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Mapping the interconnectedness between EU banks and shadow banking entities

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Source: Abad, J., D'Errico, M., Killeen, N., Luz, V., Peltonen, T., Portes, R and T. Urbano (2017),
“*Mapping the interconnectedness between EU banks and shadow banking entities*”, ESRB Working Paper Series, No. 40.

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The usual disclaimer applies



Motivation

- The global financial crisis exposed shortcomings in the assessment of cross-sector and cross-border linkages in the financial system.
- Interaction of banks with shadow banking entities can lead to the amplification of systemic risks and spillovers which can transmit across borders and sectors.
- Few studies which map the exposures of EU banks to shadow banking entities. This paper aims to fill this gap in the literature.



Contribution of this paper

- Analysis aims to contribute to the growing literature on shadow banking monitoring (see, for example, ESRB EU Shadow Banking Monitor, ESRB Occasional Paper No. 10, FSB Global Shadow Banking Monitoring Reports)
- Fragmented regulatory regimes and a lack of information and disclosure can lead to regulatory arbitrage concerns and can impede systemic risk monitoring. Growing literature on regulatory arbitrage, see e.g. Acharya, Schnabl and Suarez (2013 JFE).
- Implicit guarantees and backstops of shadow banking entities are associated with step-in risks for the banking system and may contain systemic consequences. See e.g. BCBS (2015), Claessens and Ratnovski (2014 IMF WP), Gornicka (2016 JFI).



Description of the dataset

- The unique dataset consists of two distinct sets of entities:
 - 169 banks and 15 investment firms from 22 EU countries
 - Approx. 2,700 shadow banking entities from 88 countries
- Analysis only considers links between banks and shadow banking entities for exposures of at least 0.25% of the banks' eligible capital
- There are 3,272 individual exposures in total
- See EBA (2015), 'Report on institutions' exposures to 'shadow banking entities', December for details on the data collection.



Data cleaning for this paper

- Identifying repeated counterparties
 - Matching based on duplicated counterparty IDs
 - Matching based on duplicated counterparty names
 - Matching based on similar names (e.g., ABC LTD. vs ABC Limited)
- Manual matching the country of residence of shadow banking counterparty 19% of exposures were not identified in raw dataset (see EBA 2015 report)
 - Manual data cleaning reduced this to 1% of exposures
- Cross-check of counterparty types
- For the purpose of this analysis, investment firms in the sample were excluded, as well as individual exposures above 25% of eligible capital



Exposures of EU banks to shadow banking entities

Distribution of EU institutions' exposures to shadow banking entities by country of reporting institution and domicile of shadow banking entity (in EUR bn)

B / SB	DE	FR	GB	IE	JE	KR	KY	LU	NL	RU	TR	US	EU other	RW other	Total
AT	0.2	0.0	0.3	0.2	0.0	0.1	0.2	0.2	0.3	0.8	0.1	0.6	3.1	0.7	6.8
DE	28.1	0.8	5.1	9.4	1.3	0.4	2.9	6.9	1.7	2.3	3.9	33.5	2.2	7.6	106.0
FR	0.5	16.2	3.7	1.9	0.2	2.9	4.9	1.4	2.0	0.5	0.5	30.1	2.7	10.9	78.3
GB	5.2	4.8	44.7	19.8	14.7	7.8	24.9	12.0	3.5	1.5	3.0	84.0	4.0	54.5	284.4
IT	0.0	1.3	2.8	2.6	0.4	1.3	0.0	2.5	0.1	2.1	7.5	0.5	2.9	2.9	26.8
LU	1.1	0.7	0.8	0.4	0.0	0.0	0.3	2.5	3.0	0.2	0.0	0.1	1.0	0.4	10.4
Other EU	0.5	1.4	1.5	1.1	0.5	2.3	3.2	3.3	3.2	2.9	4.5	2.8	12.8	6.7	46.8
Total	35.5	25.1	59.0	35.4	17.0	14.8	36.4	28.8	13.8	10.4	19.5	151.5	28.7	83.5	559.4

Source: Authors' calculations based on data from EBA (2015), Report on institutions' exposures to 'shadow banking entities', December 2015.

Note: Data refers to individual exposures equal to or above 0.25 per cent of eligible capital. Country labels on the left hand side of the chart refer to the country of domicile of the reporting institution. Country labels along with top of the chart refer to country of domicile of shadow banking entity. The chart excludes investment firms and exposures greater than 25% of the institution's eligible capital (the large exposure limit).

Exposures of EU banks to shadow banking entities

- Total exposures amount to €559 bn, i.e. approximately 4.3% of EU GDP

Distribution of EU institutions' exposures to shadow banking entities by country and domicile of shadow banking entity (% of GDP of the country of the reporting institution)

B / SB	DE	FR	GB	IE	JE	KR	KY	LU	NL	RU	TR	US	EU other	RW other	Total
AT	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.0	0.2	1.0	0.2	2.2
DE	1.0	0.0	0.2	0.3	0.0	0.0	0.1	0.3	0.1	0.1	0.1	1.2	0.1	0.3	3.9
FR	0.0	0.8	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	1.5	0.1	0.5	3.8
GB	0.3	0.3	2.4	1.0	0.8	0.4	1.3	0.6	0.2	0.1	0.2	4.4	0.2	2.9	15.0
IT	0.0	0.1	0.2	0.2	0.0	0.1	0.0	0.2	0.0	0.1	0.5	0.0	0.2	0.2	1.7
LU	2.4	1.5	1.8	1.0	0.0	0.0	0.6	5.5	6.5	0.5	0.0	0.1	2.1	0.8	22.9
Other EU	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	1.1
Total	0.3	0.2	0.5	0.3	0.1	0.1	0.3	0.2	0.1	0.1	0.1	1.2	0.2	0.6	4.3

Source: Authors' calculations based on EBA (2015), 'Report on institutions' exposures to 'shadow banking entities', December 2015 and Eurostat data.

Note: Data refers to individual exposures equal to or above 0.25 per cent of eligible capital. Country labels on the left hand side of the chart refer to the country of domicile of the reporting institution. Country along with top of the chart refer to the country of domicile of the shadow banking entity.

EU banks are exposed to different shadow banking entities

- EU banks have around two thirds of their exposures to:
 - Non-MMF investment funds
 - finance companies
 - securitisations

Distribution of EU institutions' exposures to shadow banking entities by country of domicile and type of shadow banking entity (weighted by size of exposure)

Country / type of 'shadow banking entity'	1. UCITS MMFs	2. Non-UCITS MMFs	3. Non-MMF investment funds	4. Finance companies	5. Broker-dealers	6. Credit insurers/ financial guarantors	7. Securitisation	8. Non-equivalent banks / insurers	9. Other	Total
DE	0.0	0.0	3.7	1.0	0.0	0.0	1.2	0.0	0.4	6.3
ES	0.0	0.0	0.0	0.3	0.0	0.1	0.3	0.0	0.1	0.7
FR	0.7	0.0	0.5	0.6	0.0	0.0	2.2	0.0	0.4	4.5
GB	0.0	0.4	2.5	2.0	0.4	0.5	2.2	0.0	2.4	10.5
HK	0.1	0.0	0.5	0.0	0.6	0.0	0.0	0.0	0.1	1.3
IE	0.0	0.0	0.8	0.7	0.0	0.0	4.5	0.0	0.3	6.3
JE	0.0	0.0	0.2	0.1	0.0	0.0	2.7	0.0	0.0	3.0
JP	0.0	0.0	0.2	0.1	0.6	0.0	0.0	0.4	0.2	1.5
KR	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.9	0.5	2.6
KY	0.0	0.0	3.4	0.7	0.0	0.0	1.8	0.1	0.5	6.5
LU	0.3	0.0	2.3	0.7	0.2	0.0	1.2	0.0	0.4	5.2
NL	0.0	0.0	0.2	0.6	0.0	0.0	1.5	0.0	0.1	2.5
RU	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.7	0.1	1.9
TR	0.0	0.0	0.0	0.4	0.0	0.0	0.0	3.0	0.0	3.5
US	0.7	0.2	4.0	8.2	0.3	0.3	7.1	1.6	4.7	27.1
EU other	0.1	0.0	2.0	1.4	0.0	0.0	0.4	0.1	0.3	4.4
RW other	0.0	0.1	1.9	1.2	0.6	0.6	0.8	4.4	2.5	12.1
Total	2.0	0.9	22.3	18.2	2.8	1.4	26.2	13.3	13.0	100.0

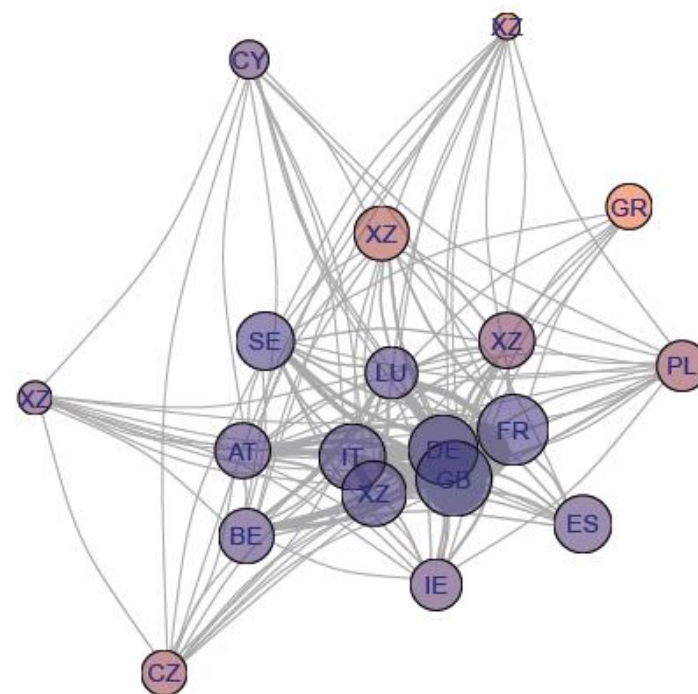
Source: Authors' calculations based on EBA (2015), Report on institutions' exposures to 'shadow banking entities', December 2015.

Note: Data refers to individual exposures equal to or above 0.25 per cent of eligible capital. Country labels on the left hand side of the chart refer to the country of domicile of the shadow banking entity. The numbers along the top of the chart refer to the type of shadow banking entity as per EBA (2015). 1 = UCITS MMF; 2 = Non-UCITS MMF; 3 = Non-MMF investment fund; 4 = finance companies; 5 = broker-dealers; 6 = credit insurers/ financial guarantors; 7 = securitisation; 8 = non-equivalent banks / insurers; 9 = other.

Overlap / concentration analysis

- Low levels of individual concentration (high diversification) for the largest banks (in terms of exposures) towards shadow banking entities
- This diversification engenders *high overlap* levels between different banks (exposed to the same shadow banking entity)

Potential sources of common vulnerability are US finance companies, US securitisations and US 'other' entities with a cluster between the DE, FR, GB banking systems



Conclusions

- The interconnectedness of shadow banking entities underlines the need for a better understanding of the nature of these linkages and potential contagion channels
- EU banks are exposed to a number of different types of shadow banking entities. Some concentration with around 65% of their exposures to securitisations, investment funds other than MMFs and finance companies
- The analysis highlights the global and cross-border nature of banks' exposures to shadow banking entities – approx. 60% of EU institutions exposures are towards non-EU domiciled shadow banking entities. Approx. 27% of exposures towards US domiciled shadow banking entities.
- High but shared diversification across shadow banking entities may potentially lead to common sources of vulnerability.



Thank you.

