

Manage Financial Risk Under Climate Change

risQ leverages data and physical sciences to drive climate adaptation

Fixed Income Analytics

Delivering Solutions to 25+ Leading Asset Managers, Banks, Bond Insurers, Rating Agencies in U.S. Fixed Income

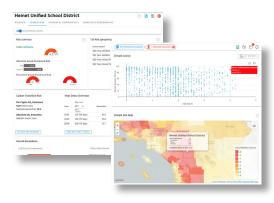
Data file, web user interface, and API products:

Municipal Finance

Unparalleled and comprehensive library of the precise spatial footprint of U.S. debt issuers, allowing for rich climate and social characterization

CUSIP-level coverage for ~98% of all \$3.9T in outstanding U.S. municipal debt, delivered in partnership with InterContinental Exchange

Portfolio analysis, real-time risk monitoring, weekly market commentary, monthly deep dive research, and automated data & report generation tools

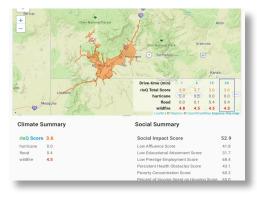


ESG-as-a-Service

Enter an address anywhere in the US, and within minutes, get back an in depth report with analytics on climate and environmental risk, social vulnerability and impact, and governance

Customizable API calls allowing users to enter asset characteristics to inform asset-level climate risk analysis

Analytics at both the asset level as well as the surrounding neighborhood, customizable by drive time radius



Securitized Real Estate

One-of-a-kind model linking trillions in government backed loan collateral to space, allowing for detailed and precise climate and ESG analysis, in partnership with Levell1 Analytics

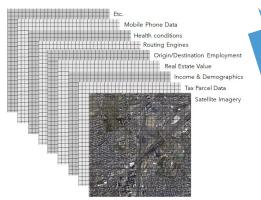
 ${\sim}95\%$ coverage of all outstanding real estate securities and loan value

Comprehensive residential and commercial mortgage-backed security analytics, serving risk and ESG applications

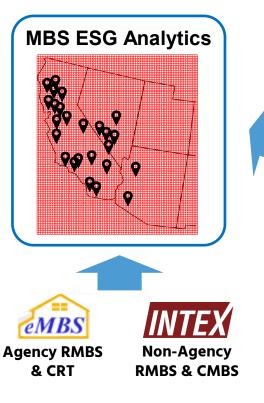
factor_date	- CUSP -	agency :	pool_14 *	cohort the ticker keyear coupon	matric	* security and any *	sahort_wtd_avg * is			ndes aug diff - cus
2023-07-03	3140290642	FNM	CA1907	TBA FMCL bb 2018 4.50	social_impact_score	48.92	54.04	45.3	-5.12	1.52
8 2021-07-01	31329PFG3	PHI .	215567	TBA [FMCL] ks[2018]4.50	sadal impact scare	47.66	\$4.04	45.3	-6.38	2.36
4 2021-07-01	304080094	INM	MA3385	TBA FMCL 88 2018 4.50	social impact score	45.08	54.04	45.3	-8.95	-0.22
5 2021-07-01	314180EV0	FNM	MA3242	TBAJPMCL[ks2202914.50	social impact score	42.99	\$5.76	45.3	-12.77	-2.31
6 2021-07-01	10408556745	INM	809371	TBA FMCL 88 2020 5 80	social impact score	44.72	56.17	45.3	-11.45	-0.58
7 2021 07-01	3132/5/89	PHI.	254387	TBA1FMCL16x1201815.00	social impact score	50.02	58.42	45.3	8.4	4.72
8 2021-07-01	36179/123	GNM	MAGEGEM	TBA) G25F 8x 2020 4.00	social_impact_score	60.55	61.58	45.3	-1.02	15.26
9 2021-07-01	36179USW3	GNM.	MA583354	TBA1525F16x1202915.00	social impact score	61.85	60.45	45.3	1.39	16.55
10-73-1925 01	35402(138	FNM	CAMMS	TBA [FMCL 8x 2029 5.00	social impact score	55.64	59.11	45.3	7.53	21.34
11 2021-07-01	31400008	FNM	810474	TBA1FNCL16e1202915.00	social impact score	71.09	59.11	45.3	11.98	25.79
2 2021-07-01	314180A/IN9	FNM	MA2372	TBA [FMC1] 81(2020)[4.50	social impact score	\$1.42	56.63	45.3	-5.21	6.12
13 2021-07-01	314087641	ENM	FN3625	TBA1FMCL1ics1202014.50	appeal impact some	47.04	56.63	45.3	4.59	1.14
4 2021-07-01	351794840	GM	MAGGOM	TBA \$25F kx[2020] 5.00	social impact score	68.57	66.18	45.3	2.39	28.27
15 2021-07-01	35179/00/5	GNM	MASSAM	TBA 025/ ka 2020 4.50	social impact score	52.97	62.89	45.3	-0.92	15.57
15 2021-07-01	314009UC9	FNM	CABE78	TBA [FMCL] 8xE2021 [4:50	social impact score	32.55	51.97	45.3	-25.58	-12.71
17 2021-07-00	351790254	GNM	MAGSSIM	TBA 525F 8s 2029 3.00	social_impact_score	52.5	52.92	45.3	-1.43	7.2
10-59 1505 81	3128MIVTP8	FH)	618557	TBA1FSO(His1201513.00	social impact score	38.88	43.33	45.3	-4.45	6.42
10-53-1202 81	351798228	GNM	MA3173M	TBA 525F 88 2015 3.50	social impact score	56.25	\$7.53	45.3	-1.28	10.85
10-59-1505 01	361794990	6NM	MAINIM	TBA1025F16s1201513-50	social impact score	57.13	57.53	45.3	-0.34	11.89
15 2021-02-01	3617989/05	GNM	MA3105M	TBA1525F18x1201513.50	social impact score	56.18	\$2.52	45.3	-5.29	10.54
2 2021 07-01	3138MI/V04	D.C.	015626	TBA (FGC) (to (2015) 2.50	social impact score	11.17	34.7	45.3	-3.53	-14.13
19 2021-07-01	113075034	PHL .	105532	TBAIRSOIHIS 1201512-50	social impact source	32.9	34.7	45.1	-1.8	-12.4
14 2021-07-01	3130757N3	PK.	100957	TBA (FGC) Ika (2015) 2.50	social impact score	27.65	34.7	45.1	-6.85	-17.45
15 2021-02-01	313267916	PH.	V61301	TBAIFSCIPS1201612.50	sarial impact story	50.02	34.7	45.1	15.37	4.77
15 2021-07-01	313206AT3	D4L	\$200532	TBA (FMC) (kg (2020)2.00	social impact score	50.18	37.57	45.1	12.61	4.88
2 2021 62 01	314005340	ENM	C88387	TBA155001051202012.00	social impact score	48.66	17.52	45.1	11.09	3.36
19 2021-07-01	3128MMP13	PHL .	GIM2E	TBA1F5C11xx1201212.53	social impact score	26.85	17.2	45.3	-10.15	-18.45
10.53 1535 15	31.38M/VP31	ne;	618441	TBA (FOCUES) 2012 (2.50	social impact some	24.33	17.2	45.3	-12.87	-20.97
0 2021-07-01	3517955.7	GNM	MARSIM	TBA1525F18x1201713.50	eacial impact score	51.5	54.18	45.2	-1.68	8.2
10.70 1202 01	361725800	GNM.	MALLEM	TBA) 0257 [to] 2017(3.50	social impact score	54.5	54.18	45.3	0.32	2.2
2 2021-02-01	312855944	PHL.	606920	TRATEGLACI (NU221214.50	social impact score	17.09	52.4	45.2	-16.81	-6.21
10 2021 67-01	36202FV28	GNM	\$115M	TBA1025F1ba1201114.50	social impact score	66.53	45.16	45.3	1.37	21.23
10 -021-02-01	35202FPG5	GNM	excise	TBA1525F18x1201114.50	social impact score	65.05	45.35	45.3	-0.11	18.75
15 2021-07-01	352430451	GNM	783368M	TBA1525F1ka/2011/4.50	social impact score	56.53	45.15	45.1	1.37	21.23
6 2021-02-01	352027181	(AM	SOUTH	TBA1529F1ex(2011)4.50	social impact score	65.13	65.26	45.1	4.01	19.83
17 2021-07-01	313802155	ENM	A54208	TBAIFMCLIke/2015/4.00	social impact score	\$2.67	48.14	45.1	14.53	17.37
10-59 1205 8	363431173	GNM	283038M	TBA1029F166(2020)5.50	social impact score	20.80	73.13	45.3	-2.52	25.51
19 2021-07-01	352025922	GNM	4748M	TBA1525F18x/202015.50	social impact score	72.81	72.12	45.1	0.68	28.51
0 2021 07-01	3517904.66	GNM		TBA30257166(20)4(4.00	social impact score	61.3	61.45	45.3	-0.16	36
5 2021-07-01	351790965	GNM		TBA1529F1kx1201414.00	social impact soare	61.81	61.46	45.1	0.15	16.51
2 2021 07-01	3617906945	GNM		TBA1025F18n(201513.00	social impact score	53.56	53.60	45.3	4.13	8.26
8 2021-02-01	351798225	GNM		TBA1529F18x1201518.00	social impact soore	52.23	52.09	45.3	-0.86	8.02
4 2021 67-01	MOMATCI.	(2M)	7379474	TBA15A8C(knl221113.50	social impact score	53.54	50.77	45.1	4.23	8.74
10 10 10 10 10 10 10 10 10 10 10 10 10 1	In Discouting a	Cana.		TRANSPORT - CONTENT OF			0.30	10.3	3.14	A.X.

Leveraging Intex and eMBS, Monthly MBS ESG Data is Enabled

Socioeconomics, demographics, and proprietary asset locating data







Climate change conditioned risk models



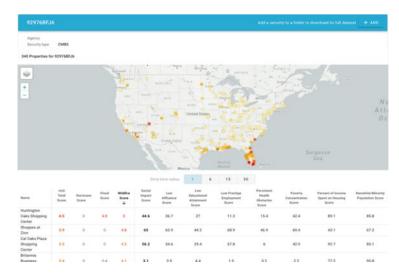
Geospaxial[™] MBS Climate Risk and ESG Opportunity Deliverables

FTP File Delivery

Α	В	С	D	E	F	G	н	1	J	K	L	M	N				
REV DT	DEAL NAME	effective date	CUSIP list	drive tin	ne risq score			ldfire fl	ood	nland flood se 10	inlar floc	nd floo id root					
Ψ.	¥	.τ			* ¥	Ψ	*		rrer *	Ŧ		· curre	r ~ 10yr				
20210501	BNK18B15	4/1/2021	060 A	В	C	D	E	F	G	1	H	- I	J	K	L	M	
20210501	BNK18B15	4/1/2021	060														
	BNK18B15								trimme	d							
	BNK18B15							ed pct	avg	ave	rage	average	total			average	a
	CD16CD1	4/1/2021		DEAL	effective	CUSIP list	drive time	25up	discretio			monthly	occupied	total	average	real	•
	CD16CD1	4/1/2021		NAME	date			assoc	arv	ince	ome	housing	housing	renters	gross rent	estate	h
	CD16CD1	4/1/2021						degree	incom			costs	units			taxes	
	CD16CD1	4/1/2021			.7					¥	¥	*	×	Ŧ		*	
	CF19CF2	4/1/2021				Ÿ											
	CF19CF2		125 20210501			5036FAA9,060					31.26	1495.56	2026.04	1080	605.49	4009.62	
	CF19CF2		125 20210501			5036FAA9,060					121.2	1502.53	70128.64	39505	1431.43	9857.45	
20210501			125 20210501			5036FAA9,060					377.9	1373.82 1413.97	385706	228485 673009	2524.64	12779.03	
	CTG13G11		173 20210501			5036FAA9,060					276.1				3155.18	10737.37	3
			173 20210501			2514MAA3,12					59.62	1628.66	2905.02	2069	1409.19	3913.07	
			173 20210501			2514MAA3,12					934.4	1894.68		109533	1647.84	8968.14	
			173 20210501			2514MAA3,12					861.5	1593.52	1142414	831772	1391.67	11691.07	
			173 20210501			2514MAA3,12					439.9	1550.98	3349673	2068524	1816.53	12507.75	
			173 20210501			2528YAA1,125					60.28	1664.29	298.05	201	494.47	9480.15	
			173 20210501			2528YAA1,125					02.88	1202.04	31407.59	22355	690.93	3817.45	3
			173 20210501			2528YAA1,125					575.6	1246.83		215920		6102.2	
			617 20210501			2528YAA1,125					597.4	1291.01	1050605	559676		6842.99	
			617 20210501			7320DAA6,173		0.07			496.9	1621.2	1225.86	925	1572.1	6845.65	
			617 20210501								604.9	1459.75		34831	2031.31	7714.87	
			617 20210501								377.5	1410.22	469300.7	312382	2179.8	8329.26	
			950 20210501								85862	1363.89	1571800	935946	2619.72	8806.51	
			950 20210501								94817	1448.25	792.11	574	6735.32	41893.79	
			950 20210501								184.9	1448.45		18416		26738.4	
			950 20210501								409.6	1376.09	234998.2	123544	4237.26	22031.5	
			928 20210501								118.2	1371.4	852243	406454	5615.4	20621.64	
			928 20210501								002.6	1849.83	744.49	549	1353.25	18271.67	
20210501	WFR13C14	4/1/2021	928 20210501								419.5	1751.45		99802	1738.34	10398.44	
						1767EAA2,617					187.9	1505.89	939049.8	676802	1950.82	11968.9	
						1767EAA2,617					727.5	1499.14	2575976	1553659	2228.69	11649.7	
						5001VAA8,950					659.3	1439.35	593.47	350	1781.44	5939.48	3
						5001VAA8,950					651.8	1368.14	26604.23	15794	3435.58	12765.34	-
			20210501	WFC19C51	4/1/2021 9	5001VAA8.950	¢ 15	0.08	65010	01 415	901.5	1356.3	166104	81285	5647.57	14690.16	3

- CUSIP-linked climate risk, social and demographic data (300-400 data fields)
- Loan/Property- and summary pool-level files
- Summary level risQ Scores (for climate) and Social Impact Scores
- Loan performance correlated to ESG data for agency RMBS & CRT
- Data provided across multiple distance/service/catchment areas for each CMBS property
- Monthly universe file delivery

Software UI

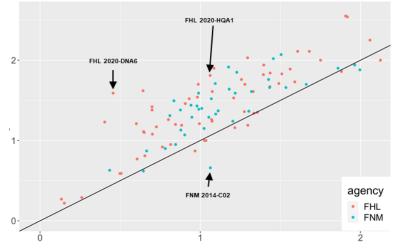


- Searchable by CUSIP or (CMBS) property name
- Download CUSIP data direct to .xls, or save & build portfolios in bulk
- Deep-dive analysis of a CMBS property or pool of interest across climate risk and social impact data
- User controlled selection and visualization of property service/catchment areas and data
- Upload property locations of upcoming deals and benchmark to the existing CMBS universe

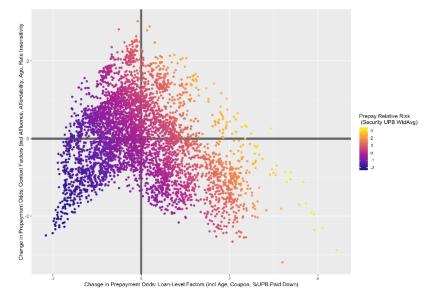
Geospaxial[™] RMBS quantifies climate risk accurately and uncovers strong but previously unknown ESG effects on prepay risk.

ESG: CRT pools can have very different climate risk than you could know from ZIP3 level. For any climate risk assessment of CRT tranches this will result in mi-pricing risk

CRT Pools and Storm Surge Property VaR Real vs. Synthetic



X axis: 99th percentile Storm Surge VaR using Zip3 data Y axis: 99th percentile Storm Surge VaR using refined CRT loan locations **ESG**: The market might be mis-predicting prepay risk by not having appropriate insight into the specific location-based ESG characteristics for a given loan in a given pool.

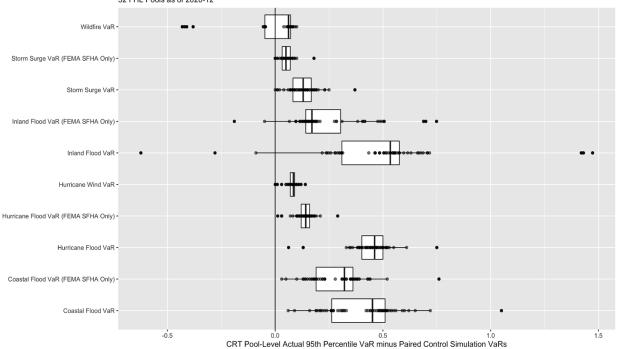


X axis: loan level factors basically known by the market

Y axis: ESG and spatial factors that Geospaxial[™] delivers.

Relative climate risk in CRTs is higher and not in SFHA alone

- Using Level 11 geospatiallylinked loans, the 95th percentile climate VaRs are calculated for each pool
- Parallel "control" pools are simulated using the exact same zip3 profiles as the real pools but generically across the zip3 compared to Level 11 capability.
- 95th percentile climate VaRs of the control pools are subtracted from the real 95th percentile VaRs



CRTs are Disproportionately at Risk to Flood and Hurricane Compared to U.S. Housing on the Whole 52 FHL Pools as of 2020-12

CRTs carry disproportionate flood and hurricane risk compared to the U.S. housing market as a whole. This is exacerbated for flood risks not covered by FEMA 1-in-100 year insurance zones (SFHAs)





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