it and enjoyed the reading
- Very thorough, carefully executed, coherent paper with a battery of robustness checks
  - Technically strong study
  - It tackles an important long-standing issue on the benefits/costs of diversification for financial firms
  - To the authors' credit, the results point to a very consistent and robust story and fits in nicely with prior studies
    - A LOT of DETAILED WORK !
- However, I provide some suggestions designed to further improve this study and to strengthen its contributions

# Main concern

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- The authors should put more effort into **improving the motivations** for this study.
- Why bank funding costs?
- Very busy literature so your contribution needs to be further extended to focus on the economic benefits coming from the reduction in funding costs for BHCs
- FC is simply the means to some other ends that have already been explored in the related studies on BHC's geographic diversification and/or US bank deregulation
  - So what test?

# Main concern cont.

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- What we already know from the related literature:
- Reducing income inequality by affecting labor demands and increasing wage rates and working hours (Beck et al., 2010)
- Increasing economic growth (Jayaratne and Strahan, 1996; Berger et al., 2017);
- Does not increase qty lending and investments (Jayaratne and Strahan, 1996) but the efficiency of investments (King and Levine, 1993)
- **Mixed on quality lending** (Jayaratne and Strahan, 1996, Acharya et al., 2006; Goetz, Laeven and Levine, 2016) and targeted lending (Berger et al., 2017)
- Affects banking market structure – smaller banks lose market share and get taken over and competition intensifies and banks become more transparent (Flannery, 1984; Jiang, Lin, Levine, 2016) then cost of debt reduces (Deng, Elyasiani and Mao, 2007)
- Reduces bank risk through reducing BHC exposure to local risks (Goetz, Laeven and Levine, 2016), and mixed on bank value (Deng and Elyasiani, 2008; Goetz, Laeven and Levine, 2013)
- -> Extension of risk diversification story?

# Main concern cont.

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- Should extend to show the real economic effects of reduction in funding costs for BHCs
- Many Qs:
  - Do they pass-on savings to lend at lower rates to increase market share and boost the economies in the states that they expand into or they prioritise on home state? Transmission to Asset side
  - Are there adjustments in non-price terms? Lending standards lowered? (likely to depend on competition)
  - Do BHCs borrow more (become more indebted) then take more risk? Feedback?
  - Implications for financial stability?
  - Are the reductions in funding costs coming more from cheaper deposits or wholesale debt markets? FC reduction large for latter?

Extension:

- Match to loan-level data
- Look at breakdown of funding costs on various interest-bearing liabilities

# Other Suggestions/Comments I

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In your gravity model (Eq. 2), I would suggest that you check another common model specification to include the Ln(Gross State Product per capita ratio) to account for difference in economic performance.

- In gravity models in international finance, population ratio is to account for the relative size of the markets.
- However, a populous state may not be economically strong nor developed
- Frankel, Stein and Wei (JDE, 1995) use a 'full' gravity model with income per capita
- You should add  $\text{Ln}[(\text{GSP}_{it}/\text{Pop}_{it})/(\text{GSP}_{it}/\text{Pop}_{it})]$  to Eq. (2)

# Other Suggestions/Comments II

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- Control for Berger Bouwman (2009) liquidity creation as liquidity risk feeds into funding costs
- Need to better account for banks' business models/policies as this relates to bank performance and risk – the mix of banks' loans and trading assets is important (Hagendorff et al., 2016; DeYoung, Peng and Yan, 2013)
- DeYoung and Roland (2001) show that fee-based business models require higher operating leverage and increase the volatility of revenues and bank earnings.

# Business policies in Hagedorff et al. (2016)

## Panel A: Bank Business Policy Variables

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Non-interest income	Non-interest income (bhck4079) over to the sum of interest income (bhck4107) and non-interest income (bhck4079)(%)
Loans	Total loans (bhck2122) over total assets (bhck2170) (%)
MBS	Private-label mortgage backed securities (bhck1709 + bhck1733 + bhck1713 + bhck1736 + bhck3536) over total assets (%)
Derivatives	Gross notional amount of derivative contracts held for trading (log of 1 + gross notional amounts on contracts on interest rate (bhcka126), foreign exchange (bhcka127), equity derivatives (bhck8723), and others (bhck8724)) over total assets (%)
Lending diversification	1 - Herfindahl index of the shares of real estate (bhck1410), commercial and industrial (bhck1763 + bhck1764), consumer (bhck1975) and other loans out of total loans
Gap12	Liabilities repricing or maturing within 12 months (bhck3197) minus assets repricing or maturing within 12 months (bhck3296 + bhck3298) divided by total asset (%)
Loans/Deposits	Total loans over total deposits (bhdm6631 + bhdm6636 + bhfn6631 + bhfn6636) (%)
Non-deposit funding	1 - (deposits over total liabilities (bhck2948)) (%)

# Other suggestions/Comments III

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The funding structure is important – esp. reliance on wholesale funding vs deposits – need to compute the ratio of wholesale funding to total liabilities as the higher this is the higher funding costs are too

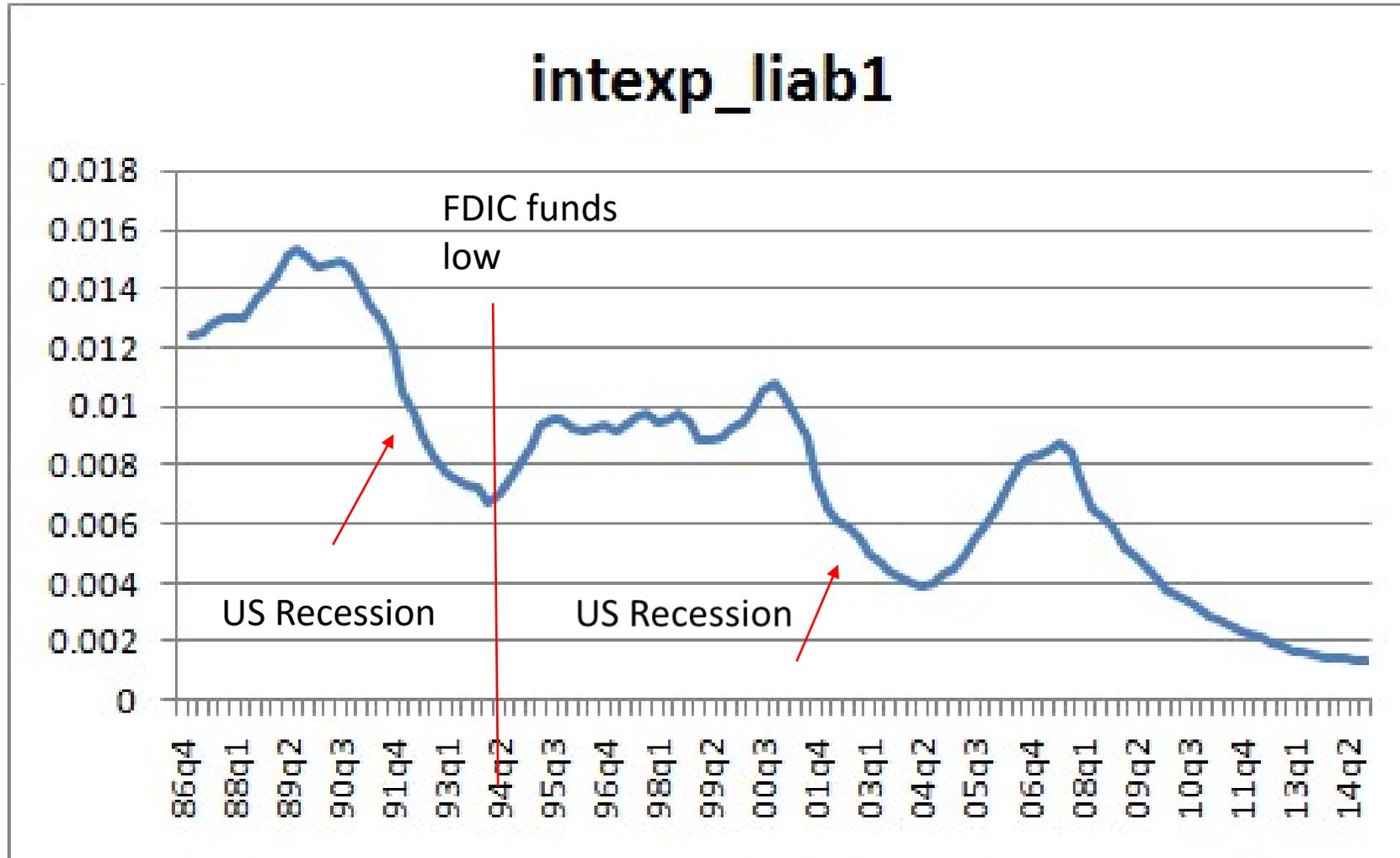
- Account for multi-bank branches as Cortes and Strahan (2017) show that banks use deposits raised in one branch to lend via branches in other states (branches/no. institutions)

Interesting to know how geographic diversification helps to keep funding costs down during tough times, I suggest that you also look at BHC experiences during recessions – funding structure should matter more in downturns

Why do you end the study in 2007? Avoiding the great recession?

For a robustness check, should also calculate the funding premium over time as movements in funding costs are also coming from changes in monetary policy

# US BHC funding costs over time



# Suggestions/Comments IV

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Funding costs are highly persistent so you need to have a dynamic structure in your model and introduce the lagged funding cost measure

Account for the time periods like mid 1990s when the FDIC was hit-hard, bank failures surged as these periods saw increases in funding costs and rise in deposit insurance premia for BHCs and altered the perceptions about the reliability of the financial safety net; TBTF banks still have FC reductions?

In addition, need to better account for risk levels as these feed into funding costs (you have few controls)

- Could consider leverage total liabilities/total assets; SD of earnings, Z scores, LLP or net charge offs, liquidity assets/total assets ratio
- Do risky banks benefit less from the geographical diversification?

# Suggestions/Comments V

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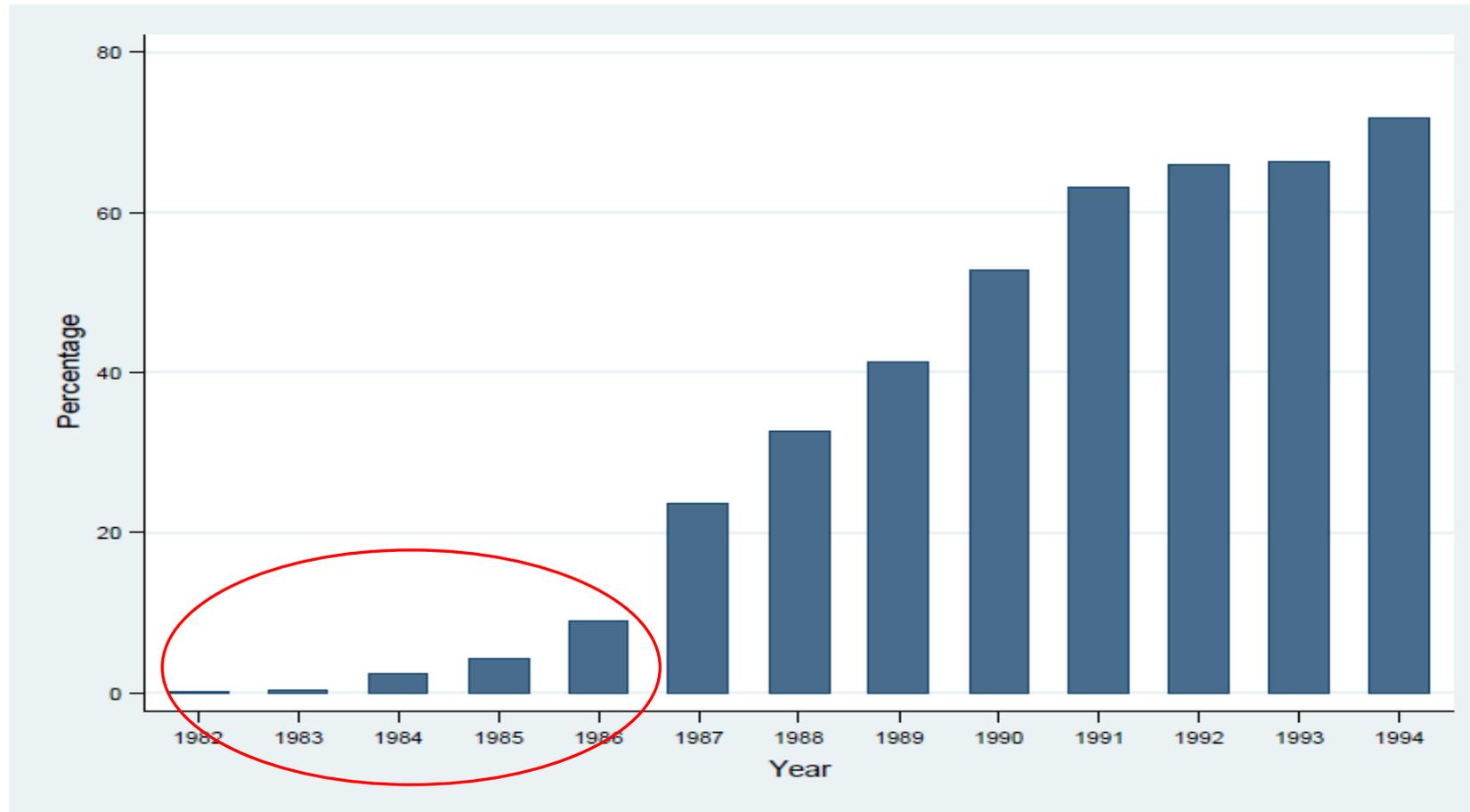
- Results on bank opacity:
- I would like to see your SEC 8K filing results correspond with other proxies on the quality of the information environment such as analyst earnings forecast dispersion, financial restatements, earnings quality, accruals on LLPs (Jiang et al., 2016)
- Importantly, bank opacity measures used in the literature
  - E.g., Morgan (AER, 2002) uses:
    - 1) bank asset composition esp. trading assets vs. loans;
    - 2) frequency and magnitude of split credit ratings on BHC's new bond issues as disagreement by CRAs reflect the information uncertainty on banks' fundamentals
- Currently just focused on amount of info (frequency, word length, number of exhibits), could also check if specific info in the 8K filings matter?
  - I would expect the bankruptcy filing and disclosure relating to acquisition/disposal of assets to be particularly important for funding costs

# Small banks?

## Panel B: Reduced form

Variables	<i>Total cost of funds</i>	<i>Cost of domestic deposits</i>
	(1)	(2)
<i>1 - Herfindahl index of assets across states (predicted)</i>	-1.245*** (0.186)	-0.819*** (0.173)
<i>Capital-asset ratio(lag)</i>	-1.102*** (0.0601)	-0.945*** (0.0572)
<i>Return on assets(lag)</i>	-1.531*** (0.580)	-1.930*** (0.532)
<i>Total assets(lag)</i>	-0.000821*** (0.000144)	-0.000597*** (0.000159)
<i>Market concentration (MSA)</i>	-0.0200*** (0.00763)	-0.0382*** (0.00814)
Bank holding company fixed effects	Yes	Yes
State-quarter fixed effects	Yes	Yes
Observations	35,229	35,216
R-squared	0.936	0.944

# Staggered cross-state banking deregulation



**Figure 1. Dynamic process of interstate banking deregulation**

# The minor stuff, no sweat!

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- Should proof read again:

P.9, 1<sup>st</sup> para “This measures helps address concerns..”

P.23 “and thereby less opportunities to diversify risk”

In section 5, “commove” and “comove” (p. 24) are not spelt consistently

# In summary:

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- High impact and an interesting and technically strong paper
- Extends our current knowledge on the valuable role of geographic diversification in banking but mechanism is less clear at this stage
- Could be further improved in the areas highlighted/discussed
- Thank you for the opportunity to read such an **interesting paper**
- I learnt a lot from your work
- Good luck with the publication outcome – should do well!