

The Competitive Effects of Bank Megamerger on Access to Credit

Henri Fraise(ACPR) & **Johan Hombert** (HEC) & **Mathias Lé**
(ACPR)

5th EBA Policy Research Workshop

November 28th 2016

- Waves of M&A these last decades have led to :
 - ▶ much more concentrated banking systems
 - ▶ featured by existence of megabanks
- Researchers have intensively investigated “traditional” mergers (Berger et al. 1999, Sapienza 2002 & Amed et al. 2004) :
 - ▶ efficiency gains
 - ▶ lending technologies
 - ▶ market power
- ... but remain more silent on the effects of banks’ megamergers :
 - ▶ which should magnify market power effects
 - ▶ and be less subject to change in lending technologies or efficiency gains

- We examine the effect of **merger-induced increases in bank concentration** on bank lending :
 - ▶ we use granular supervisory loan-level data
 - ▶ we develop a set-up to deal with identification issues (aggregate, bank-specific and credit demand shocks)
- We study the effect of this merger on :
 - ▶ the credit provided by the merging banks at the bank-firm level
 - ▶ the total credit at the firm-level (substitution ?)
- We also investigate :
 - ▶ various margins
 - ▶ different type of credit (ST, LT...)
 - ▶ entry/exit dynamics
 - ▶ possible real effects

- We find economically and statistically significant effects. The merger induces :
 - ▶ at the bank-firm level :
 - a 5.1% decrease in the credit supply from merging bank to firms (relative to non-merging banks)
 - a 10% decrease in the number of entrant financed by merging bank (relative to non-merging banks)
 - ▶ at the firm level :
 - a 2.7% decrease in the total credit supply, indicating limited substitution
 - a 4% increase in exit probability
 - no effect on entry or on real outcomes

- This merger concerned two large European banks in the 2000's
 - ▶ their total assets represented 20.2% (bank A) and 32.3% (bank B) of GDP
 - ▶ they were respectively the 6th and the 4th largest banks with market shares of 5.1% and 10.2%.
 - ▶ they had similar business model
- The merger was noticed to the national competition authority and cleared within two months

- We use the data coming from the **credit national register** :
 - ▶ loan-level information from all banks on individual borrowers with total bank debt higher than € 25 000
 - ▶ we know the type of credit, the location of the firm, its industry, its size, its rating
- We complement these data with firm-level accounting data :
 - ▶ this tends to limit the sample to firms having a turnover higher than € 750 000
- We average these quarterly data over two periods around the merger :
 - ▶ pre-merger $(Y - 3)Q1 - (Y - 1)Q4$
 - ▶ post- merger $(Y + 1)Q1 - (Y + 2)Q4$

- We also exclude :
 - ▶ firms from the public sector
 - ▶ firms that do not borrow at all over the full period
- In the pre-merger period, we pool together the loans made by merging banks
- We end up with 243 234 firms, the 6 major banks and 2 periods
- We normalize the change in the loan amount by the pre-merger firm's total liabilities

Summary Statistics

Table: Summary Statistics

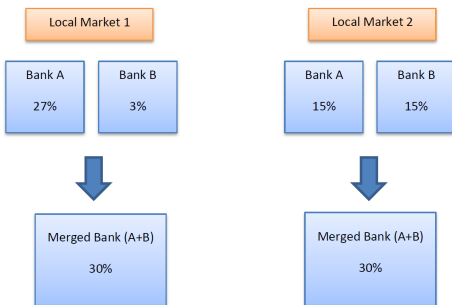
	N	Mean	Sd Dev	p25	Median	p75
<i>Panel A : Firm-Bank level</i>						
Total loans (k€)	465,709	804	1 150	16	76	272
Total loans/T. Liab.	465,709	0.102	0.141	0.009	0.047	0.135
Short-term loans/T. Liab.	465,709	0.018	0.048	0.000	0.000	0.012
Long-term loans/T. Liab.	465,709	0.053	0.110	0.000	0.005	0.053
Unused credit facilities/T. Liab.	465,709	0.018	0.047	0.000	0.000	0.014
Leases/T. Liab.	465,709	0.011	0.045	0.000	0.000	0.000
<i>Panel B: Firm level</i>						
Number of bank relations	243,234	1.91	1.01	1	2	2
Market overlap	243,234	0.005	0.002	0.004	0.005	0.007
Total loans/T. Liab.	243,234	0.194	0.195	0.043	0.134	0.285
Exit	243,234	0.202	0.402	0.000	0.000	0.000
Net trade credit/T. Liab.	152,984	0.010	0.047	-0.007	0.003	0.023
Investment/T. Liab.	152,984	0.038	0.060	0.000	0.014	0.050
Employment/T. Liab.	152,984	0.013	0.013	0.005	0.010	0.016
<i>Panel C: Firm entry</i>						
Entrants by bank-market	570	929	1068	151	537	1,338
Entrants by bank-market	95	5,776	4549	2,833	4,932	7,251

- We want to quantify the change in the credit supply **caused** by the merger-induced increase in bank concentration
- We face several identification issues :
 - ▶ **aggregate shocks** : the financial crisis overlaps with the period covered
 - ▶ **bank-specific shocks** :
 - the merger could be related to some bank-specific shocks
 - the merging bank could increase the credit supply to gain political goodwill
 - ▶ **firm-specific shocks** : the changes in lending could be driven by changes in the demand for credit correlated with the merger

Empirical Strategy

Setting

- We estimate the change in credit supply induced by changes in the concentration at the **local banking markets** level :
 - ▶ We expect stronger effects when the merger have an important impact on the concentration of the local market :
- We contrast markets in which the banks' market shares overlap to markets in which they don't :

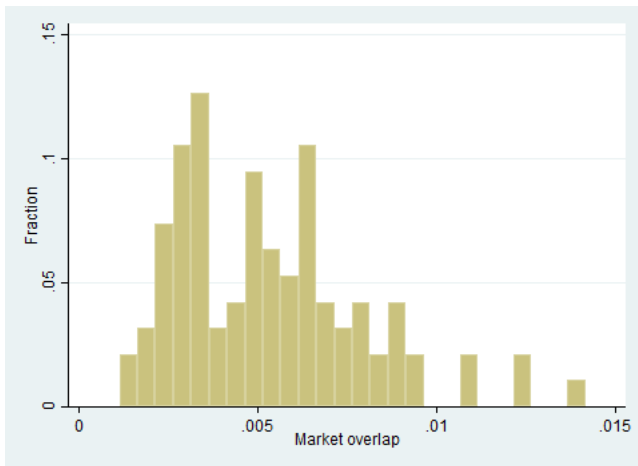


- Main metrics ? **Market overlap**, i.e. the product of local pre market shares of each bank :

$$MarketOverlap_m = s_{A,m} \cdot s_{B,m}$$

- When the pre market shares $s_{A,m}$ and $s_{B,m}$ are both large, the merger lead to an important change in concentration
- In a sense, we *instrument* the change in concentration in local markets by the merger :
 - ▶ we assume that the merger decision was unrelated to the local credit market characteristics
 - ▶ we also assume that firms borrow on their local market

Market Overlap



- **At the loan-level**, we run the following model :

$$\Delta Loans_{f,b,m} = \alpha_f + \delta_b + \beta \cdot MarketOverlap_m \cdot MergedBank_b + \varepsilon_{f,b,m}$$

- **At the firm-level** :

$$\Delta Loans_{f,m} = \alpha + \delta_b + \beta \cdot MarketOverlap_m + Controls_{f,m} + \zeta_{f,m}$$

- We cluster the SE at the local market level (100) which is very conservative
- Firm's FE (α_f) allow to control for credit demand shocks correlated with $MarketOverlap_m$ (multibancarity)

Results

Loan-level specification

Table: Change in the merging banks' credit supply

	Change in outstanding loan amount	
	(1)	(2)
Market overlap \times Merged bank	-0.958** (0.371)	-1.043*** (0.355)
Bank FE	Yes	Yes
Market FE	Yes	—
Firm FE	No	Yes
Observations	465,709	352,915
Adjusted-R2	0.002	0.483

- The merged banks reduce significantly its lending to firms **relative to** other banks
- Economic significance ?
 - ▶ Decline in lending 0.52% of total liabilities
 - ▶ Avg loan from merging bank : 10.2% of total liabilities
 - ▶ \implies The merging bank reduces its lending by 5.1%
- Adding firms' FE does not affect the point estimate, nor its significance :
 - ▶ credit demand shocks do not matter a lot

Results

Loan-level specification : which type of credit ?

Table: Merging banks' credit supply: Breakdown by type of credit

	Change in outstanding loan amount			
	Maturity less than one year (1)	Maturity more than one year (2)	Unused credit facilities (3)	Leases (4)
Market overlap \times Merged bank	-0.492*** (0.106)	-0.154 (0.152)	-0.188 (0.175)	-0.169 (0.112)
Bank FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	352,915	352,915	352,915	352,915
Adjusted-R2	0.473	0.487	0.441	0.429

Results

Loan-level specification : which margins ?

Table: Merging banks' credit supply: Intensive and extensive margins

	Change in outstanding loan amount		
	Continued relationships (1)	Initiated relationships (2)	Terminated relationships (3)
Market overlap \times Merged bank	-0.215 (0.260)	-0.493*** (0.100)	-0.334*** (0.115)
Bank FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	352,915	352,915	352,915
Adjusted-R2	0.432	0.453	0.593

Results

Loan-level specification : entry ?

Table: Merging banks' credit supply: Firm entry

	Change in log number of entrants				
	All entrants (1)	Q1 (2)	Q2 (3)	Q3 (4)	Q4 (5)
Market overlap \times Merged bank	-18.685** (7.415)	-22.302** (10.317)	-25.307** (11.054)	-10.516 (9.255)	-5.281 (7.231)
Market FE	Yes	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes
Observations	570	570	570	570	570
Adjusted R-squared	0.180	0.105	0.146	0.128	0.152

Results

Loan-level specification

- The effect is mainly prevalent on **short term credit** (less than one year). Could it be an artefact due to a stock/flow issue ?
 - ▶ we run the same specification on flows of new credit and we find the same patterns
- The effect is coming mainly from the **extensive margins** : less initiations and more terminations of relations
- The merger impact negatively (-10%) the **entry of firms** financed by merging banks, especially the smallest firms

Results

Firm-level specification

Table: Change in total credit

	All firms		Continuing firms			
	Change in bank credit (1)	Exit dummy (2)	Change in bank credit (3)	Change in net trade credit (4)	Change in investment (5)	Change in employment (6)
Market overlap	-0.984** (0.419)	1.606** (0.666)	-0.585* (0.320)	0.031 (0.039)	-0.081 (0.210)	0.015 (0.012)
Controls	Yes	Yes	Yes	Yes	Yes	
Observations	243,234	243,234	152,984	152,984	152,984	152,984
Adjusted-R2	0.044	0.142	0.034	0.011	0.007	0.024

Control variable includes : Industry FE, Size bin dummies, Region dummies and Change in local unemployment

Results

Firm-level specification

- The total bank credit decreases after the merger. Economic significance ?
 - ▶ Decline in total lending 0.5% of total liabilities
 - ▶ Avg total lending : 19.4% of total liabilities
 - ▶ \implies The average firm reduces its total lending by 2,7%
- Overall these results indicate limited substitution effects
- In addition, the merger induces a 4% relative increase in exit probability :
 - ▶ exit accounts for 40% of our merger induced decrease in bank credit
- However, we observe no real effects

- We study how bank megamerger affects the provision of credit to firms
 - ▶ we focus on the market power effect
 - ▶ our identification relies on merger-induced changes in concentration at the local level
 - ▶ our design deal with several identification issues
- We find that the merger :
 - ▶ has a material effect (-5.1%) on the relative credit supply by the merged bank
 - ▶ impacts mainly the ST credit, and through extensive margins
 - ▶ reduce the entry of new firms by 10%
 - ▶ has a negative effect (-2.7%) on the total borrowing by firms