Relative Value across Tranches

HOW TO IDENTIFY TRANCHE OPPORTUNITIES

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Summary

We present a model to evaluate relative value across index tranches that attempts to account for leverage, curves, and volatility. Using the model, we rank both CDX IG and CDX HY tranches in the order of how likely they are to outperform, and provide trade ideas based on the rankings. Specifically, the 3-7% tranches in IG19 and IG21, and the 25-35% tranches in HY19 and HY21 come out as attractive longs.

A framework for tranche relative value

The synthetic tranche market is showing signs of renewed activity this year – after outperforming almost every other asset class last year (see Global Structured Credit Outlook: A Rockier Ride), this asset class is beginning to attract more attention from a variety of investors across the spectrum.

Fig 1. Tranche performance (in pts, long risk) over various time periods, as of EOD 21-Feb-2014. How to compare across them?

	Tranche	1 Week		1 Month		3 Months		6 Months	
		No Delta	Delta Adj	No Delta	Delta Adj	No Delta	Delta Adj	No Delta	Delta Adj
10Y IG9	0-3%	-0.41	-0.12	1.43	0.82	4.18	0.25	12.77	-0.09
	3-7%	-0.19	0.00	0.22	-0.19	2.91	0.41	10.99	1.55
	7-10%	0.01	0.11	0.29	0.05	1.08	-0.24	6.83	1.53
	10-15%	-0.08	-0.03	-0.23	-0.37	0.41	-0.22	2.82	0.09
	15-30%	-0.03	-0.01	-0.02	-0.06	0.36	0.07	1.20	-0.05
	30-100%	0.00	0.01	0.01	-0.01	0.12	0.01	0.33	-0.07
5Y IG19	0-3%	-0.37	-0.03	1.16	0.64	5.55	2.31	17.35	3.96
	3-7%	-0.35	-0.21	-0.15	-0.40	2.71	1.28	7.99	1.32
	7-15%	-0.11	-0.04	-0.07	-0.22	0.59	-0.11	3.02	-0.22
	15-100%	0.00	0.02	0.08	0.05	0.09	-0.04	0.25	-0.28
5Y IG21	0-3%	-0.29	0.08	2.06	1.43	7.03	3.11		
	3-7%	-0.25	-0.07	-0.40	-0.79	3.18	0.89		
	7-15%	-0.01	0.09	0.13	-0.07	0.94	-0.20		
	15-100%	-0.02	0.00	0.05	0.00	0.20	-0.03		
5Y HY19	0-15%	-2.26	-1.50	-0.58	-0.74	2.45	-2.10	15.03	-3.89
	15-25%	-0.33	0.03	0.09	0.02	3.30	0.84	13.75	0.99
	25-35%	0.03	0.24	0.18	0.13	2.15	0.64	8.54	0.83
	35-100%	0.27	0.33	0.12	0.14	0.72	0.28	3.10	0.49
5Y HY21	0-15%	-1.35	-0.77	-0.61	-1.16	3.09	-2.26		
	15-25%	-0.35	0.06	0.26	-0.11	3.52	-0.50		
	25-35%	0.01	0.27	0.04	0.02	4.06	1.55		
	35-100%	0.00	0.10	0.27	0.28	1.17	0.22		
Index	10Y IG9	-0.03		0.07		0.39		1.45	
	5Y IG19	-0.03		0.06		0.32		1.36	
	5Y IG21	-0.04		0.08		0.45			
	5Y HY19	-0.21		0.04		1.37		6.56	
	5Y HY21	-0.22		0.14		2.06			

Source: Markit, Citi Research

However, given the wide array of available tranched indices (both IG and HY) as

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well as different maturities (from 1 to 6 years), it can be difficult to judge where in the capital structure the real value lies. This is especially true for investors who are looking across tranches for relative value trades, as well as new investors in the space who would like to understand how to value tranches.

Traditionally, one way of looking at relative value across synthetic tranches has been to compare historical delta adjusted[1] performance of the various tranches. Tranches that have outperformed on a delta adjusted basis over some look back period are considered to be overvalued and vice-versa. For example, in Fig 1, we find that the 5Y equity tranche in IG19 has significantly outperformed its delta in the past 6 months, and would be considered overvalued, while the 5Y equity tranche in HY19 has underperformed its delta over the same period, and therefore would be considered undervalued.

However, we feel there is more to relative value than just this one metric. It is not necessarily always the case that an outperforming tranche will underperform (and vice-versa) going forward. For example, despite a strong outperformance by some equity tranches in 2013, we recommended them as attractive longs (see Global Structured Credit Outlook: A Rockier Ride) because of their attractive roll down profile and investor demand for greater yield through non-recourse leverage. Other factors such as leverage and volatility of returns can also play an important role in determining relative value.

We therefore formulate a framework for understanding the relative value across tranches that takes into account maturities, curves, leverage and spread levels, as well as recent performance.

We first consider the maturity issue. Clearly, longer dated tranches have higher spreads, and on an IRR (internal rate of return) basis, holding a longer dated tranche would yield higher total returns. However, a longer dated tranche also has higher default and spread risk, and the IRRs need to be adjusted for that.

Instead of adjusting IRRs, we take a different approach and use a metric that also takes into account the steepness of credit curves – this is the 1 year roll down. The 1 year roll down quantifies the expected return from a given tranche in 1 year, based on the shape of the tranche curve and the coupon from the tranche. The 1 year roll down fixes the time horizon for returns regardless of the actual tranche maturity.

Fig 2. Projected P&L from 1 year roll down (mark-to-market + carry, in pts), prices/spreads as of EOD 21-Feb-2014.

IG	3Y IG21	5Y IG19	5Y IG21	7Y IG19	7Y IG21
Maturity	20-Dec-16	20-Dec-17	20-Dec-18	20-Dec-19	20-Dec-20
0-3%	9.13	11.75	12.06	10.81	12.13
3-7%	1.00	4.94	5.69	5.50	5.88
7-15%	1.00	1.81	2.94	2.96	3.60
15-100%	0.00	0.44	0.56	0.69	0.88

HY	3Y HY21	5Y HY19	5Y HY21
Maturity	20-Dec-16	20-Dec-17	20-Dec-18
0-15%	16.50	12.63	17.44
15-25%	4.50	4.56	10.94
25-35%	2.50	2.81	5.31
35-100%	-3.00	-2.75	-0.94

Source: Markit, Citi Research

We believe that given the current environment with low default expectations and reasonably low spread volatility, tranches whose returns are more front-ended and allow investors to extract value rapidly should be preferred, before we see a sustained uptick in volatility or defaults or both. The 1 year roll down captures this kind of front-ended return.

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[1] This is defined as the total return from a long tranche position, hedged by delta times the underlying index position.

However, that is not enough. If we look at the 1 year roll downs for various tranches, it is the equity tranches that stand out (see Fig 2), because of the higher upfronts and coupons on these tranches. At the same time, equity (and other junior) tranches are also more leveraged and subject to higher default risk. To account for leverage effects, we can adjust the projected 1 year return using the current tranche delta as a proxy for leverage.

There still remains the question of the volatility of returns. Specifically, tranches with longer maturities tend to have greater mark-to-market volatility because of higher spread levels and durations. For this purpose, we require a volatility metric which we can then use to further adjust the 1 year roll down returns. Instead of using backward looking realized volatilities on tranches, we use (forward looking) implied volatilities on the underlying index together with durations and spread levels to back out an estimate for forward price volatility for a tranche.

Fig 3. Backing out a forward looking price volatility for tranches.

$$\text{Ratio} = \frac{\text{Tranche realized spread volatility}}{\text{OTR Index realized spread volatility}}$$

$$\text{Tranche implied spread volatility} = \text{Ratio} * \text{OTR Index implied volatility}$$

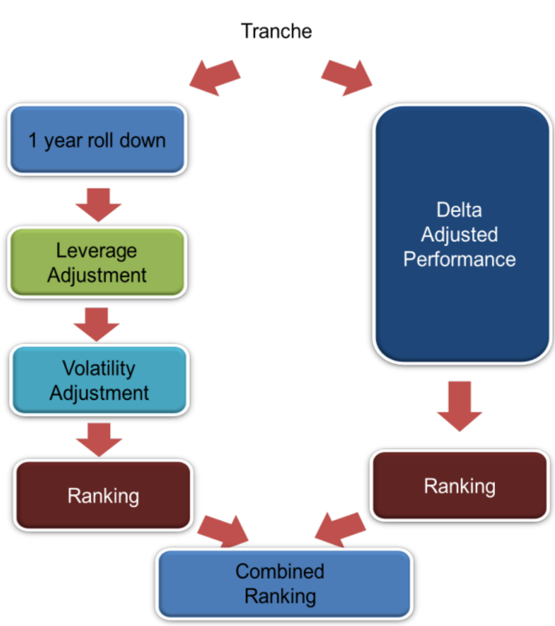
$$\text{Tranche implied price volatility} = \text{Tranche duration} * \text{Tranche implied spread volatility}$$

Source: Citi Research

For example, consider the 5Y IG19 0-3% tranche. We first compute the ratio of the tranche realized spread volatility to that for the current on-the-run IG21 index. We then multiply the ratio by the 3 month implied volatility for IG21. This gives us a proxy for the tranche "implied spread volatility". We then convert the implied spread volatility into a (forward looking) price volatility by multiplying with the tranche duration. The calculations are shown in Fig 3.

To summarize, we compute the projected 1 year roll down return for each tranche. We then adjust for leverage and volatility effects by dividing the projected 1 year return by the product of the tranche delta and the tranche "implied price volatility". This is the first metric we use to rank tranches.

Fig 4. The tranche relative value framework explained.



Source: Citi Research

The second metric we consider is related to the current tranche market technicals – high projected tranche returns may not necessarily always translate into outperformance in a highly technical market. To some extent, momentum can be a significant driver of tranche performance – in order to capture the momentum effect, we use the short term (3 month) delta adjusted performance of the tranche as a metric.

We now have two different metrics with respect to which we can rank the attractiveness of tranches – leverage and volatility adjusted 1 year returns, and 3 month (medium term) delta adjusted performance. Each ranking orders the tranches from high performance to low performance. We then create a combined ranking based on equally weighting the two different rankings – the whole process is shown in Fig 4.

And the winners are….

Fig 5. The ranking process outlined in Fig 4, applied to both CDX IG and CDX HY tranches. The tranches are ordered from the most attractive long at the top to the least attractive.

Index	Tranche	Ranking		
		Proj Perf	Del Adj Perf	Combined
7Y IG19	3-7	9	3	1
7Y IG19	0-3	13	1	2
7Y IG19	7-15	5	9	2
3Y IG21	15-100	3	11	2
7Y IG21	3-7	11	4	5
7Y IG21	0-3	15	2	6
7Y IG21	7-15	7	10	6
5Y IG21	15-100	4	14	8
5Y IG21	3-7	12	8	9
5Y IG19	3-7	14	7	10
7Y IG19	15-100	1	20	10
5Y IG21	0-3	16	5	10
7Y IG21	15-100	2	19	10
5Y IG19	7-15	6	17	14
3Y IG21	7-15	10	13	14
5Y IG19	0-3	18	6	16
5Y IG21	7-15	8	18	17
3Y IG21	0-3	19	12	18
3Y IG21	3-7	17	16	19
5Y IG19	15-100	20	15	20

Index	Tranche	Ranking		
		Proj Perf	Del Adj Perf	Combined
5Y HY19	25-35	1	5	1
3Y HY21	25-35	6	3	2
5Y HY19	15-25	2	8	3
5Y HY21	25-35	3	7	3
5Y HY21	35-100	10	1	5
3Y HY21	35-100	11	2	6
5Y HY21	15-25	4	9	6
3Y HY21	15-25	8	6	8
5Y HY19	35-100	12	4	9
5Y HY21	0-15	5	11	9
5Y HY19	0-15	7	10	11
3Y HY21	0-15	9	12	12

Source: Citi Research

The results of our ranking are shown in Figure 5. For IG tranches, we find that the longer dated tranches for both IG19 and IG21 are the most attractive longs. At the same time, the 3-7% tranche is more attractive than the 0-3% tranche across almost all underlying IG indices and maturities.

Interestingly, some of the longer dated (7Y IG19 and IG21) 7-15% tranches also rank high in our list as attractive longs – especially when compared to shorter dated junior tranches. We believe that this is due to a combination of lower volatility and leverage, as well as faster roll downs in the 5Y-7Y portion of the tranche curves.

Investors looking for positive convexity in the face of large spread moves can consider going long one of the higher ranked (long dated) equity tranches (e.g. 7Y IG19 0-3) and short one of the lower ranked (short dated) senior tranches (e.g. 5Y IG19 7-15).

For HY tranches, it is mainly the 25-35% tranche that stands out as a potential outperformer across multiple indices and maturities. The recovering performance of this part of the capital structure (on a delta adjusted basis) in the recent months also supports our view. The 5Y HY19 15-25% tranche is also a good potential long (on a risk adjusted basis) because of its low leverage and volatility.

Higher idiosyncratic risks are responsible for the low rankings for the equity tranches in HY, and we believe they can provide cheap jump to default protection, whether funded with a delta neutral long index position or a delta neutral long 25-35% tranche position.

Appendix A-1

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