Forecasting CECL Losses for the CMBS Universe

Most banks are just starting to explore possible avenues of addressing FASB's Current Expected Credit Loss (CECL) reserving model. The guidance so far has left much discretion in the banks' hands when it comes to determining proper life-of-loan reserve calculation methods and models. Due to stress testing and heightened regulatory scrutiny, one of the more complex methods that most larger banks already have experience with is econometric modeling, namely Probability of Default (PD) and Loss Given Default (LGD) modeling. Banks will most likely be expected to use similar modeling and forecasting techniques across the regulatory and accounting functions, and those that have built regulatory models will use some or all of that infrastructure to tackle CECL.

The Portfolio

In order to get a sense of the magnitude of prospective CECL loss calculations, Trepp ran the entire CMBS loan universe through the Trepp Default Model for CECL. Despite the fact that they are not balance sheet loans, the aggregate results give a good idea as to how much a bank may need to reserve for loans in given risk cohorts (DSCR, LTV, vintage, etc.). The portfolio includes all non-delinquent, single-property loans with at least one year of remaining term. Portfolio loans analyzed here are backed by the five major property types: industrial, lodging, multifamily, office, and retail. Finally, the loans only come from standard/public conduit, single-asset, and large loan CMBS deals. The portfolio excludes agency, mezz, short-term, single family rental, cell tower and other esoteric deal types. In order to remain conservative, the loans' appraised values were assumed to be as of the beginning of the forecast. In other words, there was no "walk forward" of stale appraisals that would have raised values and lowered LTVs for most of the older loans in the portfolio. Had the true appraisal dates been fed into the model, the loss results would have been lower by about one-third.

The Scenario

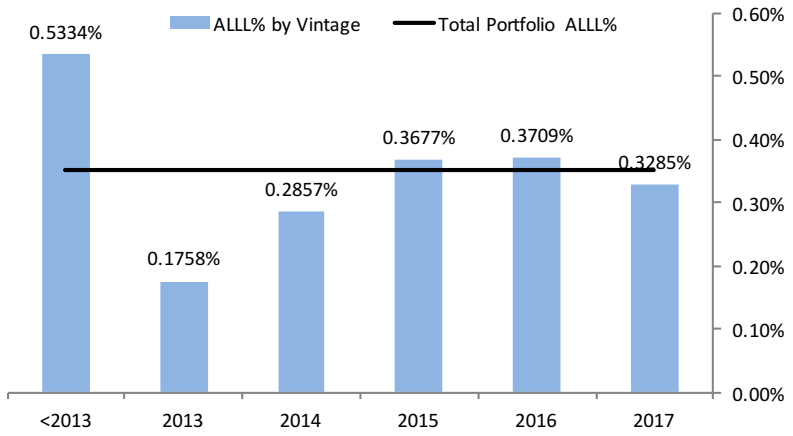
The life-of-loan macroeconomic scenario used is an extension of the baseline scenario given by the Federal Reserve and used by banks in regulatory (DFAST and CCAR) stress testing exercises. After using the initial Fed-given, 13-quarter scenario, Trepp extended the forecast out to 30 years using a business cycle patterned off of long-term, post-World War II historical averages. This includes upswings and downturns in CRE prices, liquidity, unemployment, interest rates and other macro variables that drive the loan loss model. Given the inflated state of CRE valuations, the scenario also adds a slight downtrend in long-term CRE prices over the 30-year forecast.

Refinance or maturity gap assumptions are an additional way to analyze a portfolio loss forecast. One can use maximum LTV thresholds, minimum DSCR thresholds, or both to add to the term losses forecasted by the model. For this study, no refinance gap assumptions were factored in. Using 80% LTV, 1.10x DSCR, a 10-year Treasury plus 150 basis points rate, and re-underwriting assumptions with a 30-year amortization term, portfolio life-of-loan Allowance for Loan and Lease Losses (ALLL) increased by a factor of three.

The Results

Given the aforementioned assumptions, the CECL ALLL% forecasts generated by Trepp-DM for the CMBS portfolio total 0.3516%. Unsurprisingly, recent vintages perform better than older ones, partly due to adverse selection of what remains in older vintages and the higher liquidity underwriting environment of 2005, 2006, and 2007 loans that leads to higher PDs (all else equal).

CECL – ALLL% BY LOAN VINTAGE



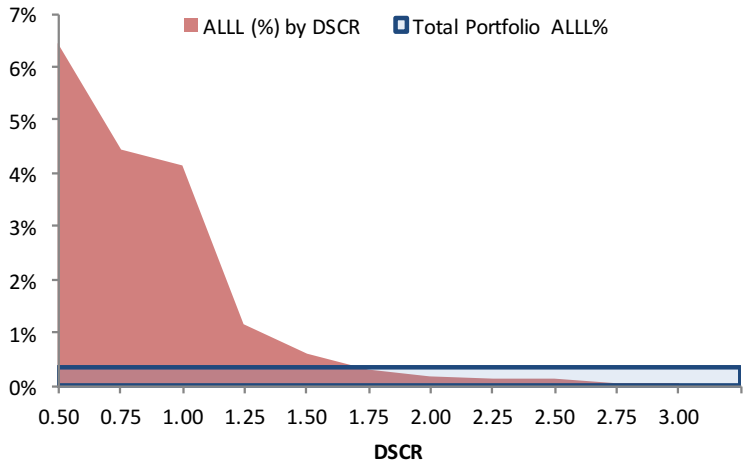
Source: Trepp

Vintage	Recorded Investment ($)	% of Portfolio	WA Initial DSCR	WA Initial LTV	WA Maturity (Years)	ALLL $	ALLL (%)
2017	3,088,413,232	1.72%	2.51	61.02	6.96	10,144,046	0.3285%
2016	19,224,710,089	10.72%	2.15	62.28	8.18	71,303,777	0.3709%
2015	38,869,858,099	21.68%	2.07	63.80	7.76	142,920,014	0.3677%
2014	41,846,482,416	23.34%	2.35	62.89	6.97	119,567,451	0.2857%
2013	33,650,328,639	18.76%	2.13	59.35	5.68	59,157,825	0.1758%
<2013	42,647,239,540	23.78%	2.02	56.97	4.53	227,490,566	0.5334%
Total	**179,327,032,015**	**100.00%**	**2.15**	**60.92**	**6.45**	**630,583,679**	**0.3516%**

Source: Trepp

Debt service coverage ratio (DSCR) and loan-to-value (LTV) ratio are two major drivers of loan performance, and may also be a way banks stratify their loans into broad risk cohorts for CECL disclosures. In general, loans with lower DSCR and higher LTV will have higher CECL ALLL forecasts. At the portfolio level, losses increase slowly, moving from 2.0x to 1.25x and increase dramatically when the DSCR falls below 1.25x.

CECL – ALLL% BY LOAN DSCR



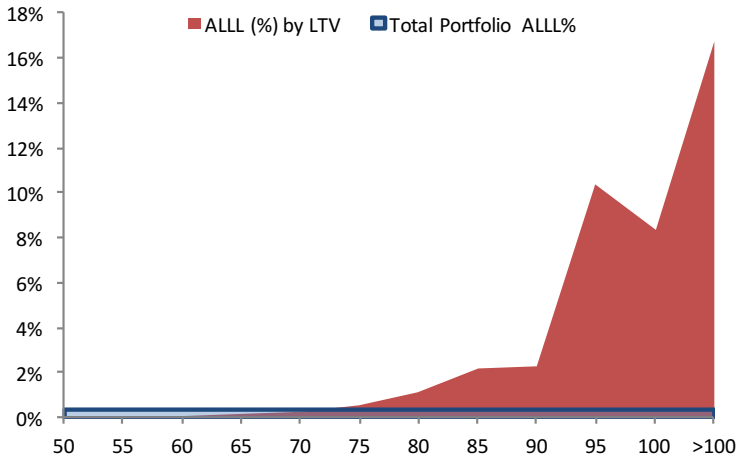
Source:Trepp

DSCR <=	Recorded Investment ($)	% of Portfolio	WA Initial DSCR	WA Initial LTV	WA Maturity (Years)	ALLL $	ALLL (%)
0.50	508,816,770	0.28%	0.08	64.26	5.29	32,719,392	6.4305%
0.75	595,354,296	0.33%	0.64	63.31	6.30	26,361,506	4.4279%
1.00	2,082,443,895	1.16%	0.91	70.98	5.72	86,219,767	4.1403%
1.25	8,929,320,758	4.98%	1.16	65.70	6.03	103,820,645	1.1627%
1.50	26,198,933,644	14.61%	1.39	65.99	6.19	166,506,293	0.6355%
1.75	30,153,264,819	16.81%	1.63	63.08	6.36	94,332,684	0.3128%
2.00	28,049,127,104	15.64%	1.87	61.94	6.76	50,239,737	0.1791%
2.25	26,490,392,469	14.77%	2.12	58.95	6.69	33,598,945	0.1268%
2.50	14,678,602,239	8.19%	2.38	61.32	6.44	18,524,288	0.1262%
2.75	12,024,578,281	6.71%	2.62	59.64	6.53	9,818,332	0.0817%
3.00	7,838,286,375	4.37%	2.88	54.99	6.46	4,375,875	0.0558%
>3.00	21,777,911,365	12.14%	4.11	52.40	6.40	4,066,213	0.0187%
Total	**179,327,032,015**	**100.00%**	**2.15**	**60.92**	**6.45**	**630,583,679**	**0.3516%**

Source:Trepp

Similarly, losses increase slowly for loans with 50% to 75% LTV, but begin to rise more rapidly once the 75% threshold is passed. Losses rise exponentially past 90% LTV. There is a kink in the graph between 95% and 100% due to much lower average remaining term in that cohort, leading to lower lifetime losses.

CECL – ALLL% BY LOAN LTV



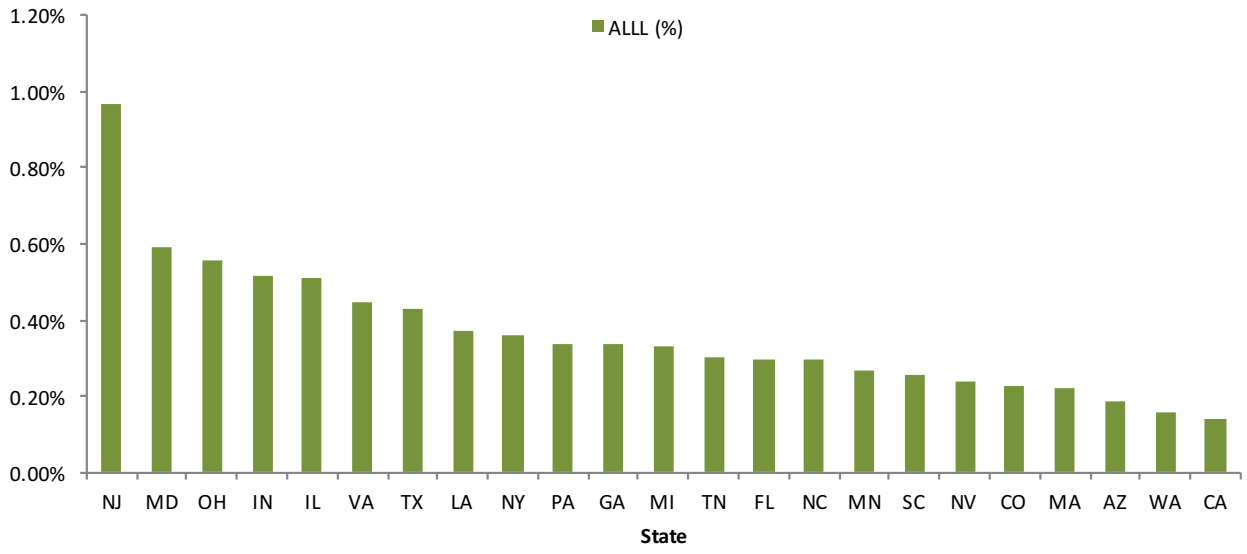
Source: Trepp

LTV <=	Recorded Investment ($)	% of Portfolio	WA Initial DSCR	WA Initial LTV	WA Maturity (Years)	ALLL $	ALLL (%)
50	29,428,358,770	16.41%	2.89	41.43	5.89	8,361,692	0.0284%
55	20,806,594,784	11.60%	2.38	52.55	5.87	8,055,835	0.0387%
60	23,717,731,671	13.23%	2.16	57.83	6.64	18,590,160	0.0784%
65	31,448,901,821	17.54%	1.91	62.69	6.49	59,404,817	0.1889%
70	36,892,453,415	20.57%	1.86	67.57	6.53	111,900,637	0.3033%
75	32,379,483,894	18.06%	1.94	72.61	7.14	184,792,914	0.5707%
80	2,796,052,955	1.56%	1.99	77.11	6.86	31,027,109	1.1097%
85	451,599,029	0.25%	1.82	82.12	6.61	9,787,579	2.1673%
90	129,928,991	0.07%	1.70	87.88	3.50	2,911,495	2.2408%
95	62,268,148	0.03%	1.53	93.39	6.54	6,435,769	10.3356%
100	167,596,690	0.09%	1.19	97.08	2.01	14,064,684	8.3920%
>100	1,046,061,848	0.58%	1.31	132.26	2.91	175,250,987	16.7534%
Total	**179,327,032,015**	**100.00%**	**2.15**	**60.92**	**6.45**	**630,583,679**	**0.3516%**

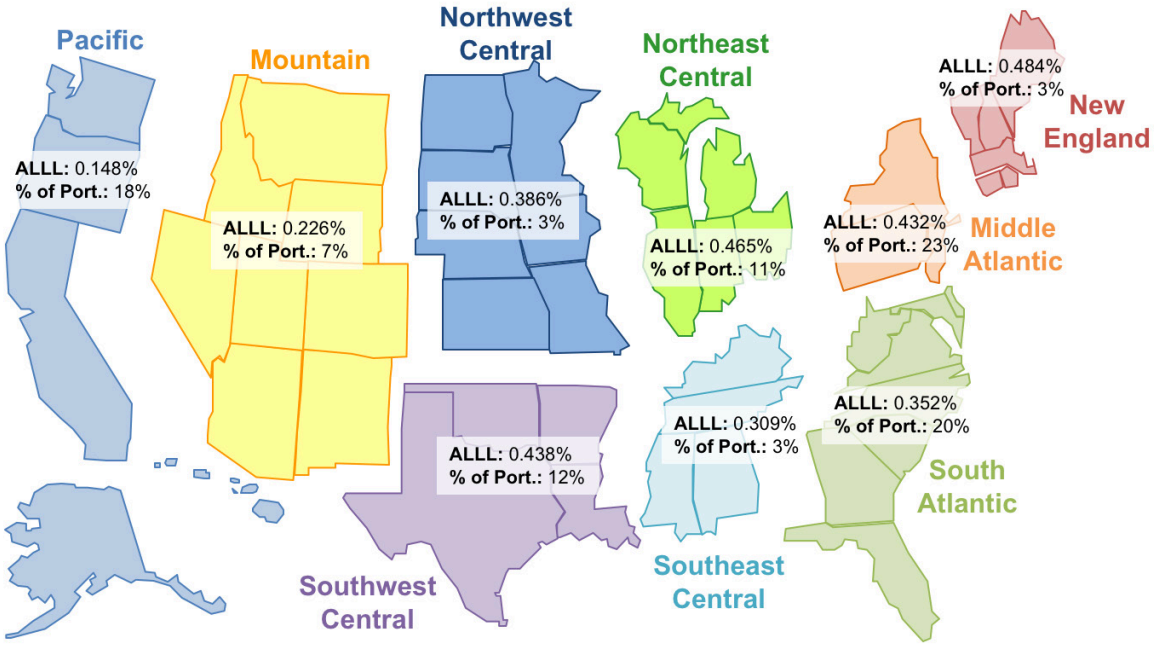
Source: Trepp

Regionally, New England (CT, MA, ME, NH, VT) and the Northeast Central US (IL, IN, MI, OH, WI) have the highest loss forecasts as a proportion of current outstanding balance. On a state level, of the 23 states with at least 1% exposure in the portfolio, New Jersey, Maryland and Ohio show the highest percentage losses for CECL. Washington and California feature the lowest losses of the bunch.

CECL – ALLL% BY STATE & REGION



Source: Trepp



Source: Trepp

Summary

The question that will arise is whether these numbers are reasonable and supportable within the CECL framework. Trepp's previous CECL research – *Looking at Historical CRE Losses for CECL* – shows total losses of about 3.5% so far for similar CMBS loans, ten times higher than the model output above. However, those losses came during a time which included historic collapses in real estate values and liquidity.

For most banks, the results will come down to the type of scenario they choose to use in their CECL forecasting. The CECL standard is meant to capture future losses in reserves before downturns actually happen so that banks have enough of a reserve to cushion the blow of a recession. However, during a time of relative calm and positive economic data, it is very hard if not impossible to predict how soon and how severe a potential recession may be.

When a bank transitions from an incurred to a life-of-loan model, any increase in ALLL will be highly dependent on the economic environment two years from now when CECL is adopted. If losses remain low for the next two years, the increase in ALLL will be significant, especially if the economic outlook is negative compared to current conditions. On the other hand, if a downturn occurs in the next two years with higher defaults and losses, the increase in ALLL may be small or nonexistent when CECL is adopted. The latter scenario is especially likely if the forecast used to calculate life-of-loan reserves calls for a healthy recovery following the downturn.

It is doubtful that the next downturn will be exactly like the last one, or touch the same sectors in the same ways. The best one can do now is use reasonable forecasting methods, long-term macro averages, and supportable modeling methods to determine reserve levels with the information available at the time. In the broadest sense, a 0.35% loss rate equates to a 1% PD and 35% LGD over the life of each loan, both of which seem reasonable based on historical performance during relatively calm economic periods. A quick look across regional CRE banks in the Northeast shows an average ALLL% around 0.50%. So, 0.35% may be low for a life-of-loan loss reserve, but that number is also calculated before any qualitative adjustments or refinance gap incremental losses. As mentioned earlier, a relatively liberal set of refinance gap assumptions (80% LTV, 1.10x DSCR, 10-year +150 bps, and 30-year amortization) puts portfolio ALLL% at 0.56%. Banks may also add in qualitative adjustments afterwards to remain in line with peer bank norms, and to satisfy auditors and regulators. Due to the regulatory scrutiny around CRE concentrations and the time-sensitive nature of financial statement preparation, CECL models will have to be well-documented, fast, and reasonably easy to use.

For inquiries about the data analysis conducted in this research, contact info@trepp.com or call 212-754-1010.