

Non-Technical Summary for Solvency II Capital Calibration for Securitisations

Jozsef Kutas
Risk Control

William Perraudin
Risk Control

Yixin Qiu
Risk Control

This version: 7th July 2016

The European authorities have faced a complex task in calibrating the Solvency II capital charges for securitisations. On one hand, misuse of securitisation played an important role in the recent financial crisis. On the other, the key sectors of the European securitisation market (those backed by residential mortgages, SME loans and other consumer loans) proved robust to the downturn, with highly rated tranches exhibiting negligible default rates.

The task of calibration is further complicated by the lack of long time series of securitisation price data and by the fact that transparency and skin-in-the-game reforms since the crisis have introduced a structural break. The difficulty of designing a convincing calibration is underlined by the fact that European regulators published no fewer than four proposed calibrations between 2009 and 2013 and are, reportedly, contemplating a future round of changes.

This paper develops a calibration based on an extensive data set of price and characteristic data for individual European securitisations. Using this data, we (i) construct return indices from 2005 to the present, (ii) calculate Value-at-Risk (VaR) measures for each index and (iii) employ these VaRs to generate capital charges broken down by rating and securitisation type. (Solvency II distinguishes between high quality securitisation tranches satisfying a set of qualitative criteria (labelled “Type 1”) and other securitisations (labelled “Type 2”).

We conclude that capital charges prior to diversification adjustments for highly rated Type 1 securitisation exposures should be half the level currently in force in Solvency II. Charges for Type 2 securitisations should also be substantially reduced whereas charges for lowly rated Type 1 securitisations should be higher than is the case in the current rules.

The capital charges implied by our analysis appear more intuitively reasonable than the current Solvency II rules. Under these latter rules, AA and BBB-rated Type 1 securitisations attract the same capital charges while the gap between Type 1 and Type 2 charges generates a very substantial cliff effect. Some pairs of tranches that are Type 1 and 2 because of minor qualitative differences bear capital that differ by a factor of 6.

To show the effect of adopting our calibration instead of the current Solvency II rules, we perform capital calculations for both approaches. We also develop a bottom up capital charge approach in which the tranche capital is deduced by (i) working out the capital an insurer would have to hold for the underlying pool assets and (ii) using the Simplified Supervisory Formula Approach (SSFA)

employed in the SEC-SA of the Basel III bank capital rules for securitisation positions. Finally, to place our findings in context, we also calculate capital using the Basel III SEC-IRBA, SEC-SA and SEC-ERBA rules.

In performing Solvency II style capital calculations, we allow for diversification in a manner consistent with Solvency II rules. In Solvency II, initial capital charges for non-diversified exposures are adjusted using a formula that depends on the insurer's balance sheet. To deduce reasonable diversification adjustments, we perform calculations based on the balance sheet of a representative European life insurer. (This follows the approach employed by H6ring (2012).)

In Table 1 below, we show pre-diversification adjustment capital charges under Solvency II rules and under our recalibration (from Table 10 of the paper). The Type 1 charges we propose are, coincidentally, close to the current Solvency II charges for corporate bonds. In Table 2, we also provide results for representative tranches (described in Table 15 of the paper) under Solvency II rules (with and without diversification), under Basel III and under the bottom up approach.

Table 1: Per-year-of-duration charges (in %) without diversification adjustment

	Solvency II capital charges			
	Recalibration	Securitisations	Corporate Bonds	Covered Bonds
Type 1 AAA	0.91	2.1	0.9	0.7
Type 1 AA	1.14	3	1.1	0.9
Type 1 A	1.42	3	1.4	-
Type 1 BBB	5.10	3	2.5	-
Type 2 AAA	1.77	12.5	-	-
Type 2 AA	2.22	13.4	-	-
Type 2 A	2.76	16.6	-	-
Type 2 BBB	9.92	19.7	-	-

Table 2: Capital charges for representative securitisation exposures

Asset Class	Country	Solvency II capital charge without diversification (%)		Solvency II capital charge with diversification (%)		Basel III capital charge (%)			
		SII cal.	Recal.	SII cal.	Recal.	IRBA	ERBA	SA SSFA SII	
Type 1 Securitisation exposures									
RMBS	GB	14.9	8.1	8.7	4.7	1.2	1.6	1.2	1.2
	Spain	22.1	17.6	13.3	10.5	1.2	5.6	1.2	1.2
SME	GB	6.3	3.4	3.6	2.0	1.2	1.6	1.2	1.2
	Spain	12.1	8.9	7.0	5.2	1.2	3.6	1.2	1.2
Auto loans	Germany	2.1	1.1	1.2	0.7	1.2	1.6	1.2	1.2
	Spain	3.0	2.2	1.8	1.3	1.2	3.6	1.2	1.2
Con. loans	GB	18.4	13.6	10.5	7.8	1.2	3.2	1.2	1.2
Type 2 Securitisation exposures									
RMBS	GB	100.0	39.4	57.4	22.5	1.2	12.5	1.2	1.2
	Spain	100.0	38.7	57.9	22.2	1.2	10.0	1.6	2.1
SME	GB	100.0	37.4	61.6	22.2	1.2	10.9	1.2	16.6
	Spain	100.0	66.9	58.7	39.0	1.2	19.5	1.2	12.2
Auto loans	Germany	13.4	3.5	7.7	2.1	1.5	8.4	13.3	1.2
	Spain	22.9	5.3	13.2	3.0	1.2	11.6	1.2	1.2
Con. loans	GB	100.0	27.0	57.2	15.4	1.2	12.1	1.7	7.0