

JOINT STRESS TESTS BY THE CNB AND INSURANCE COMPANIES IN THE CZECH REPUBLIC

Financial Stability Department
Financial Market Supervision Department

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SUMMARY

The aggregate results of joint stress tests conducted by the CNB and selected insurance companies in 2017 again confirmed that the sector was sufficiently resilient to potential adverse shocks even under the Solvency II regime. The results demonstrate that the sector as a whole had sufficient own funds to absorb relatively significant changes in risk factors. Even after the application of shocks, the sector's solvency ratio remained relatively high above the 100% regulatory minimum. In the case of the stress scenario extended to include the impacts of floods, the overall solvency ratio of the insurance companies tested was 152%.

1. INTRODUCTION

Another round of joint stress tests conducted by the CNB and selected insurance companies took place in the second quarter of 2017. The aim of these tests is to assess the ability of insurance companies to absorb the impact of adverse economic developments. The number of insurance companies participating in the stress tests was increased from 10 to 19 this year. The participating companies accounted for 99% of the domestic insurance market in 2016 based on gross premiums written.

The testing methodology is the same as the one used in the stress test conducted in 2015.¹ The stress test assessed the impact of significant changes in risk parameters on the value of the insurance company's assets and liabilities according to the Solvency II valuation principles, and subsequently on the insurance company's solvency position, i.e. ratio of eligible own funds to the solvency capital requirement (SCR) as of 31 December 2016. As in the previous test, no post-stress scenario recalculation of the SCR was required, so the change in the value of assets and liabilities in the test only affected the eligible own funds. The investment risks examined were equity risk, asset and liability interest rate risk, real estate risk, exchange rate risk, credit spread risk and the risk of a fall in government bond prices. The non-life insurance risks tested were motor vehicle insurance risk and the risk of claims due to natural disasters. Insurance companies were allowed to apply measures relating to long-term guarantees leading to a drop in the sensitivity of balance sheets to some market risks. Of these measures, eight domestic insurance companies applied volatility adjustment enabling adjustment of the risk-free yield curve. However, the application of volatility adjustment did not qualitatively affect the results.

2. THE STRESS SCENARIO

The stress scenario was derived from the adverse scenario used to test the resilience of the banking sector in 2017.² It assumes a fall in domestic economic activity as a result of adverse developments in the Czech Republic's main trading partner countries and increased uncertainty in financial markets related to a sharp rise in investors' risk aversion to the EU and emerging economies. These adverse developments are also associated with a fall in the stock market and a drop in property prices.³ The scenario for insurance companies was extended to include a 10% decline in premiums written for motor vehicle insurance amid the same level of costs as in 2016. In addition, the extended scenario tested how the capitalisation of insurance companies would be affected if floods occurred this year.

¹ In 2016, the CNB did not perform its own stress tests because the domestic insurance sector participated in the stress tests organised by the European Insurance and Occupational Pensions Authority (EIOPA).

² See Financial Stability Report 2016/2017, CNB, 2017.

³ The scenario assumed a 41% drop in share prices and a 20.5% drop in property prices.

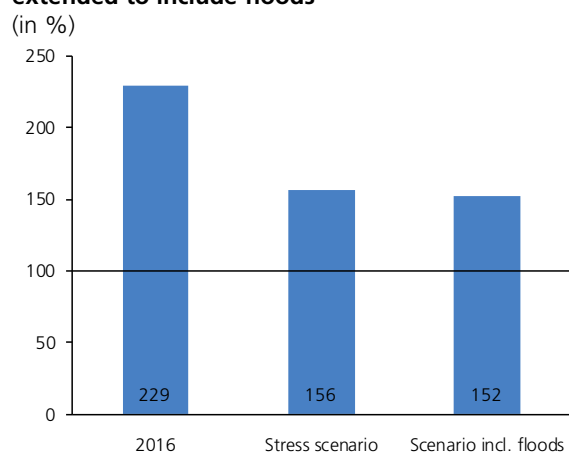
This year's scenario assumed an increase in the risk-free yield curve derived from the koruna swap curve.⁴ The shift reflects an increase in the risk premium as a result of adverse economic developments. The shift is partly offset by a drop in expectations about the future levels of monetary policy rates due to the effects of the return of recession considered. The change in Czech government bond prices in the scenario was affected by the same factors as the swap curve and additionally by the exit of foreign investors from the Czech bond market. Given the relatively high share of foreign investors in holdings of Czech government debt, their exit had a significant impact in the scenario and Czech government bond prices thus declined more than in the scenarios in previous years.⁵ A marked fall is also assumed for other EU government bonds due to the risk of a return of the debt crisis in the euro area, amplified by current political and demographic factors. The credit spread risk scenario was set on the basis of the historical volatility of yields on corporate bonds held in Czech insurance companies' portfolios over the past ten years, broken down by rating and maturity category. The scenario set in this way is stricter than the one used until 2015.

3. THE IMPACT OF THE STRESS SCENARIO ON THE INSURANCE SECTOR

The baseline pre-stress Solvency II ratio as of 31 December 2016 was 229%. The own funds eligible to cover the SCR of CZK 47.8 billion amounted to CZK 109.6 billion. The value of eligible own funds is reduced by planned dividend payouts for 2016 of CZK 9.2 billion.

The aggregate results confirm that due to sufficient eligible capital, the sector as a whole, as represented by the participating insurance companies, would absorb the impacts of a large increase in risk factors, including simultaneous floods, even under the Solvency II regime (see Chart 1 and Table 1). The sector would stay relatively high above the 100% solvency threshold even after the application of significant shocks. The solvency ratio in the extended scenario was 152%. The aggregate impact of the shocks on the level of capital available to meet the SCR (CZK 43.8 billion) was lowered in the test to take account of an income tax effect of CZK 7.0 billion (see Chart 2).

Chart 1
Solvency ratio for the stress scenario and the scenario extended to include floods



Source: CNB

Note: 100% regulatory minimum

Table 1
Impact of the stress scenario including flood risk

	CZK billions	% of assets
Equity risk	-13,8	-3,1
Real estate risk	-2,8	-0,6
Exchange rate risk	0,9	0,2
Interest rate risk	0,2	0,0
Credit spread risk	-3,1	-0,7
Risk of drop in government bond prices	-20,4	-4,6
Motor vehicle insurance risk	-2,7	-0,6
Natural disaster insurance risk	-2,1	-0,5
Total impact of risks on eligible own funds	-43,8	-10,0
Other impacts (tax)	7,0	1,6
Eligible own funds as of end-2016	109,6	24,9
Eligible own funds after test application	72,8	16,6

Source: CNB

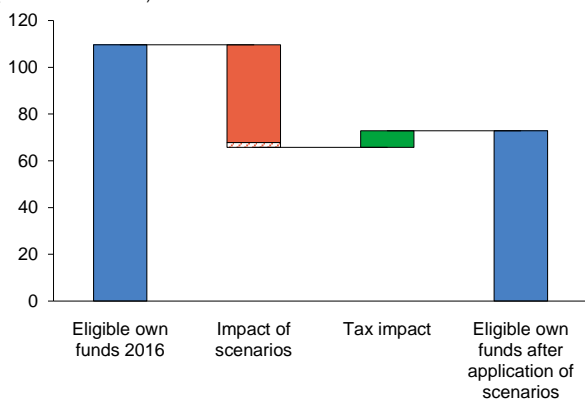
⁴ The scenario assumed an increase in the koruna swap curve of about 50 bp or, if volatility adjustment is applied, of about 110 bp. Both the swap curve and the Czech government bond yield curve were simulated using a new model framework – see the thematic article “Decomposition of the Czech government bond yield curve” published by the CNB in Financial Stability Report 2016/2017.

⁵ The scenario assumed a drop in government bond prices of 5.8% for time to maturity of 1–5 years, 13.4% for time to maturity of 5–10 years and 21.1% for time to maturity of over 10 years.

The impacts of the stress scenarios on the eligible own funds of individual insurance companies were mixed. The solvency ratios of several insurance companies would drop below 100% if the extended scenario was applied. However, the aggregate market share of these companies was very low. Their overall capital inadequacy under the stress scenario would amount to CZK 1.0 billion, or 2.1% of the SCR of the insurance companies participating in the stress test. No post-stress scenario recalculation of the SCR was required in the stress test. In the event of recalculation, the SCR level would decrease due to a drop in exposure, and the real need to raise capital would be lower as a result.

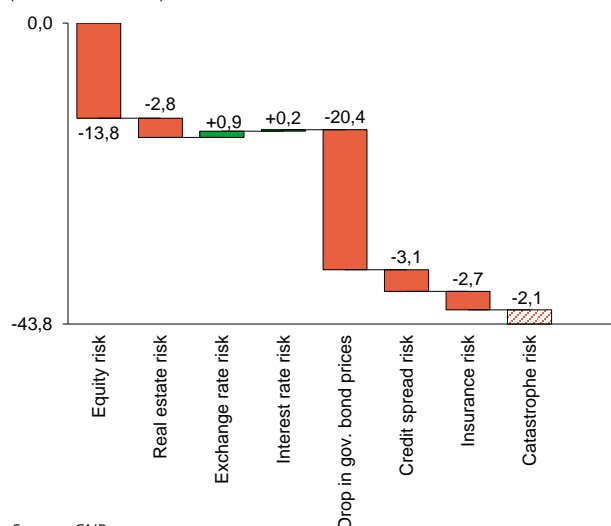
In the scenario applied, the risk of a fall in government bond prices had the largest downward impact on eligible capital (see Chart 3), due mainly to the high share of government bonds in domestic insurance companies’ portfolios⁶ and to the increase in the shocks for this risk compared with previous stress tests. The impact of equity risk was also substantial due to the shock size. Real estate risk also had a noticeable downward impact on eligible own funds, as insurance companies have in recent years been seeking other long-term investment opportunities given the low interest rate environment. The impact of credit spread risk has risen compared with the previous stress tests, mainly because of the increase in the shocks for this risk. The favourable result for shocks for the risk of floods relative to the other risks shows that insurance companies have well-structured reinsurance programmes for catastrophic flood damage. The scenario applied for interest rate risk led to a moderate increase in eligible capital overall. This was generally due to higher sensitivity of technical provisions to growth in the risk-free yield curve compared with the sensitivity of the assets of insurance companies that have a large proportion of traditional guaranteed life insurance products in their portfolios. The impacts of the scenario for interest rate risk differed across insurance companies and were affected mainly by the degree of matching of asset and liability maturity profiles. The impact of exchange rate risk on eligible capital was also positive due to the depreciation of the koruna in the stress test.

Chart 2
Change in eligible own funds
(in CZK billions)



Source: CNB
Note: The hatched area in the *Impact of scenarios* column shows the impact of floods.

Chart 3
Decrease in eligible own funds due to the impact of shocks broken down by risks
(in CZK billions)



Source: CNB
Note: The chart represents the decomposition of the *Impact of scenarios* column in Chart 2.

⁶ The test also included government bonds classified as held to maturity at amortised cost. They are valued at fair value in accordance with the principles of Solvency II and formed a large proportion of some insurance companies’ portfolios.

4. THE LOW INTEREST RATE ENVIRONMENT

Owing to the persisting environment of low interest rates, the test was extended to include an additional scenario focusing on a fall in interest rates in life insurance and a qualitative questionnaire on measures implemented in connection with the low interest rate environment. The overall impact of the scenario with the risk-free yield curve reflecting a longer-lasting low interest environment on the participating companies' aggregate eligible capital was minimal. However, the impacts of this scenario differed across insurance companies depending on the matching of cash flows on the asset and liability sides.

In a longer-running environment of low interest rates, insurance companies in general face the risk of insufficient investment income on financial placement to cover the guaranteed technical interest rate due to reinvestment risk, as it will be more difficult for them to find suitable investments with adequate returns and an acceptable level of risk as their current investments gradually mature. The results of the questionnaire reveal that insurance companies are mostly opting for a strategy of changing their product structure to mitigate this risk. Most companies have stopped selling new products with a guaranteed technical interest rate and are focusing more on products intended mainly to cover life and health risks. Some insurance companies are also planning some changes in their investment structure, such as an increase in investment in real estate. According to insurance companies' replies, the low interest rate environment should not cause domestic insurance companies any significant capital problems over the next few years. The CNB is continuing to address this issue intensively and is insisting that insurance companies focus systematically on interest rate risk, on managing and assessing it not only in isolation, but also in the context of other investment risks, reinsurers' credit risk, lapse risk and other insurance risks, and on enhancing their asset and liability management practices.