

The real effects of regulatory enforcement actions: Evidence from U.S. counties

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- **Macro-financial linkages are crucial!**
- **We ask whether local economic growth responds to shocks in bank business activities? And if so, how large is the effect?**

Answering these questions is key to understanding macro-financial linkages.

- **How do banks react to the regulatory environment?**

Timely question of relevance in light of far-reaching changes in banking regulation (Dodd–Frank Wall Street Reform and Consumer Protection Act).

- **The literature has so far not yet examined the real effects of enforcement actions beyond the micro level.**

- Enforcement actions – sanctions imposed by U.S. supervisory agencies on:
 - *Banks where on-site examinations suggest unsafe, unsound practices.*
 - *Employees involved in illegal practices, violating laws and regulation.*
- Enforcement actions are aimed at restoring institutions' safety and soundness.
- Typical reasons for issuing enforcement actions: poor liquidity, inadequate capital, poor asset quality, fraud.
- Sanctions range from civil money penalties to restrictions on deposit taking or credit provision.

Less severe actions

- Civil money penalties
- Suspension and removal orders

Severe actions

- Formal agreement
 - Cease and Desist orders
 - Prompt Corrective Actions
-

1. The Bank shall no later than 60 days of the date of this Directive (or such additional time as the Board of Governors may permit):

(a) Increase the Bank's equity through the sale of shares or contributions to surplus in an amount sufficient to make the Bank adequately capitalized as defined in section 208.43(b)(2) of Regulation H of the Board of Governors (12 C.F.R. § 208.43(b)(2));

2. The Bank shall comply fully with the provisions of section 38(d)(1) of the FDI Act (12 U.S.C. § 1831o(d)(1)) restricting the making of any capital distributions, including, but not limited to, the payment of dividends.

5. The Bank shall comply fully with the provisions of sections 38(f)(4)(A)(i) and (ii) of the FDI Act (12 U.S.C. §§ 1831o(f)(4)(A)(i) and (ii)) restricting the payment of bonuses to senior executive officers and increases in compensation of such officers.

6. The Bank shall comply fully with the provisions of sections 38(e)(3) and (4) of the FDI Act (12 U.S.C. §§ 1831o(e)(3) and (4)) restricting asset growth, acquisitions, branching, and new lines of business.

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Research Questions:

Do severe enforcement actions affect regional economic growth?

Mechanisms:

Do severe enforcement actions affect banks' provision of credit?

Do severe enforcement actions affect banks' liquidity creation?

(Berger and Bouwman, 2009)

- Severe enforcement actions affect the scope and scale of bank activities.
- Bank credit has no close substitutes:
 - Diamond (1984) and James (1987)
 - Slovin, et al. (1993) and Ongena, et al. (2003)

Hypotheses:

Enforcement actions imposing shocks to bank business activities will have negative effect on economic growth.

This effect is likely to be driven by decreases in the volume of banks' lending and liquidity creation.

Macro-finance linkages:

- *Bernanke (1983)* and *Calomiris and Mason (2003)* show loan supply shocks reduce local economic output.
- *Ashcraft (2005)* suggests bank failures reduce county income.
- Banks' liquidity supply shocks affect corporate investment and access to credit deteriorates (*Gibson, 1995; Peek and Rosengren, 1997, 2000; Kang and Stulz, 2005; Gan, 2007; Khwaja and Mian, 2008; Paravisini, 2008; Lemmon and Roberts, 2010; Chava and Purnanandam, 2011; Schnabl, 2012*)

Enforcement actions:

- *Peek and Rosengren (1995, 1996)* demonstrate that loan portfolios shrink, especially real estate loans, following enforcement actions in the U.S.
- *Berger, Bouwman, Kick, and Schaeck (2012)* document that regulatory interventions disrupt liquidity creation in Germany.

- We obtain financial data for all commercial and savings banks operating in the U.S. between 1999 and 2011 from the SNL Financial database.
- Information on enforcement actions data are obtained from SNL Financial: action type, issue and termination date.
- Macroeconomic indicators provided by the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the County Business Patterns.

We use the county as a unit of analysis - based on local nature of bank activities (Adams et al. 2007, Felici and Pagnini 2008, JIE).

To control for possible cross-county spill-over effects we focus exclusively on the impact of enforcement actions on banks whose branches are located only in one county (single market banks).

Development over time

Local banking markets in U.S. counties

1999

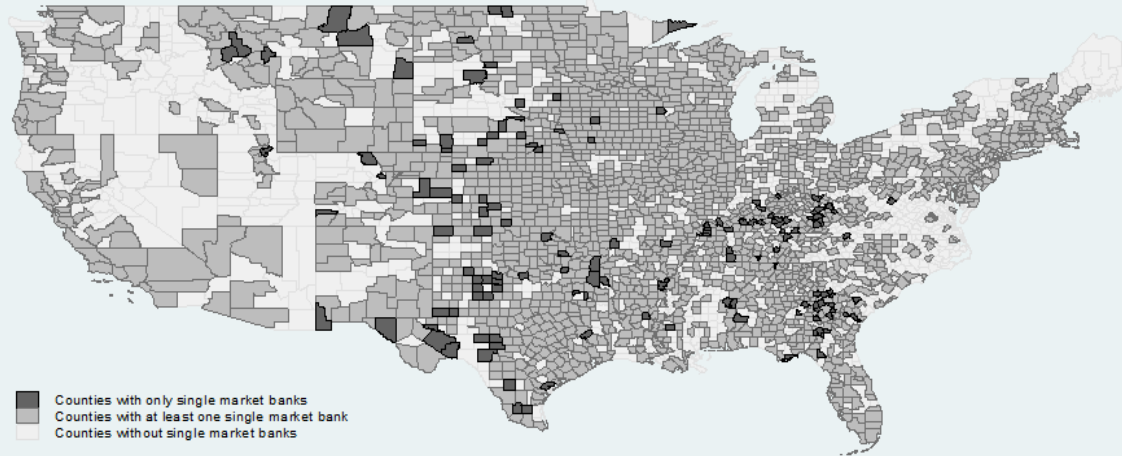


Figure 1a

Local banking markets in U.S. counties

2011

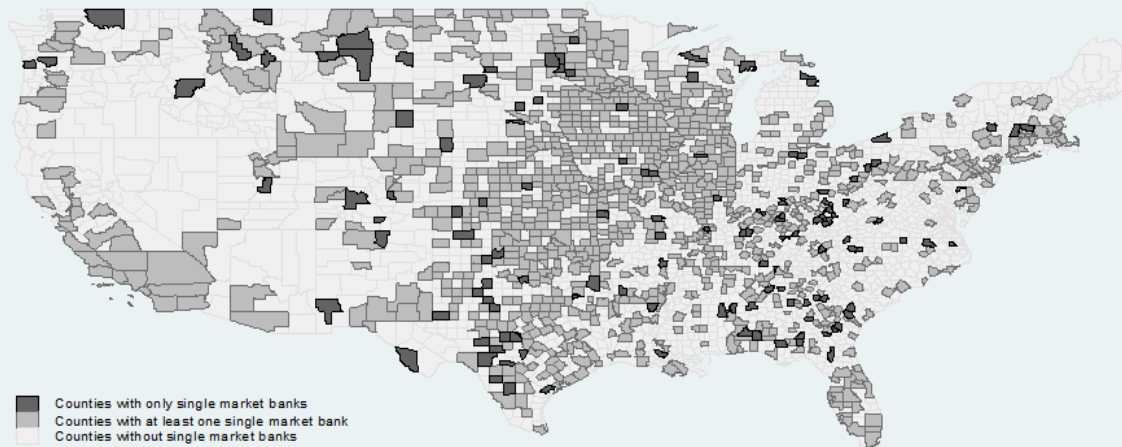


Figure 1b

Development over time

Enforcement actions in U.S. counties

1999

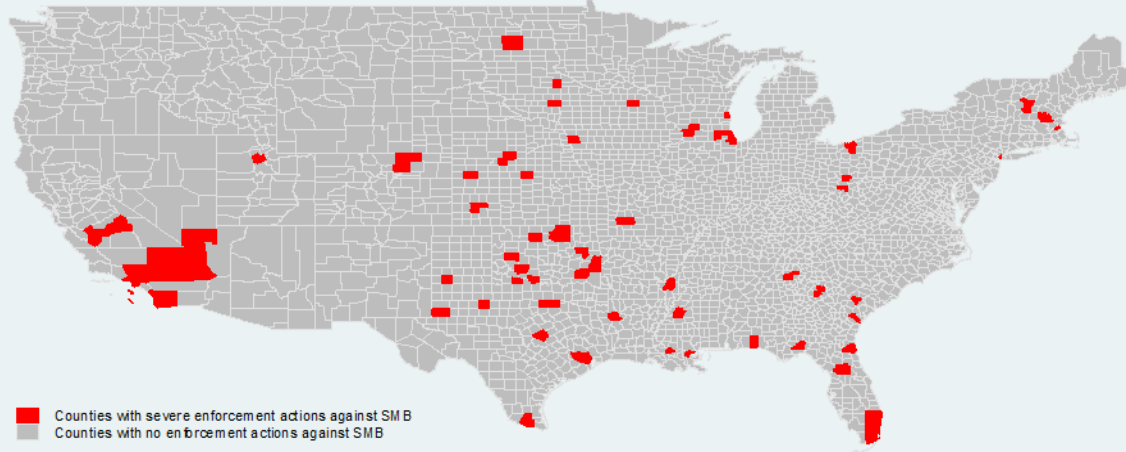


Figure 2a

Enforcement actions in U.S. counties

2011

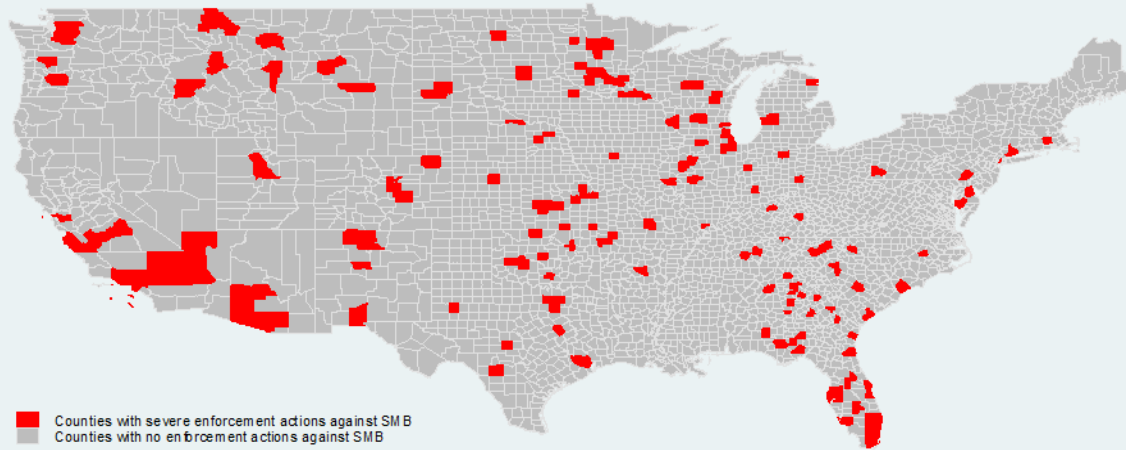


Figure 2b

To address endogeneity concerns we use instrumental variables estimators throughout this paper, and rely on a two-stage efficient GMM estimator.

$$EA_{it-1} = \alpha_i + \beta Z_{it-n} + \delta X_{it} + \gamma_i + \gamma_t + \varepsilon_{it}$$
$$Y_{it} = \alpha_i + \lambda EA_{it-1} + \delta X_{it} + \gamma_i + \gamma_t + \varepsilon_{it}$$

EA_{it} is lag of a dummy variable equal to 1 if a single-market bank was subject to an severe enforcement action in the county at time t (0 otherwise).

Z_{it} is a set of instruments.

Y_{it} is the dependent variable of interest in county i at time t :

- *Personal income growth, number of firms, unemployment rate.*
- *Bank lending, liquidity creation, and their respective components.*

X_{it} is a vector of control variables (*Z-score, Firm size, HHI*).

γ_i is a vector of county dummies.

γ_t is a vector of year dummies.

Our identification strategy relies on four instruments:

First, second, and third lags of the first-differences of a dummy variable for less severe enforcement actions.

- Less severe actions are precursors of more severe sanctions.
- We employ the lagged difference as it implies an increase in the level of monitoring on the bank's behavior.
- Since these sanctions relate only to individuals, they are neither affected nor affect the economy as a whole, nor are they likely to trigger observable adjustments in bank behavior.

First lag of the difference of the severe enforcement action.

- Arellano and Bond (1991) idea of an 'internal instrument'.
- Lagged difference is correlated with the lag of severe enforcement actions, satisfying the relevance condition, but is uncorrelated with the current value of the residuals.

FEDERAL DEPOSIT INSURANCE CORPORATION

WASHINGTON, D.C.

“(a) Respondent has engaged or participated in violations of law or regulations, unsafe or unsound banking practices ...”

individually, and as an
institution-affiliated party of

SOUTHPOINT BANK

FDIC-12-516e

“(b) By reasons of such practices the Bank has suffered or will suffer more than a minimal financial loss or other damage...”

NOTICE OF INTENTION TO PROHIBIT FROM FURTHER PARTICIPATION (“NOTICE”)

issued by the Federal Deposit Insurance Corporation (“FDIC”) detailing violations of law or

“(c) Such practices involved personal dishonesty on the part of Respondent and/or demonstrated Respondent’s wilful and continuing disregard for the safety or soundness of the Bank...”

PROHIBITION FROM FURTHER PARTICIPATION (“STIPULATION”) with a representative

of the Legal Division of the FDIC, whereby solely for the purpose of this proceeding and without admitting or denying any violations of law or regulation, unsafe or unsound banking practices, or breaches of fiduciary duty, Respondent consented to the issuance of an ORDER by the FDIC.

The FDIC considered the matter and determined it had reason to believe that:

(a) Respondent has engaged or participated in violations of law or regulation, unsafe or unsound banking practices, and/or breaches of her fiduciary duty while an institution-affiliated party of SouthPoint Bank, Birmingham, Alabama (“Bank”);

(b) By reason of such practices the Bank has suffered or will probably suffer more than a minimal financial loss or other damage, and/or Respondent received financial gain or other benefit; and

(c) Such practices involved personal dishonesty on the part of Respondent and/or demonstrated Respondent’s willful and continuing disregard for the safety or soundness of the Bank.

The FDIC further determined that such practices demonstrate Respondent’s unfitness to participate in the conduct of the affairs or as an institution-affiliated party of any insured depository institution, or any other agency or organization enumerated in section 8(e)(7)(A) of the Act, 12 U.S.C. § 1818(e)(7)(A).

The FDIC, therefore, accepts the STIPULATION and issues the following:

ORDER OF PROHIBITION FROM FURTHER PARTICIPATION

1. ALLISON [REDACTED] is hereby, without the prior written approval of the FDIC and the appropriate Federal financial institutions regulatory agency, as that term is defined in section 8(e)(7)(D) of the Act, 12 U.S.C. § 1818(e)(7)(D), prohibited from:

(a) participating in any manner in the conduct of the affairs of any financial institution or organization enumerated in section 8(e)(7)(A) of the Act, 12 U.S.C. § 1818(e)(7)(A);

Results: Enforcement actions and growth

	<i>Personal income growth</i>	<i>Establishments number</i>	<i>Unemployment rate</i>
2nd stage			
L.Severe actions	-0.006** (-2.419)	-0.022*** (-3.361)	0.142* (1.72)
Controls/County FE/Year FE	YES	YES	YES
Under-identification	298.1	298.1	298.4
Weak-identification	687.5	687.5	687.4
Hansen J-test (p-value)	0.82	0.474	0.457
Observations	10,918	10,918	10,912
R-squared	0.063	0.334	0.727
Counties	1,812	1,812	1,812
Number of actions	879	879	877
1st stage			
LD.Less severe actions	0.035** (2.524)	0.035** (2.524)	0.035** (2.523)
L2D.Less severe actions	0.036** (2.533)	0.036** (2.533)	0.036** (2.547)
L3D.Less severe actions	0.056*** (3.539)	0.056*** (3.539)	0.057*** (3.552)
LD.Severe actions	0.576*** (51.922)	0.576*** (51.922)	0.577*** (51.590)

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Economic magnitude

- Personal income growth contracts by 0.6% - average growth rate 1.7%.
- Number of establishments reduced by 0.022 percentage points - average number of firms per 100 people 2.4
- Unemployment rate increases by 0.14% – average unemployment rate 6.1%.

Personal income growth

L.Formal agreements	-0.012**		
	(-2.408)		
L.PCA		-0.200*	
		(-1.688)	
L.Cease & desist orders			-0.010**
			(-2.395)

Controls/County FE/Year FE	YES	YES	YES
Observations	10,918	10,918	10,918
Counties	1,812	1,812	1,812
Number of actions	439	30	525
Under-identification	140.1	8.481	171.2
Weak-identification	61.11	2.130	84.75
P-value (Hansen)	0.812	0.555	0.831
LD.Less severe actions	0.022*	0.009*	0.033**
	(1.919)	(1.664)	(2.416)
L2D.Less severe actions	0.011	0.002	0.029**
	(1.030)	(0.668)	(2.267)
L3D.Less severe actions	0.031**	0.006	0.042***
	(2.280)	(1.103)	(2.841)
LD.Severe actions	0.265***	0.011**	0.320***
	(15.476)	(2.284)	(18.167)

Prompt corrective actions are the strongest types of enforcement actions, but only occur infrequently during the sample period.

Formal agreements are issued with the consent of the institution, suggesting a strong commitment of the bank to address the problems and respond quickly.

Banks' liquidity creation measure (Berger and Bouwman, 2009)

Measure is based on liquidity creation theory: ***banks create liquidity by converting illiquid assets into liquid liabilities.***

- 1) Banks' assets and liabilities and equity are classified as liquid, semi-liquid, or illiquid based on their category and maturity.

Classification is based on ease, cost, and time it takes customers to obtain liquid funds from the bank in case of liability items, and ease, cost and time of assets disposal.

Liquid items: Cash, Fed Funds Sold/Savings deposits/IR or FX derivatives

Semi-liquid: Consumer loans/Time deposits/Net credit derivatives

Illiquid: C&I loans; Premises/Equity/Unused commitments

- 2) We assign weights of either $+\frac{1}{2}$, 0, or $-\frac{1}{2}$ to all bank activities classified in the first step.
- 3) We calculate how much liquidity each bank creates by combining and multiplying the activities classified in step 1 with the weights from step 2.

Enforcement actions and banks' lending

	<i>Total loan growth</i>	<i>Commercial real estate loan</i>	<i>Residential real estate loan</i>	<i>Commercial and industrial</i>	<i>Consumer loan growth</i>
L.Severe actions	-0.098*** (-5.566)	-0.095** (-2.534)	-0.053** (-2.143)	-0.112*** (-3.715)	-0.114*** (-3.910)
Controls/Bank FE/Year FE	YES	YES	YES	YES	YES
Observations	37,870	37,870	37,870	37,870	37,870
R-squared	0.375	0.375	0.375	0.375	0.375
Banks	6,374	6,374	6,374	6,374	6,374
Number of actions	807	807	807	807	807

Enforcement actions and banks' liquidity creation

	<i>LC growth</i>	<i>LC (asset side)</i>	<i>LC (liability side)</i>	<i>LC (off balance)</i>
L.Severe actions	-0.137*** (-3.928)	-0.225** (-2.041)	-0.064*** (-2.838)	-0.050 (-1.218)
Controls/Bank FE/Year FE	YES	YES	YES	YES
Observations	37,870	37,870	37,870	37,870
R-squared	0.375	0.375	0.375	0.375
Banks	6,374	6,374	6,374	6,374
Number of actions	807	807	807	807

Counties with negative personal income growth in 2 periods preceding severe enforcement action excluded.

Personal income growth

L. Severe actions	-0.006** (-2.295)			
L. Formal Agreements		-0.013** (-2.269)		
L. Prompt corrective actions			-0.204 (-1.328)	
L. Cease and desist orders				-0.012** (-2.251)

Controls/County FE/Year FE	YES	YES	YES	YES
Observations	9,145	9,145	9,145	9,145
Counties	1,759	1,759	1,759	1,759
Number of actions	681	340	18	396
Under-identification	237.3	117.4	6.656	131.2
Weak-identification	498.5	52.22	1.663	61.13
P-value (Hansen)	0.553	0.543	0.327	0.539

To test whether our results are driven by adjustments of banks anticipating issue of enforcement action we exclude:

- *Banks with negative Z-score preceding issue of Severe action (RISK)*
- *Banks with negative ROA preceding issue of Severe action (PERFORMANCE)*

	<i>Risk</i>		<i>Performance</i>	
	<i>TL growth</i>	<i>LC growth</i>	<i>TL growth</i>	<i>LC growth</i>
L.Severe actions	-0.111*** (-4.641)	-0.144*** (-2.887)	-0.084*** (-3.847)	-0.124*** (-2.708)
Controls/Bank FE/Year FE	Yes	Yes	Yes	Yes
Observations	19,877	19,877	23,161	23,161
R-squared	0.042	0.021	0.040	0.019
Number of banks	5,449	5,449	5,710	5,710
Under-identification	187.2	187.2	207.0	207.0
Weak-identification	223.5	223.5	285.3	285.3
P-value (Hansen)	0.330	0.419	0.158	0.138

- **Results suggest that it is the issue of severe enforcement action responsible for reductions in banks' lending and liquidity creations.**

- **What happens to competitors of banks sanctioned with severe enforcement actions ?**
 - *Market shares in terms of total loans and liquidity creation*
 - *Total lending and liquidity creation growth rates*

	<i>TL</i>	<i>LC</i>	<i>TL</i>	<i>LC</i>
	<i>market share</i>	<i>market share</i>	<i>growth</i>	<i>growth</i>
L. Severe actions	0.001	0.001	0.001	-0.004
	(0.656)	(0.889)	(0.906)	(-0.785)
Controls/Bank FE/Year FE	Yes	Yes	Yes	Yes
Observations	37,870	37,870	37,870	37,870
R-squared	0.008	0.003	0.014	0.000
Number of banks	6,374	6,374	6,374	6,374
Under-identification	305.3	305.3	305.3	305.3
Weak-identification	533.6	533.6	533.6	533.6
Hansen J-test (p-value)	0.672	0.165	0.145	0.708

- **Competing banks do not increase or decrease their lending or liquidity creation following issue of severe action on banks located in the same county.**

***Spill-over effects of Severe EA on Total Lending
and Liquidity Creation growth of banks in the
same county***

Number of replications:

200

Rejection rate at the 1% level

(2-tailed test):

Total Lending

1%

Liquidity Creation

1%

Rejection rate at the 5% level

(2-tailed test):

Total Lending

4%

Liquidity Creation

7.5%

Rejection rate at the 10% level

(2-tailed test):

Total Lending

9.5%

Liquidity Creation

9.5%

**200 placebo enforcement actions
for banks which did not receive
enforcement actions but are
located in the same county where
a bank was subject to such
sanction.**

Spill-over effects of Severe EA on Total Lending and Liquidity Creation growth of banks in the same county

Number of replications:
200

Rejection rate at the **1%** level
(2-tailed test):

Total Lending	Liquidity Creation
1%	1%

Rejection rate at the **5%** level
(2-tailed test):

Total Lending	Liquidity Creation
4%	7.5%

Rejection rate at the **10%** level
(2-tailed test):

Total Lending	Liquidity Creation
9.5%	9.5%

200 placebo enforcement actions for banks which did not receive enforcement actions but are located in the same county where a bank was subject to such sanction.

Results:

No evidence of spill-over effects of enforcement actions on other banks.

Spill-over effects of Severe EA on Personal Income Growth of contiguous counties

**Number of replications:
200**

**Rejection rate at the 1% level
(2-tailed test):
4.5%**

**Rejection rate at the 5% level
(2-tailed test):
10%**

**Rejection rate at the 10% level
(2-tailed test):
14.5%**

200 randomly assigned placebo enforcement actions for year t for counties adjacent to counties affected by enforcement actions.

Spill-over effects of Severe EA on Personal Income Growth of contiguous counties

Number of replications:
200

Rejection rate at the **1%** level
(2-tailed test):
4.5%

Rejection rate at the **5%** level
(2-tailed test):
10%

Rejection rate at the **10%** level
(2-tailed test):
14.5%

200 randomly assigned placebo enforcement actions for year t for counties adjacent to counties affected by enforcement actions.

Results:

Limited evidence of spill-over effects of enforcement actions on personal income growth of contiguous counties.

▪ Less severe actions exogeneity:

Conditional logit regressions show that less severe actions do not depend on development of macroeconomic indicators.

LHS: Dummy variable = 1 if Less severe action observed in the county

RHS: 4 dummy variables:

- *PIG(-)* takes on the value one if there is a contraction in PIG for a given county in year t , and zero otherwise;
- *NE(-)* takes on the value one if there is a contraction in the number of establishments per capita for a given county in year t , and zero otherwise;
- *UR(+)* takes on the value one if there is an increase in the unemployment rate for a given county in year t , and zero otherwise.

	<i>PIG</i>	<i>NE</i>	<i>UR</i>
Less severe actions	0.099	-0.027	0.064
	(1.106)	(-0.313)	(0.634)

- Crisis period included (IV regressions):

	<i>Personal income</i>	<i>Number of firms</i>	<i>Unemployment rate</i>
L.Severe actions	-0.003 (-1.395)	-0.021*** (-4.086)	0.171*** (2.625)

- Counties with multiple interventions excluded (IV regressions):

	<i>Personal income</i>	<i>Number of firms</i>	<i>Unemployment rate</i>
L.Severe actions	-0.007** (-2.477)	-0.021*** (-2.922)	0.121 (1.302)

Do we observe more severe actions in counties where these types of sanctions were issued in the past?

	<i>Severe action</i>	<i>Severe action</i>
L.Severe county	0.154 (0.751)	0.141 (0.614)
Z-score (ln)		-0.999*** (-13.410)
HHI (ln)		0.253 (0.686)
Firm size (ln)		-0.898*** (-2.914)
Observations	3,777	3,522
Number of banks	536	490
Year FE	YES	YES
Bank FE	YES	YES

Insignificant results suggest that banks located in counties where severe sanctions were issued in the past are not more/less likely to be subject to those enforcement actions.

Do the effects of enforcement actions persist over time?

	<i>Personal income</i>			<i>Number of firms</i>			<i>Unemployment rate</i>		
	t+1	t+2	t+3	t+1	t+2	t+3	t+1	t+2	t+3
L.Severe	0.001	-0.000	0.006	-0.017**	0.005	-0.008	-0.008	-0.015	0.099
	(0.450)	(-0.026)	(1.528)	(-2.332)	(0.528)	(-1.008)	(-0.094)	(-0.145)	(0.821)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,697	8,280	8,284	9,697	8,280	8,284	9,691	8,274	8,281
R-squared	0.086	0.318	0.332	0.335	0.274	0.402	0.676	0.742	0.786
Under-identification	228.1	149.5	149.5	228.1	149.5	149.5	227.6	149.0	149.0
Weak-identification	472.7	417.6	417.6	472.7	417.6	417.6	471.8	416.7	412.1
Hansen J-test (p-value)	0.942	0.763	0.386	0.546	0.416	0.112	0.863	0.323	0.134

Do the effects of enforcement actions persist over time?

	<i>Personal income</i>			<i>Number of firms</i>			<i>Unemployment rate</i>		
	t+1	t+2	t+3	t+1	t+2	t+3	t+1	t+2	t+3
L.Severe	0.001	-0.000	0.006	-0.017**	0.005	-0.008	-0.008	-0.015	0.099
	(0.450)	(-0.026)	(1.528)	(-2.332)	(0.528)	(-1.008)	(-0.094)	(-0.145)	(0.821)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,697	8,280	8,284	9,697	8,280	8,284	9,691	8,274	8,281
R-squared	0.086	0.318	0.332	0.335	0.274	0.402	0.676	0.742	0.786
Under-identification	228.1	149.5	149.5	228.1	149.5	149.5	227.6	149.0	149.0
Weak-identification	472.7	417.6	417.6	472.7	417.6	417.6	471.8	416.7	412.1
Hansen J-test (p-value)	0.942	0.763	0.386	0.546	0.416	0.112	0.863	0.323	0.134

- **Results suggest that the effect of enforcement actions on economic growth are contemporaneous. Only number of firms is still decreasing one year after the issue of severe sanction.**

- **Regulators in the U.S. have power to impose sanctions on banks not complying with regulations and posing threat to the stability of the financial sector.**
- **Such actions are aimed at restoring health of the institution.**
- **Our results show that severe enforcement actions have negative effect on regional economic growth.**
- **These effects are causally related to contractions in bank lending and liquidity creation.**
- **Significance of contractions in macroeconomic variables tends to disappear in the years following the announcement year of the intervention – suggests enforcement actions correct temporarily excessive behavior of banks.**