

## Box 8

### Insurance companies and derivatives exposures: evidence from EMIR data

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#### **Insurance companies' derivative exposures are recognised to be a potential source of risk.**<sup>58</sup>

For instance, in the midst of the global financial crisis, the global insurance conglomerate, American International Group (AIG), was rescued because of the significant losses on the credit default swap (CDS) portfolio held by its Financial Products subsidiary.<sup>59</sup> Yet, there is limited evidence on the derivative exposures of European insurers.<sup>60</sup> This box helps fill this gap by providing information on euro area insurers' derivative exposures, and the counterparties with which transactions take place. The analysis is based on transaction-by-transaction data collected under the European Market Infrastructure Regulation (EMIR).<sup>61</sup>

#### **Euro area insurers make fairly limited use of derivatives on aggregate, but derivative**

**transactions are concentrated within a few countries and insurance companies.** According to EMIR data, euro area insurers held about 50,000 derivative contracts at the end of September 2018, with an aggregate gross notional amount of around €1.30 trillion. Insurers domiciled in France and the Netherlands each held around one-third of this notional amount, while German and Spanish insurers held approximately 11% and 9%, respectively (see **Chart A**, left panel). However, the gross market value was overall only €55 billion, or less than 1% of euro area insurers' total assets, although there are notable differences across countries and individual insurance companies.<sup>62</sup> For instance, the gross market value of derivative contracts for Dutch insurers was equal to about 4% of their total assets, while the share was close to 0.2% for German insurers. Looking at individual company data, roughly 48% (73%) of the derivative notional amounts are concentrated in 10 (20) insurance companies. For some insurers, the gross market value of derivatives exceeds 10% of their total assets, while around 81% of insurance companies do not engage in derivative trading at all.<sup>63</sup>

#### **Interest rate derivatives account for almost three-quarters of insurers' derivative exposure in terms of the notional amount.**

Specifically, interest rate swaps and options constitute about 42% and 11% of insurers' total derivative notional amount, respectively (see **Chart A**, right panel). The extensive use of interest rate derivatives by (life) insurance companies is related to their business model, as the duration of their assets is typically shorter than the duration of their liabilities, which are mainly made up of long-term insurance policies. Interest rate derivatives can thus help insurers hedge the risk arising from the duration mismatch between assets and liabilities. In general, a

<sup>58</sup> See, for example, "Report on systemic risks in the EU insurance sector", European Systemic Risk Board, December 2015.

<sup>59</sup> For more details, see McDonald, R. and Paulson, A., "AIG in Hindsight", *Journal of Economic Perspectives*, Vol. 29, No 2, 2015, pp. 81-106.

<sup>60</sup> EIOPA's June 2018 "Financial Stability Report" provides the first insights into the use of derivatives by EU insurers based on Solvency II reporting.

<sup>61</sup> EMIR data are highly complex and require extensive processing (see [ESRB Occasional Paper No 11](#)). The results presented in this box are based on a cleaned sub-sample of the data for euro area insurers, using the reference date of 28 September 2018. In particular, the data (initially reported by both counterparties to a trade) are paired and de-duplicated, and outliers are removed. Despite this processing, the final data are still subject to some data quality limitations (missing values, some transactions remain unpaired, possible under-reporting, etc.). The final data also do not capture insurers' exposures at group level because they do not include exposures of non-insurance entities belonging to insurance groups (unless these have a derivative contract with an insurance company).

<sup>62</sup> Gross market value is defined as the sum of (the absolute value of) negative and positive market values. The value of €55 billion is somewhat smaller than the corresponding aggregate from ECB balance sheet data (€63 billion in June 2018; obtained as the sum of derivative assets and liabilities).

<sup>63</sup> Only 434 out of the 2,328 euro area insurers included in the [list](#) of insurers published by EIOPA are found to be active in the derivatives market according to EMIR data.

comprehensive assessment of insurers' exposure to interest rate and duration risk should account for the impact of hedging achieved through the use of interest rate derivatives.<sup>64</sup>

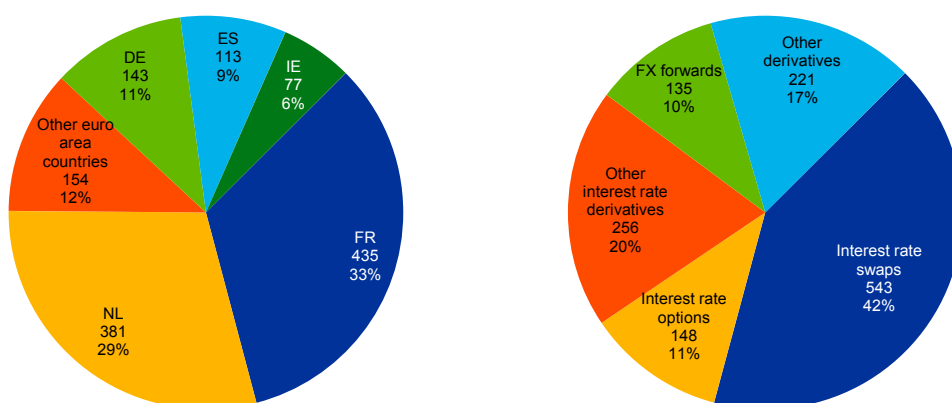
**Foreign exchange forwards are the third most frequently used derivative product, while the use of CDS is fairly limited.** Exposures to foreign exchange forwards and CDS account for 10% and less than 1% of the notional amounts respectively. In particular, euro area insurers' aggregate exposure to CDS, with a notional value of around €11 billion, is negligible in comparison with that of AIG's CDS portfolio, which totalled USD 527 billion at the end of 2007. The limited use of CDS may be related to Solvency II requirements, which only allow the use of derivatives insofar as they "contribute to a reduction of risks or facilitate efficient portfolio management".<sup>65</sup>

### Chart A

#### Distribution of insurers' derivative exposures

##### By country (left panel) and by type of product (right panel)

(Mar. 2018, notional amounts in € billions and as a percentage of the total)



Source: EMIR data available to the ECB (reference date: 28 September 2018).

Note: Left panel: the country of domicile refers to the location of the individual legal entity (i.e. not to the domicile of the headquarters of an insurance group).

**The network of derivative exposures shows a highly concentrated market, since insurers make transactions with a relatively small number of counterparties, which are mainly banks (see Chart B).** In particular, more than 57% (79%) of the notional amounts are traded with the top 10 (20) counterparties, which are predominantly large dealers and/or clearing members. Insurers are often clients of clearing members because EMIR requires central clearing for certain types of contract (e.g. standard interest rate swaps)<sup>66</sup> and insurers typically do not meet the conditions for holding an account with a central counterparty or the scale of their trading activity does not justify the cost of such an account.

**Small insurers typically trade with one bank only, while large insurance groups make transactions with many different counterparties.** Furthermore, the exposures of large insurance groups are usually spread across several subsidiaries. This suggests that subsidiaries of large groups may have easier access to the derivatives market than small stand-alone insurers, possibly

<sup>64</sup> For an analysis of the impact of hedging on interest rate risk borne by euro area banks, see e.g. Hoffmann, P., Klaus, B. and Langfield, S., "The distribution of interest rate risk in the euro area", Special Feature C in [Financial Stability Review](#), ECB, May 2018.

<sup>65</sup> See Article 132 of the [Solvency II Directive](#). This requirement may in particular limit the *selling* of CDS (i.e. the type of activity that increases exposure to credit risk and which was widely used by AIG).

<sup>66</sup> European [Commission Delegated Regulation \(EU\) 2015/2205](#).

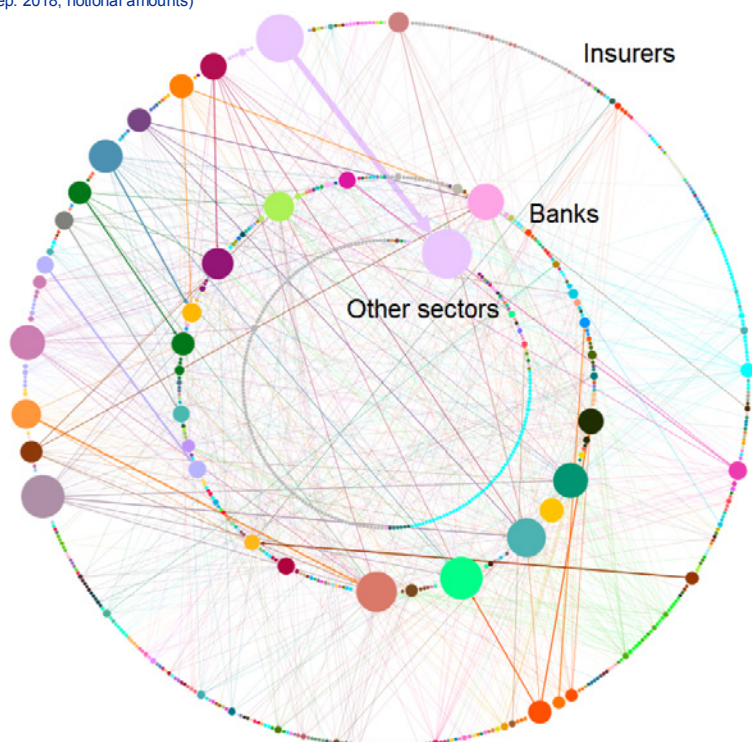
benefiting from arrangements made at the group level. Moreover, around 27% of the transactions (23% in terms of notional amounts) are intragroup, i.e. they involve insurers and banks belonging to the same group (identifiable as nodes and edges with the same colour in **Chart B**). Since smaller insurers typically trade with very few clearing members, this may affect their market access if the business relationship terminates or a clearing member exits the market.

## Chart B

### Network of insurers' derivative exposures

#### Outstanding contracts between insurers (outer circle) and their counterparties (inner circles)

(Sep. 2018, notional amounts)



Source: EMIR data available to the ECB (reference date: 28 September 2018).

Notes: The chart only includes outstanding contracts of euro area insurance companies (i.e. outstanding contracts of non-insurance entities belonging to an insurance group are excluded, unless these entities have a derivative contract with an insurance company). The size of the nodes and arrows reflects the notional amounts of outstanding contracts. Insurers are located on the outer circle and insurers' counterparties (banks and entities belonging to other sectors) are located on the two inner circles. The same colour is used for entities belonging to the same group. The direction of the arrows runs from an insurer to its counterparty.

**To sum up, although euro area insurers make relatively limited use of derivative contracts on aggregate, insurers' exposure to this market may not be entirely innocuous for financial stability.** For example, there is evidence of concentration risk since the bulk of the derivative contracts are held by a limited number of large insurers. Furthermore, derivative exposures also increase the degree of interconnectedness between the insurance and banking sectors. This evidence suggests that it is important to regularly monitor developments in insurers' derivative exposures.