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Quick Hit — Theories of relativity [as applied to credit spreads]

With all due respect to Pythagoras and Newton or even Black-Scholes for all you CFAs, Einstein's theory of (special) relativity and the related mass-energy equivalence identity, $E=mc^2$, has to be a top contender for "most famous equation of all time". We aren't suggesting that what follows belongs in such esteemed company, but it occurs to us that one could construct a few *theories of relative recovery* in credit spreads. Take for instance, the following highly simplified recovery calculations:

$$R_1 = C / L \quad \text{or} \quad R_2 = C / H$$

where C = current spread, L = low/tight spread for a given period, and H = high/wide spread for a given period

Both R_1 and R_2 are spread ratios, which in a way makes them relative measures. The former gives a sense of how current valuations stack up against the tights previously established, while the latter compares against earlier wides. Think of these two equations as opposite sides of the same coin, and both have serious limitations. R_1 doesn't tell you how far we've traveled from the wides, nor does R_2 give any hint as to where we might reasonably be headed spread-wise. Combining the two yields something like this:

$$R_3 = (H - C) / (H - L)$$

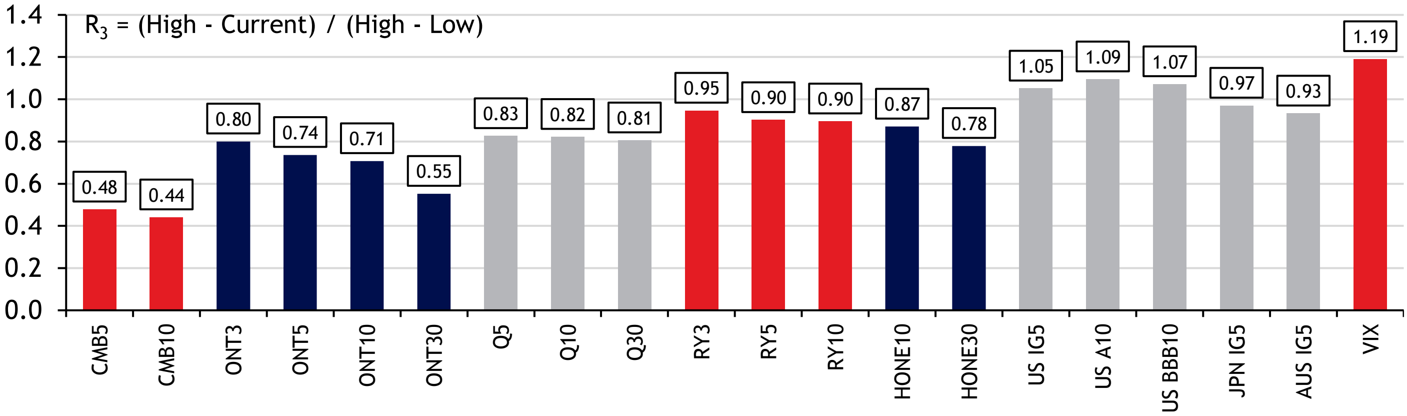
While also imperfect, R_3 is something we're more comfortable working with, since it better measures the degree of recovery in credit spreads (i.e., it better illustrates how far we are along the road towards complete recovery). And it's sufficiently malleable. You can calculate any number of R_3 recovery ratios for a given spread vector. For example, how and when you define "low" and "high" is obviously pretty critical. One could measure against the extremes, the single tightest or widest data points available; alternatively, and this is our preference, you might compare current levels to the mean (or median) spread registered over a given period of time. How far one looks back in time is likewise entirely discretionary. Moreover, the precise timeframes used to generate the numerator and denominator in our R_3 calc need not overlap. Finally, while our focus here is on credit spreads, you could apply this approach to any non-trending variable positively correlated with risk, where high=bad and low=good.

Options may be limitless, but your patience no doubt runs thin. So before your eyes glaze over, let's look at an example using Ontario 10-year domestic OTC spreads. Indicatively, we'd put Ontario 10s at +63 bps vs the GoC curve today (that's value C). As for the "high" (H), let's plug in the average level during the worst of the financial crisis (September 2008 to May 2009), which was +131 bps. For the purposes of this example, we'll use the average +35 bp pre-crisis spread for the "low" (L). That gives you: $R_{3\,[ONT10]} = 0.71$… meaning Ontario has recovered 71% of the total spread widening relative to the pre-crisis trend. How does that stack up? Well, as impressive as the recent rally in provi spreads has been, the broader move trails well behind relative recoveries notched in corporate credit globally. Interestingly, CMB spreads have lagged even further behind, having reversed less than one half of their earlier widening, notwithstanding still-bulletproof credit fundamentals and demonstrated liquidity. How do you spell value: C-A-N-H-O-U.

Ok, before you raise your hand in objection, let me volunteer a few more caveats/limitations. Clearly, this is a highly simplified measure of relative recovery in credit spreads. And yes, it's a purely empirical approach. Opt for alternative time periods and certain conclusions may well change. Of note, there's no allowance for fundamental/technical shifts over time… like credit rating adjustments, incremental bond supply, changes in the regulatory environment, strategic shifts in political/corporate leadership, dealer positioning, select repo market considerations, extraordinary monetary policies, evolving investor preferences, to name but a few factors. Still, as credit rallies to ever tighter levels, comparisons to pre-crisis conditions seem inevitable, which means it's worth measuring how recoveries stack up one sector/term to another. So check out Chart 1 below and the more detailed table on page 2 for one of many prospective recovery yardsticks… a simple measure designed to spark a bit of dialogue, which we welcome.

Chart 1: How do relative recoveries stack up?

Ratio of relative recovery (R_3) for select credit spreads/variables, comparing "current" levels to pre-crisis ("low") and crisis ("high") averages



Source: NBF, Bloomberg | Note: As at 6-Nov; values >1 indicate current spread is tighter than pre-crisis avg; refer to table 1 (pg 2) for variable descriptions

Table 1: Perspective on relative recovery in select credit spreads… one of many possible examples

Credit spreads (current, pre-crisis and crisis levels) & simplified recovery ratios

			Current	Crisis avg	Pre-crisis avg	Recovery ratios		
			Value	High	Low	R_1	R_2	R_3
Issuer/variable	Tenor	ID	"C"	"H"	"L"	C/L	C/H	(H-C)/(H-L)
Canada Mortgage Bonds	5Y	CMB5	32	46	17	1.86	0.70	0.48
(Constant maturity vs GoC curve)	10Y	CMB10	42	57	23	1.86	0.73	0.44
Province of Ontario	3Y	ONT3	30	78	18	1.67	0.38	0.80
(Constant maturity vs GoC curve)	5Y	ONT5	43	102	22	1.98	0.42	0.74
	10Y	ONT10	63	131	35	1.80	0.48	0.71
	30Y	ONT30	72	103	47	1.53	0.70	0.55
Province of Québec	5Y	Q5	41	108	27	1.52	0.38	0.83
(Constant maturity vs GoC curve)	10Y	Q10	62	146	44	1.41	0.42	0.82
	30Y	Q30	71	126	58	1.23	0.56	0.81
Royal Bank Deposit Notes	3Y	RY3	55	197	47	1.17	0.28	0.95
(Constant maturity vs GoC curve)	5Y	RY5	70	208	55	1.28	0.34	0.90
	10Y	RY10	90	235	73	1.23	0.38	0.90
Hydro One	10Y	HONE10	85	228	64	1.33	0.37	0.87
(Constant maturity vs GoC curve)	30Y	HONE30	125	243	92	1.37	0.51	0.78
US IG CDX	5Y	US IG5	53	210	61	0.87	0.25	1.05
US A-rated corp spread vs UST	10Y	US A10	84	381	110	0.77	0.22	1.09
US BBB-rated corp spread vs UST	10Y	US BBB10	132	522	158	0.84	0.25	1.07
Japan IG CDX	5Y	JPN IG5	47	335	38	1.23	0.14	0.97
Australia IG CDX	5Y	AUS IG5	66	322	47	1.39	0.20	0.93
VIX volatility	-	VIX	9	51	16	0.59	0.18	1.19

Notes on variables/timeframes: CMB, Ontario, Québec, Royal Bank, Hydro One based on constant maturity C$ spreads to GoC curve;
based on weekly indications; current refers to 6-Nov, crisis avg taken over Sep-08 to May-09; pre-crisis avg based on 5-year period leading up to Sep-08
Notes on recovery ratios: Shading meant to highlight extent of relative recovery, where green signals recovery has lagged and red signals larger relative recovery;
R1 — higher values indicate spreads remain relatively wider than pre-crisis average; <1 indicates current spread tighter than pre-crisis average
R2 — higher values indicate spreads have compressed relatively less vs crisis average; 1 indicates no recovery
R3 — lower values indicate smaller proportion of crisis widening has been recovered (vs pre-crisis); >1 indicates current spread has attained more than full recovery
Sources: NBF, Bloomberg

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