

BIG BROAD BANKS: HOW DOES CROSS-SELLING AFFECT LENDING?

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RESEARCH QUESTION

How does cross-selling (profit) affect credit supply in a banking relationship?

MOTIVATION

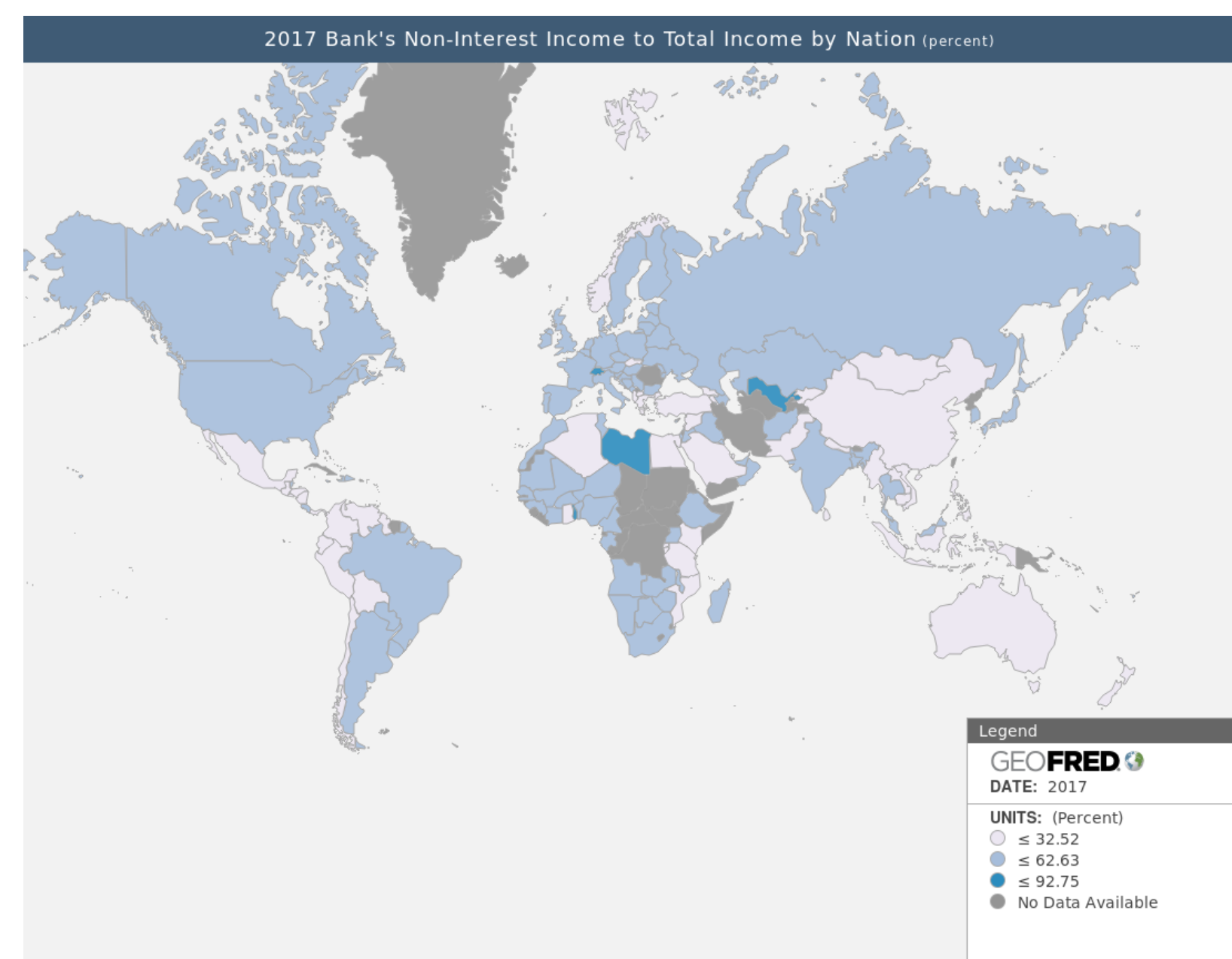


Figure 1: Banks' non-loan over total revenue ratio

Empirical challenges:

- 1 Data
- 2 Measuring credit supply
- 3 Endogeneity
- 4 Separating profit from information

THIS PAPER

Data on ~ 35,000 firms

- Monthly internal data from one of the largest Nordic banks (2002-2012)
 - Loan and non-loan products
 - Unique measure of credit supply that measures the bank's *willingness to lend*
- Yearly financial statement data

Identification strategy exploits variation in comparable firms' non-loan relationship profitability induced by Basel II

Difference-in-Differences setting

- Affected=1: firms with at least one affected product before the shock
- Affected=0: firms with only unaffected product(s) before the shock
- Post=1 after February 2007, and 0 before

PARALLEL TRENDS

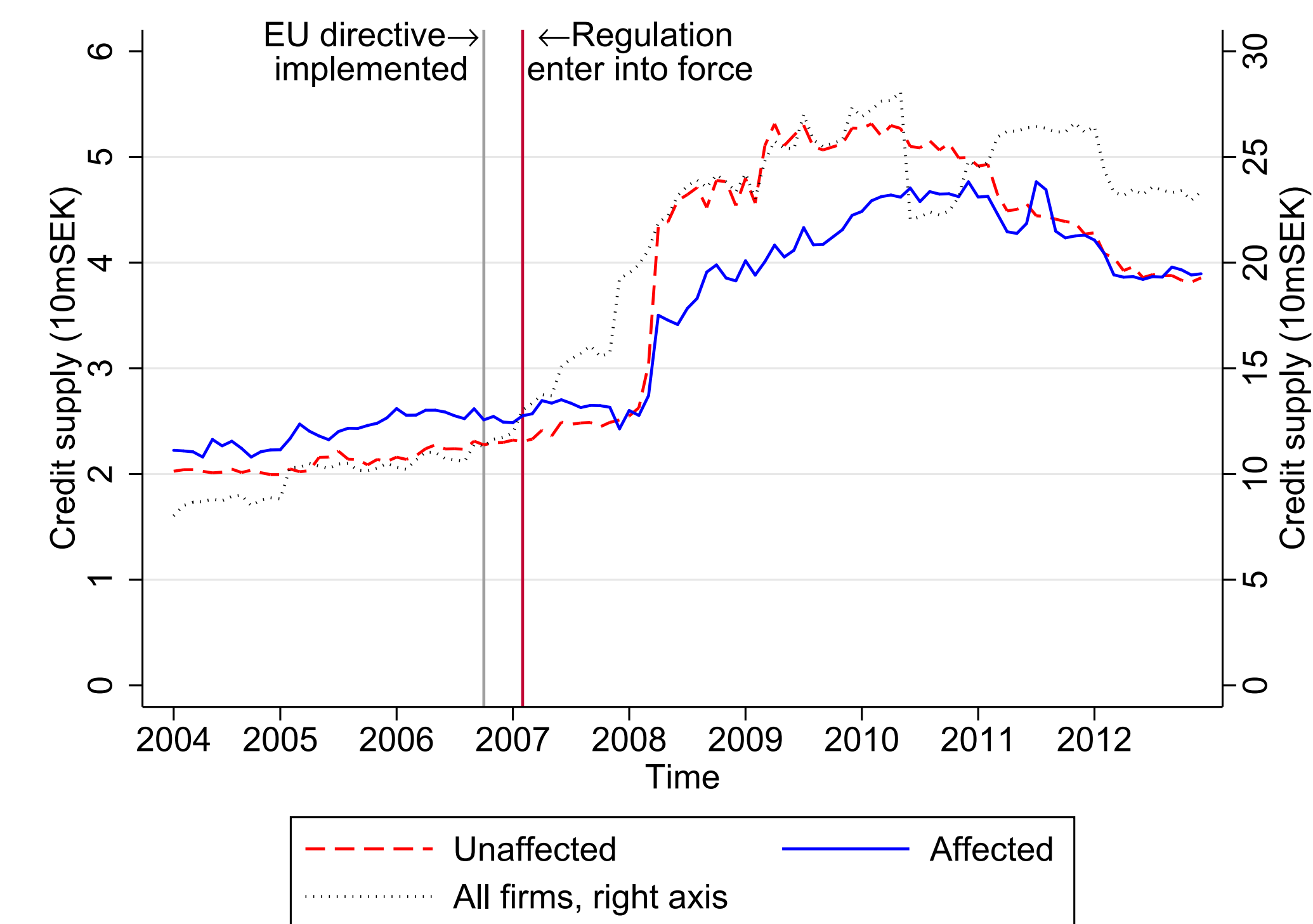


Figure 2: Mean of credit supply, by group

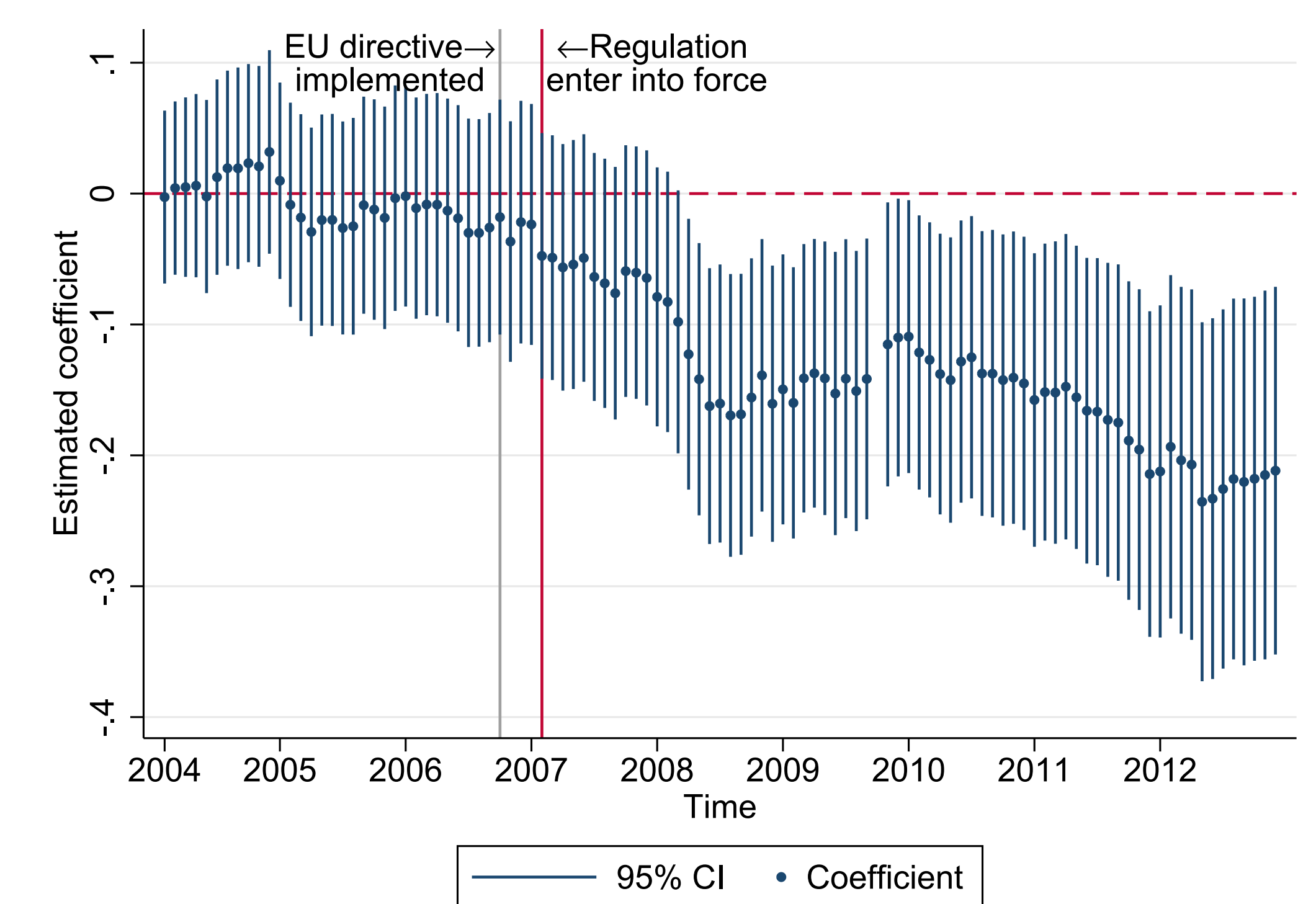


Figure 3: β_t

Note: Figure 3 depicts estimates of the β_t coefficients (dot in blue) and their 95% confidence intervals (vertical line in blue) from the following model with similar specification as the main Diff-in-Diff test:

$$\text{Credit supply}_{f,t} = \text{Affected}_f * \sum_{t=2004m1}^{t=2012m12} \beta_t D_t + \gamma X_{f,year-1} + A_f + B_{j,t} + D_r + \epsilon_{f,t}$$

MAIN RESULT—REDUCED CREDIT SUPPLY TO AFFECTED FIRMS

$$\text{Credit supply}_{f,t} = \beta \text{Affected}_f * \text{Post}_t + \gamma X_{f,t} + A_f + B_{j,t} + C_j + D_r + \epsilon_{f,t}$$

	Dependent variable: ln(credit limit)			
	(1)	(2)	(3)	(4)
Affected x Post	-0.185*** (0.036)	-0.118*** (0.030)	-0.146*** (0.037)	-0.105*** (0.032)
Year-Month FE	Yes	Yes	No	No
Firm FE	Yes	Yes	Yes	Yes
Industry x Year-Month FE	No	No	Yes	Yes
Internal Rating FE	No	Yes	No	Yes
Controls	No	Yes	No	Yes
Adj. R2	0.855	0.876	0.857	0.877
No of obs	321,131	321,131	321,131	321,131

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- Unit of obs: firm by year-month
- Controls: firm size, age, leverage, length of relation
- Std error clustered at firm level
- Economic significance: $\downarrow 10\%$, or 3.3 mSEK (€500,000)

FINDINGS

Benefits of profitable non-loan relationship:

(1) \uparrow credit supply, especially in recessions; (2) \uparrow likelihood of receiving lenient treatment in delinquency

Evidence on the channels

- Evidence on the information channel: Informativeness \uparrow (\downarrow) when firms buy (drop) certain products
- Causal evidence on the profit channel: \downarrow Non-loan relation profitability \Rightarrow \downarrow credit supply & lenience in delinquency

POLICY IMPLICATIONS

- Regulation of banks' non-loan activities
 - Bright side: long-term incentive in supporting borrowers
 - Dark side: discrimination against certain borrowers
- Rise of FinTech and financial dis-intermediation
 - Firms face a trade-off between the hold-up and insurance
- BigTech in credit market