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What is the impact of operations with admitted and eventual reinsurers on the credit risk of insurers?

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The opening of the Brazilian reinsurance market

- **Complementary Law 126**, enacted in January 2007, ended the nearly 70-year monopoly of the state-owned reinsurer IRB-Re.
- After this legislative change, the market was structured around three types of reinsurers:
  1. Local: headquartered in Brazil;
  2. Admitted: headquartered abroad and with a representative office in Brazil;
  3. Eventual: headquartered abroad and without a representative office in Brazil.

The opening of the Brazilian reinsurance market

- Objectives:
  - Strengthen the national market,
  - Increase its capacity and
  - Promote dynamism.
- Protective measures: Initially, 60% of reinsurance operations had to be preferentially allocated to **local** reinsurers;
- This requirement was later reduced to 40% in 2010.

Decree No. 10,167 (December, 2019)

- Decree No. 10,167 established that insurers may cede up to 95% of their reinsurance premiums, calculated based on the entirety of their operations in each year, to **eventual** reinsurers;
- In 2008 the limit was 10%;
- The law does not impose limit on premiums ceded to admitted reinsurers;
- In 2023 SUSEP(1) reported an increase of 120% in premiums ceded to foreign (admitted and eventual) reinsurers between 2021 and 2022.

(1) Brazil's autarchy that regulates the insurance market

CNSP Resolution No. 451 (December, 2022)

- Under CNSP(2) No. 451, insurance companies are allowed to have a reinsurance cession (to local, admitted or eventual reinsurers) exceeding **90%**, provided they submit a technical justification to SUSEP;

- Previously, the reinsurance cession could not exceed **50%** of the premiums written (CNSP, 2007);

- This change could lead to more premiums being ceded to foreign reinsurers, increasing insurers' credit risk.

Benefits of reinsurance x Credit Risk

- Among the benefits provided by reinsurance are:
  - Reduction of exposure to losses that exceed the insurer's retention capacity;
  - Expansion of its underwriting potential and risk diversification;
  - Lower market volatility.
- However, these benefits are not without costs, since reinsurance has **credit risk** integrated into its operation;
- Credit risk arises whenever a company is exposed to losses if a counterparty fails to meet its contractual obligations.

Reinsurers supervision

- The supervision of reinsurers is conducted by SUSEP.
- However, the solvency of admitted and eventual reinsurers is determined by the supervisory authority of their country of origin;
- This may lead to a less stringent regulatory framework compared to local reinsurers;
- As a result, an increase in the credit risk of operations with these companies could be observed.

Objective of the study

- This study aims to:
  - Understand the profile of insurers that migrated part of their reinsurance operations to admitted and eventual reinsurers after the increase in the cession limit defined by the regulation;
  - Assess whether this change led to higher credit risk.
  - Subsequently, it is investigated how this behavior change may impact the solvency of insurance companies.

Methodology

- 80 insurers selected in the sample, covering the period from 2013 to 2023;
- Data source:
  - SUSEP Statistical System (SES);
  - Companies’ financial statements.
- The data was structured in a panel format;
- As other variables can influence a company's credit risk, control variables were included in the model;
- Three regression models were applied using White's robust estimators.

Variables of interest

- The variables $\boldsymbol{Decree_{i,t}}$ and $\boldsymbol{CNSP451_{i,t}}$ are the variables of interest in the models and represent:
  - $\boldsymbol{Decree_{i,t}}$: dummy variable that determines whether, at time t, Decree No. 10,167 was already in force, since this decree allowed insurers to cede up to 95% of their reinsurance premiums to eventual reinsurers.
  - $\boldsymbol{CNSP451_{i,t}}$: dummy variable that identifies whether, at time t, CNSP Resolution No. 451 was already in force, as this resolution allowed insurance companies to cede more than 90% of their written premiums in reinsurance.

Control variables

- $\boldsymbol{Size_{i,t}}$: estimates the impact of the entity's size on credit risk capital;
- $\boldsymbol{GeoDiv_{i,t}}$: assesses the geographic diversification of an insurer *i* at time *t*;
- $\boldsymbol{PortDiv_{i,t}}$: assesses the portfolio diversification of an insurer *i* at time *t*;
- $\boldsymbol{LifePrem_{i,t}}$: represents the proportion of life insurance premiums written relative to the total premiums written by insurer *i* at time *t*;
- $\boldsymbol{Bancassur_{i,t}}$: dummy variable that identifies whether, at time *t*, an insurer *i* is associated with a bancassurance;
- $\boldsymbol{EcoGroup_{i,t}}$: dummy variable that determines whether an insurer *i* is affiliated with an economic group at time *t*;

Control variables

- $\boldsymbol{CapStru_{i,t}}$: variable that measures the capital structure of insurers;
- $\boldsymbol{PremDet_{i,t}}$: variable that measures the level of premium ceded to reinsurers;
- $\boldsymbol{LossR_{i,t}}$: variable that denotes the loss ratio of insurers;
- $\boldsymbol{RetLim_{i,t}}$ variable that assesses the maximum retention limit across all lines of business in which an insurer operates, relative to its adjusted equity (AE);
- $\boldsymbol{COVID_{i,t}}$: dummy variable that indicates whether, at the analyzed time t, the COVID-19 pandemic was ongoing;

Model 1

- Model 1 assess the behavior of premium ceded to admitted reinsurers.

$$PremAdRein_{i,t} = \alpha + \beta_1 Decree_{i,t} + \beta_2 CNSP451_{i,t} + \beta_3 Size_{i,t} + \beta_4 GeoDiv_{i,t} + \beta_5 PortDiv_{i,t} + \beta_6 LifePrem_{i,t} + \beta_7 Bancassur_{i,t} + \beta_8 EcoGroup_{i,t} + \beta_9 CapStru_{i,t} + \beta_{10} PremDet_{i,t} + \beta_{11} LossR_{i,t} + \beta_{12} RetLim_{i,t} + \beta_{13} COVID_{i,t} + \varepsilon_{i,t}$$

- $\boldsymbol{PremAdRein_{i,t}}$: represent the amount of premiums ceded to admitted reinsurers, relative to the total premiums ceded to reinsurers;

- P-value of the Hausman test = 0.1575 (Random effects);

Model 2

- Model 2 assess the behavior of premium ceded to admitted reinsurers.

$$Prem\text{Ev}Rein_{i,t} = \alpha + \beta_1 Decree_{i,t} + \beta_2 CNSP451_{i,t} + \beta_3 Size_{i,t} + \beta_4 GeoDiv_{i,t} + \beta_5 PortDiv_{i,t} + \beta_6 LifePrem_{i,t} + \beta_7 Bancassur_{i,t} + \beta_8 EcoGroup_{i,t} + \beta_9 CapStru_{i,t} + \beta_{10} PremDet_{i,t} + \beta_{11} LossR_{i,t} + \beta_{12} RetLim_{i,t} + \beta_{13} COVID_{i,t} + \varepsilon_{i,t}$$

- $\boldsymbol{PremEvRein_{i,t}}$: represent the amount of premiums ceded to eventual reinsurers, relative to the total premiums ceded to reinsurers;

- P-value of the Hausman test = 0.1976 (Random effects);

Model 3

- Model 3 asses the variation in the credit risk capital.

$$CredRCap_{i,t} = \alpha + \beta_1 PremAdRein_{i,t} + \beta_2 PremEvRein_{i,t} + \beta_3 Decree_{i,t} + \beta_4 CNSP451_{i,t} + \beta_5 Size_{i,t} + \beta_6 GeoDiv_{i,t} + \beta_7 PortDiv_{i,t} + \beta_8 LifePrem_{i,t} + \beta_9 Bancassur_{i,t} + \beta_{10} EcoGroup_{i,t} + \beta_{11} CapStru_{i,t} + \beta_{12} PremDet_{i,t} + \beta_{13} LossR_{i,t} + \beta_{14} RetLim_{i,t} + \beta_{15} COVID_{i,t} + \varepsilon_{i,t}$$

- $\boldsymbol{CapRCred_{i,t}}$: natural logarithm of the credit risk capital of an insurer *i* at time *t*;

- P-value of the Hausman test = 0.0005 (Fixed effects);

Results – Model 1

- The statistically significant variables of Model 1 are:

$\boldsymbol{Size_{i,t}}$ $(*)$

- Positive **(+)** correlation;
- The data indicates that larger insurers tend to cede more premiums to admitted reinsurers.

$\boldsymbol{PremDet_{i,t}}$ $(***)$

- Negative **(-)** correlation;
- This means that insurers that transfer a higher proportion of premiums to reinsurers tend to operate less with admitted reinsurers.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 1

- $\boldsymbol{Bancassur_{i,t}}$ (.)
  - Negative **(-)** correlation;
  - The data indicates that insurers associated with banking institutions tend to cede fewer risks to admitted reinsurers
  - Bancassurance is the collaboration between banks and insurers to distribute insurance products through banking channels.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 2

- The statistically significant variables of Model 2 are:

$\boldsymbol{Size_{i,t}}$ $(*)$

- Positive **(+)** correlation;
- The data indicates that larger insurers tend to cede more premiums to eventual reinsurers.

$\boldsymbol{LifePrem_{i,t}}$ $(.)$

- Negative **(-)** correlation;
- Insurers with a significant presence in the life insurance sector tend to cede less reinsurance to eventual reinsurers.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 2

$\boldsymbol{CapStru_{i,t}}$ (.)

- Negative **(-)** correlation;
- More leveraged insurers tend to cede fewer premiums to <u>eventual</u> reinsurers.
- It can be hypothesized that this phenomenon occurs to avoid a possible increase in credit risk when dealing with <u>eventual</u> reinsurers.

$\boldsymbol{LossR_{i,t}}$ (**)

- Negative **(-)** correlation;
- insurers with higher loss ratios tend to cede fewer premiums to <u>eventual</u> reinsurers.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 2

$\boldsymbol{COVID_{i,t}}$ $(*)$

- Negative **(-)** correlation;
- Insurers were less likely to cede premiums to eventual reinsurers during the pandemic.

$\boldsymbol{Decree_{i,t}}$ $(***)$

- Positive **(+)** correlation;
- The new regulation effectively resulted in an increase in premiums ceded to eventual reinsurers.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 3

- The statistically significant variables of Model 3 are:

$\boldsymbol{Size_{i,t}}$ $(***)$

  - Positive **(+)** correlation;
  - The variable indicates that larger insurers tend to have a higher credit risk capital.

$\boldsymbol{LifePrem_{i,t}}$ $(.)$

  - Negative **(-)** correlation;
  - Insurers that operate widely in life insurance tend to have lower credit risk capital.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 3

$\boldsymbol{COVID_{i,t}}$ $(*)$

- Negative **(-)** correlation;
- During the COVID-19 pandemic, a lower credit risk capital of insurers was observed;
- The lower credit risk capital observed may be partly explained by the reduced cession of premiums to eventual reinsurers during this period, as shown by Model 2.

$\boldsymbol{CNSP451_{i,t}}$ $(**)$

- Negative **(-)** correlation;
- The new regulation allowing insurers to cede more than 90% of their premiums to reinsurers did not lead to an increase in credit risk.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Results – Model 3

$\boldsymbol{PrevEvRein_{i,t}}$ (**)

- Positive **(+)** correlation;
- Insurers that engage more with eventual reinsurers tend to have higher credit risk capital;
- This result aligns with expectations, as these reinsurers are not fully subject to SUSEP supervision and may operate under more lenient regulations compared to local reinsurers.
- **Consequences:** A higher credit risk capital increases the overall risk capital, requiring a higher minimum capital to meet regulations and guarantee the insurer solvency. This reduces the profits distributed to shareholders and may lower the insurer's appeal to investors.

Statistical significance: ***p<0.001; **p<0.01; *p<0.05 and .p<0.1

Thank you! Obrigada!

Questions?

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