

# Giliberto-Levy Commercial Mortgage Performance Index (G-L 1)

Monitor Fourth Quarter 2022



GILIBERTO-LEVY  
COMMERCIAL REAL ESTATE DEBT INDEXES

# Giliberto-Levy Commercial Mortgage Performance Index

## Fourth Quarter 2022 Summary

Total Return: (in %)		Spreads: (as of 12/31/2022)		Index Statistics: (as of 12/31/2022)	
Office	1.09	Office	222	Capitalization (\$ billion)	270.27
Multi-family	1.24	Multi-family	197	Duration (years)	4.77
Retail	1.31	Retail	222	Coupon (%)	3.94
Industrial	1.17	Industrial	191	Maturity (years)	6.64
Total (all sectors)	1.22			Book LTV (%)	46.65

Spreads are averages for new ten-year loans at 60%-65% loan-to-value ratio.

Source: Giliberto-Levy

The Giliberto-Levy Commercial Mortgage Performance Index (G-L 1) moved back into positive return territory in 4Q 2022, posting 1.22% total return.<sup>1</sup> The index's capital value return for 4Q 2022 was 0.14%; income return was 1.08%. While 0.14% is not a lot, it marks a pleasant change from a string of negative quarterly capital value results reaching back to and including 3Q 2021.

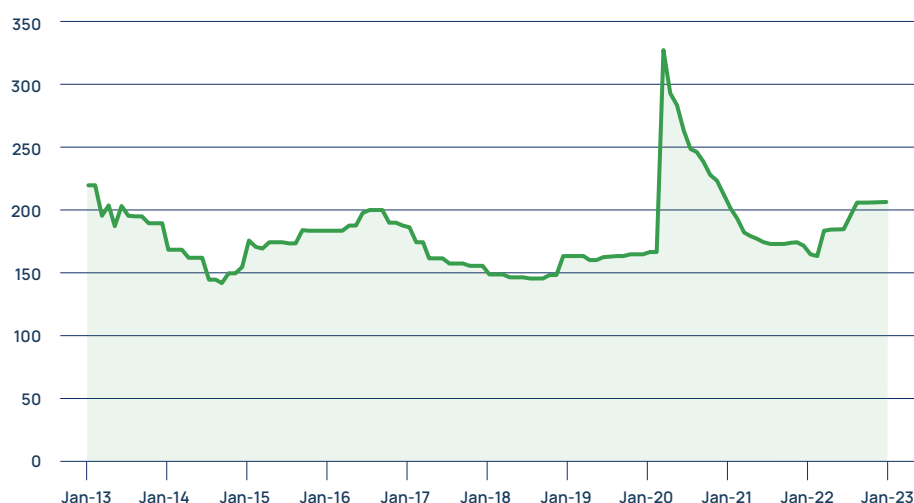
Commercial mortgage spreads on priced transactions did not change much (see Chart 1). And, for the first time in a while, neither did some U.S. Treasury yields. As a result, discount rates on commercial mortgages on roughly 85% of the index finally stopped getting propelled sharply upward. That's what kept the capital value outcome (barely) in the black.

Chart 1

### Spreads over Treasuries for Ten-year Commercial Mortgages

(In basis points, reflecting 30/360 day count convention)

Source: Giliberto-Levy. Chart data are equally weighted averages of office, apartment, retail and industrial property loans at 60% to 65% LTV.



<sup>1</sup> The Index's components are fixed-rate commercial mortgage loans held on balance sheets of institutions such as life insurance companies and pension funds. Index returns are a market-value-weighted blend of office, apartment, retail, industrial, lodging, mixed-use and other miscellaneous property types. Index performance tracks senior loans only; it does not include construction loans, mezzanine and other subordinate instruments and bridge loans made by such institutions.

U.S. Treasury yields in the three- to ten-year maturity range were nearly unchanged from their September 30, 2022 levels at year end, and longer-dated yields were only moderately higher (see Charts 2 and 3). Short-term yields increased considerably more. For example, the three-month yield hit 4.42%, up more than 100 basis points (bp) from the prior quarter end.

Chart 2

## US Treasury Yields

(In %)

Source: U.S. Treasury; Giliberto-Levy

◆ Sep 30, 2022  
■ Dec 31, 2022

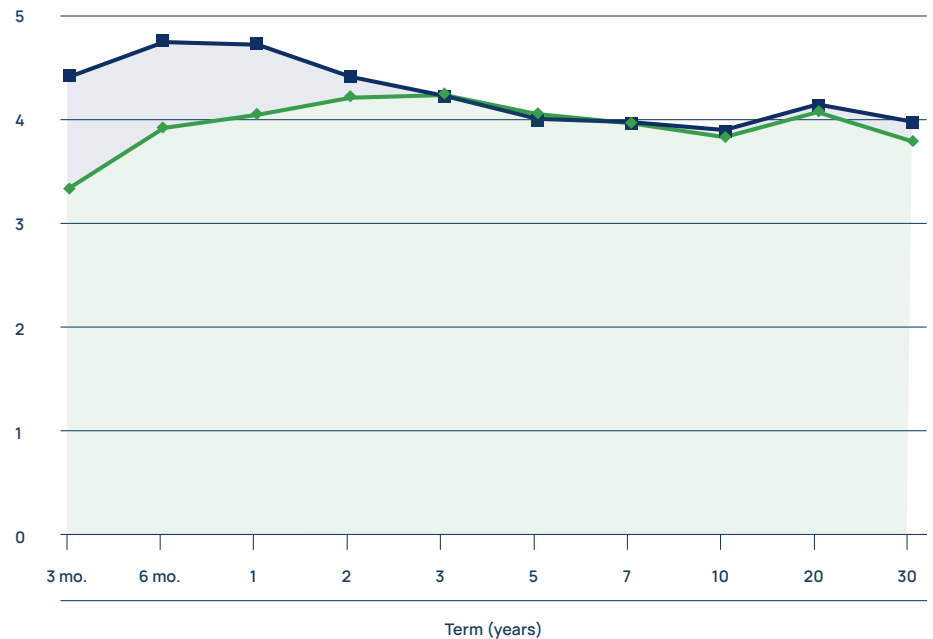
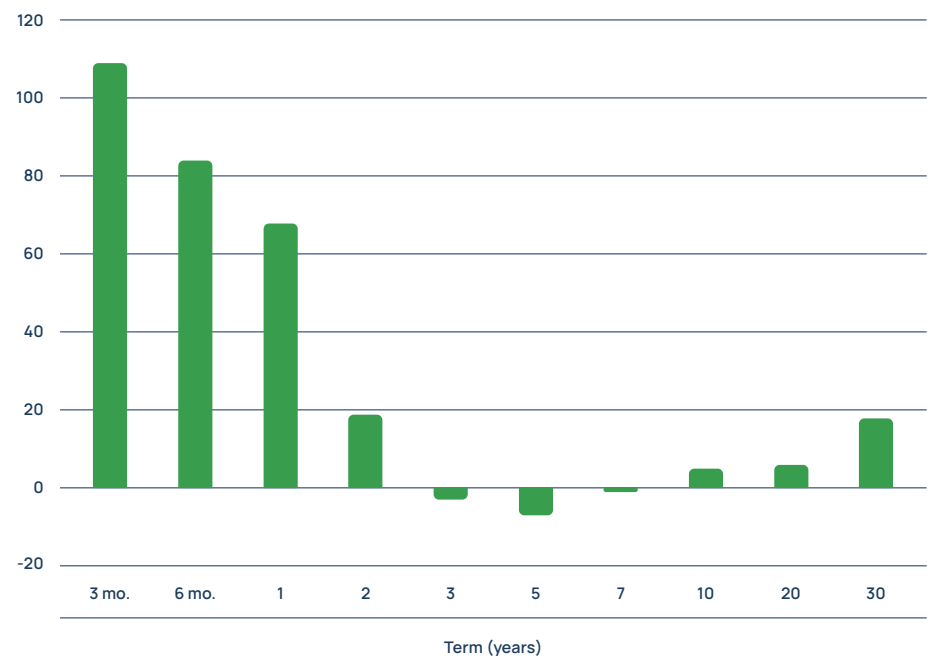


Chart 3

## Changes in US Treasury Yields September 30, 2022 to December 31, 2022

(In basis points)

Source: U.S. Treasury; Giliberto-Levy



**Total return for 2022 came in at -8.98%. This is the worst calendar-year G-L 1 performance in its 51-year history.** (The weakest-ever trailing four-quarter result occurred as of 3Q 2022 at -9.83%; before 2022, the worst showing was -9.81% as of 3Q 1980.)

# Market Trends: 4Q 2022

Table 1

## Key Rates (in %)

	9/30/2022	12/31/2022	Change
20-year Treasury Yield	4.08	4.14	0.06
20-year Mortgage Spread	2.07	2.08	0.01
<b>20-year Mortgage Yield</b>	<b>6.15</b>	<b>6.22</b>	<b>0.07</b>
10-year Treasury Yield	3.83	3.88	0.05
10-year Mortgage Spread	2.07	2.08	0.01
<b>10-year Mortgage Yield</b>	<b>5.90</b>	<b>5.96</b>	<b>0.06</b>
7-year Treasury Yield	3.97	3.96	-0.01
7-year Mortgage Spread	2.07	2.08	0.01
<b>7-year Mortgage Yield</b>	<b>6.04</b>	<b>6.04</b>	<b>0.00</b>
5-year Treasury Yield	4.06	3.99	-0.07
5-year Mortgage Spread	2.07	2.08	0.01
<b>5-year Mortgage Yield</b>	<b>6.13</b>	<b>6.07</b>	<b>-0.06</b>

Source: U.S. Treasury; Giliberto-Levy

- Table 1 shows the slight effects of Treasury yield and spread changes on commercial mortgage yields. The mortgage curve reflects the yield curve shape, with five- and seven-year loans showing higher coupons, all else equal, than ten-year deals. Differences are admittedly minor.
- We again saw size premium across most sectors for loans below \$5 million, ranging from 25 bp to 35 bp. In 4Q, there also was a 15-bp premium for industrial loans in the \$5 to \$10 million range. (Small industrial loans likely are not for large bulk distribution warehouses, which have dominated the sector in recent years.) Not all small loans had premiums, but on average premiums were statistically significant.
- The National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index (NPI) showed a meaningful -4.0% mark-to-market price decline for the quarter. This is the largest quarterly drop since 3Q 2009, which was near the end of the global recession. All major sectors, including apartment and industrial, got hit. In contrast lodging, which is a small component of the NPI, continued to rebound. That said, lodging values are at least 10% below pre-COVID levels and NOI is down about 20%. NPI price changes reflect both property sales and appraisals, although the latter likely dominated reporting this quarter.

# Credit Tracker

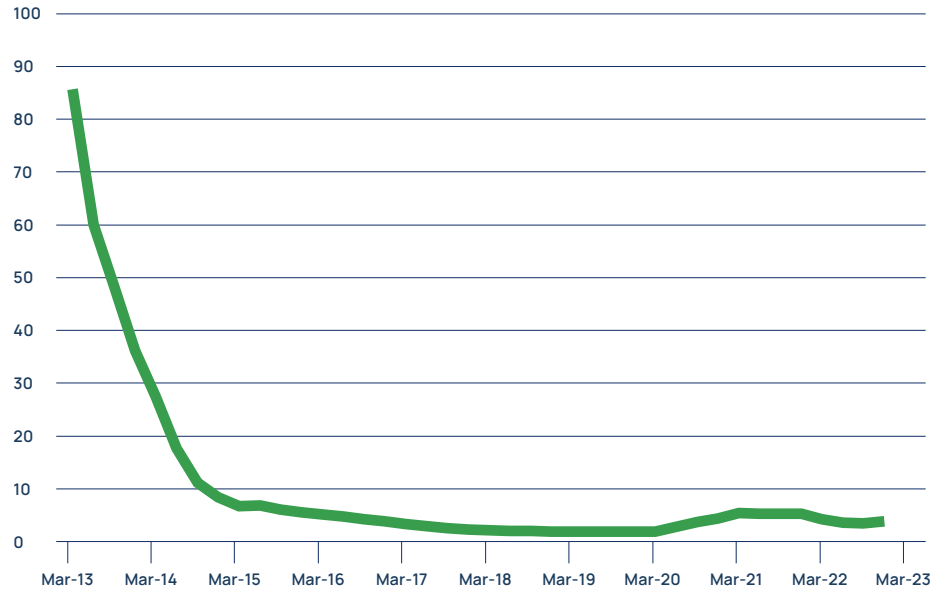
Trailing four-quarter credit effects moved up to 4 bp (see Chart 4). While it's too soon to call a shift in this measure, we do think the increase is consistent with a softer commercial real estate market and a significant pullback in financing.

Chart 4

## Commercial Mortgage Credit Effects

Rolling four-quarter effect as a percentage of book value, in basis points

Source: Giliberto-Levy



There was a slight gain in the G-L 1 elevated risk percentage, which is the share of loans that are in the amber and red risk zones in our credit tracker heat map (see Table 2 and Chart 5).

Table 2

## Credit Quality Distribution: All G-L 1 Loans

As a percentage of December 31, 2022 balances of these loans

DSC	LTV						Total
	0% to 50%	50% to 60%	60% to 65%	65% to 70%	70% to 75%	above 75%	
1.0 and less	0.26%	0.56%	0.22%	0.09%	0.13%	0.16%	1.42%
1.01 to 1.15	0.44%	0.65%	0.38%	0.14%	0.24%	0.08%	1.93%
1.15 to 1.5	2.43%	3.36%	1.41%	1.18%	0.84%	0.19%	9.40%
1.5 to 1.75	4.12%	5.72%	1.52%	0.72%	0.27%	0.17%	12.51%
above 1.75	45.18%	19.70%	5.54%	2.14%	0.87%	0.19%	73.63%
Unknown	0.48%	0.49%	0.11%	0.01%	0.01%	0.01%	1.11%
<b>Total</b>	<b>52.92%</b>	<b>30.47%</b>	<b>9.18%</b>	<b>4.27%</b>	<b>2.37%</b>	<b>0.79%</b>	<b>100.0%</b>

LTV and DSC are updated from the original underwriting to reflect seasoning and market movements.

Zone	Red	Amber	Green	Unknown
<b>Total</b>	<b>1.9%</b>	<b>4.0%</b>	<b>93.0%</b>	<b>1.1%</b>

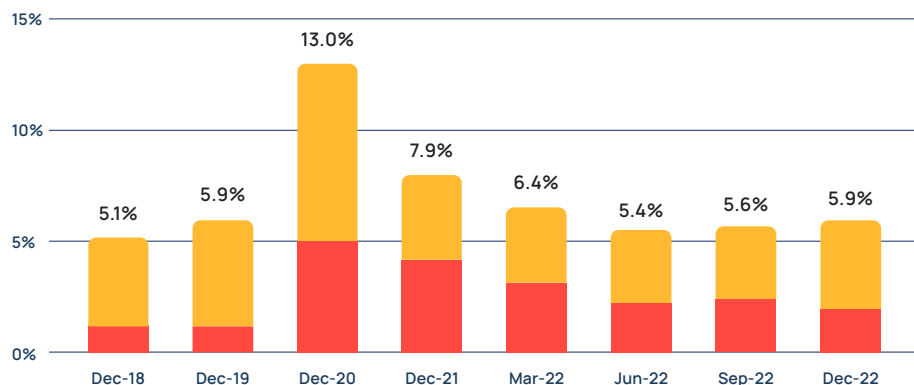
Source: Giliberto-Levy

Chart 5

## Potential At-Risk Loans

As a percentage of loan balances at month end

Source: Giliberto-Levy



We think this measure is likely to increase in 2023 due to both an increasing numerator – declining asset values move mark-to-market LTVs higher – and a decreasing denominator as more loans mature than are added.

## Relative Performance

Other investment-grade fixed income investments also fared well, and in many cases did better than commercial mortgages (see Table 3). For example, Bloomberg Index Services reported that intermediate-term Baa-rated corporate bonds produced 3.07% total return. Other corporate credit issues, including high yield, also outperformed. But G-L 1 was not an isolated case. Investment investment-grade CMBS produced 0.95% total return, and intermediate Treasuries generated 1.02%.

Table 3

### Total Return as of December 31, 2022

Index	Total Return (%)			Duration as of 12/31/2022
	4Q22	YTD	Last 4 Q	
Commercial Mortgages*	1.22	-8.98	-8.98	4.77
Duration-adjusted Baa Bond	3.28	-11.29	-11.29	4.77
CMBS: Investment Grade	0.95	-10.94	-10.94	4.59
CMBS 2.0	0.67	-10.77	-10.77	4.11
TSY Int. Term	1.02	-7.77	-7.77	3.76
TSY 5-7 yr. Term	1.30	-11.23	-11.23	5.40
Credit Int. Term	2.52	-9.10	-9.10	4.01
A Int. Term	2.49	-9.08	-9.08	4.00
Baa Int. Term	3.07	-9.73	-9.73	4.23
High-yield Int. Term	4.16	-10.54	-10.54	3.67
Ba Int. Term	4.35	-9.52	-9.52	3.88

\* Giliberto-Levy Total Index, includes office, retail, apartment, industrial and other

Sources: Bloomberg Index Services; Giliberto-Levy

Property sector relative (to the overall index) performance variation continues to be driven by differences in duration and income yields (see Chart 6). Office was an interesting case this quarter. It has the shortest duration. Generally that means its prices move less than other sectors for a given yield change. But this quarter's outcome highlights a subtlety in performance analysis.

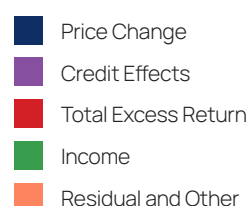
As noted earlier, shorter-term yields increased much more than intermediate yields. Office's shorter duration reflects a higher percentage of office loans being exposed to this portion of the yield curve. In 4Q the average index yield for office was up 24 bp compared with an average 12 bp across other major sectors. Consequently, a large yield change overwhelmed short duration, leading to underperformance.

Chart 6

## Sector Performance Attribution 4Q 2022

Sector performance minus Total index performance, in basis points

Source: Giliberto-Levy



## Lending Activity

Observations are based on data received at the time we prepared this report. These statistics are subject to change as we receive more information about lending activity. *Please note that any such revisions do not alter published G-L 1 returns.*

Table 4

## G-L 1 Lending Activity Summary

	Most Recent Period 4Q 2022 P	Prior Period 3Q 2022	Year Ago Comp. Period 4Q 2021
Loan Volume (\$ billions)	3.3	5.1	10.3
Weighted Average:			
LTV	57.7%	59.2%	60.7%
DSCR	1.49	1.47	2.17
Coupon Rate	5.97%	5.19%	3.09%
Spread (basis points)	200	195	159
Term to Maturity (years)	8.6	9.3	9.4
Loan Size (\$ millions)	36.6	26.3	34.2

Spread is reported with respect to comparable maturity U.S. Treasury yield.  
P Preliminary and subject to revision

Source: Giliberto-Levy

- Loan production volume in 4Q was below that of 2Q 2020, which was the softest quarter during the COVID pandemic (see Chart 7). Volume and loan count will increase as additional reports trickle in, so this comparison may not hold up.

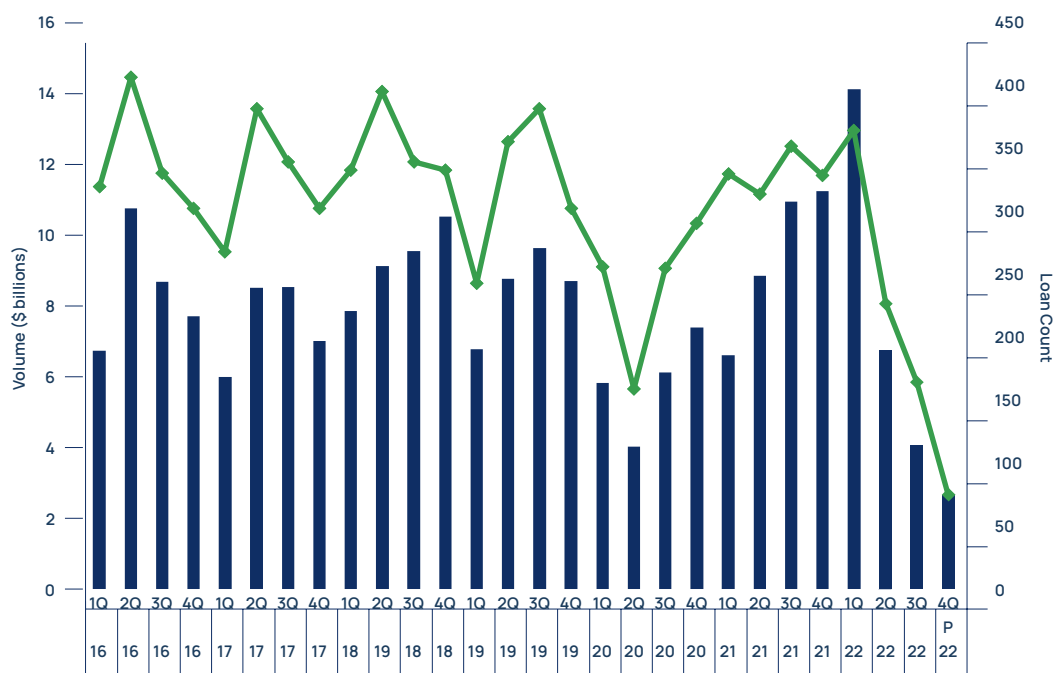
Chart 7

## Index-eligible Loan Production

*P Preliminary and subject to revision*

Source: Giliberto-Levy

◆ # of Loans  
— Volume



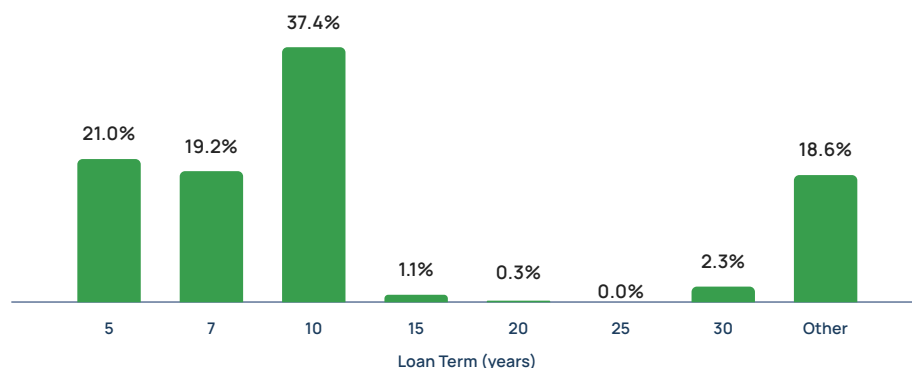
- The **ten-year segment's market share by volume was about 37%** (see Chart 8). Loans in the "Other" term category were notably higher than usual at around 18%. This share was split roughly 40-60 between loans with terms less than ten years and terms greater than ten years.

Chart 8

## Distribution of Lending Activity

*by Term to Maturity, 4Q 2022*

Source: Giliberto-Levy



- New loan production was **63% full-term interest-only loans, 35% loans with partial amortization, and 2% fully amortizing loans**. (Sum may differ from 100% due to rounding.) Partially amortizing loans often include an interest-only period up front; 68% of these loans, by volume, had an interest-only period.

Reflecting the continued slowdown in volume, **\$4.4 billion of new loans were added to the Index** (see Table 5 for details). These were loans made in September, October and November 2022. December 2022 loans, which are included in the production number cited above and depicted in Chart 7 will be added to the 1Q 2023 Index.



Table 5

## G-L 1 Index Additions

	Amount (\$)	Number of Loans	Weighted-Average				
			Coupon	Spread (bp)	DSCR	LTV (%)	Term Years
Office	608,365,000	13	6.03%	229	1.52	54.3	5.8
Apartment	2,082,607,000	65	5.59%	174	1.47	58.9	9.6
Retail	444,210,000	19	5.92%	214	1.55	61.3	9.5
Industrial	1,014,233,705	34	5.87%	192	1.52	52.1	9.8
Other	234,830,000	12	6.57%	248	1.34	58.8	5.5
<b>Total</b>	<b>4,384,245,705</b>	<b>143</b>	<b>5.80%</b>	<b>194</b>	<b>1.49</b>	<b>56.9</b>	<b>8.9</b>

Source: Giliberto-Levy

Spreads reported in Table 5 are weighted averages for all loans made during the months listed above. These averages are not spreads used to mark loans to market. We report quarter-end spreads used to value ten-year loans at 60% to 65% LTVs in the exhibit at the top of the *Monitor*. The average of these spreads also appears in Chart 1 and Table 1. These ten-year spreads were drawn from the G-L 1 pricing matrix, which we generate from new loan originations. The pricing matrix captures spread variation in the market due to differences in credit quality, property type, loan term, and other factors.

## Commercial Mortgage Perspective: 2023 Loan Maturities

In last quarter's *Monitor* we analyzed potential coupon shock that could arise as maturing loans paid off and sought refinancing. We noted that differences, using average coupon rates and projected maturities, were in the 100 to 200 bp range. In this issue, we examine loans set to mature in 2023 in greater detail, as we have in previous 4Q *Monitors*.

**About \$39.2 billion of index principal or 13.1% of the total \$299.3 billion outstanding at year-end 2022, is set to mature in 2023** (see Table 6). About 80% of 2023 scheduled maturities will come from 2013, 2016, and 2018 vintage years, corresponding to ten-, seven- and five-year original terms to maturity, respectively.

Table 6

## Summary Statistics for Loans With Maturity Dates in 2023

	Balance (\$ billion)	Average		
		Coupon	LTV	DSCR
Office	10.3	4.76%	31%	2.66
Multifamily	16.4	4.28%	35%	3.14
Retail	5.8	5.13%	29%	2.12
Industrial	5.2	4.84%	14%	3.52
Lodging	0.5	5.86%	33%	2.96
Mixed-use	0.4	5.30%	26%	2.71
Other	0.6	5.12%	16%	2.56
<b>All</b>	<b>39.2</b>	<b>4.73%</b>	<b>28%</b>	<b>2.87</b>

Sources: Giliberto-Levy

Table 7 sorts maturing loans by current LTV and DSCR, reflecting changes in collateral value and earnings since loans were originated. The format is identical to the credit tracker heat map, which is Table 2.

Table 7

Credit Quality Distribution:  
Loans With Maturity Dates in 2023

As a percentage of Dec. 31, 2022 balances of these loans

DSCR	LTV						Total
	0% to 50%	50% to 60%	60% to 65%	65% to 70%	70% to 75%	above 75%	
1.0 and less	1.53%	0.37%	0.04%	0.00%	0.07%	0.06%	2.07%
1.01 to 1.15	1.24%	0.37%	0.14%	0.16%	0.03%	0.20%	2.15%
1.15 to 1.5	1.23%	2.15%	0.68%	0.85%	0.13%	0.02%	5.06%
1.5 to 1.75	2.89%	5.93%	0.40%	0.10%	0.00%	0.00%	9.32%
above 1.75	70.03%	8.41%	0.54%	1.92%	0.21%	0.17%	81.30%
Unknown	0.09%	0.02%	0.00%	0.00%	0.00%	0.00%	0.11%
<b>Total</b>	<b>77.01%</b>	<b>17.24%</b>	<b>1.80%</b>	<b>3.04%</b>	<b>0.45%</b>	<b>0.46%</b>	<b>100.0%</b>

Source: Giliberto-Levy

About 5.4% of 2023 maturing loans fall into the red and amber elevated risk categories, a little below the overall index's 5.9% reading.

**Our takeaway is that most maturing G-L 1 loans do not have a lot of refinancing risk.** True, many loans will likely have higher coupon rates, but coverage appears to be more than sufficient to manage such increases.

But there are several wild cards.

**A U.S. recession probably would start to affect property earnings** in 2023 as weaker credit tenants would come under pressure. Forward-looking loan underwriting likely would adopt a dimmer view of future earnings, implying higher LTVs and lower DSC ratios.

A 2023 softening, even if not officially a recession, could have a similar effect. In addition, **weaker earnings and credit in 2023 likely would show up as higher credit effects – delinquencies and losses – in 2024.**

**The other unknown is the supply of capital that will be available to provide financing.** The dollar amount of 2023 maturities exceeds average annual new lending volume of about \$31 billion for G-L 1 over the last ten years. However, due to inflation, today's nominal dollars being refinanced are less valuable than dollars lent. We applied an inflation adjustment, using CPI, to prior lending volumes. Each of 2018, 2019 and 2021 had inflation-adjusted volumes equal to or greater than our projected 2023 maturity amount. Of course, those all were "good" years with low interest rates, strong economic growth and plenty of equity capital on tap.

Lastly, if the market believes that the Fed believes that its rate hikes have finally contained inflation, investment yields could move lower. That would reverse some of the large mark to market "losses" sustained in 2022.

As always, we welcome your comments and questions.

February 2023

Monitor charts and exhibits will be altered slightly in the next Monitor issue. Charts showing time series data will drop the oldest year currently shown and include space for 2023 results.

The 2011 vintage year will be combined with 2007 to 2010 into a single row for 2007 to 2011. Of course, 2023 will be added to the vintage-year exhibit.

Chart 9

## Commercial Mortgage Performance

*Rolling four-quarter total return for Total*

Source: Giliberto-Levy

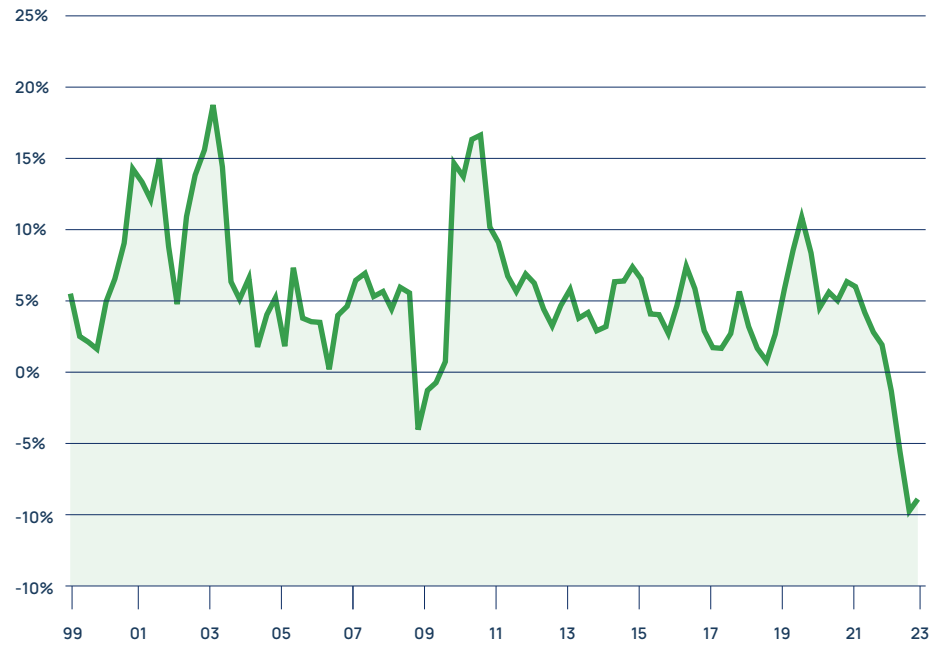


Chart 10

## Commercial Mortgage Credit Effects

*Rolling four-quarter effects as a percentage of book value, in basis points*

Source: Giliberto-Levy

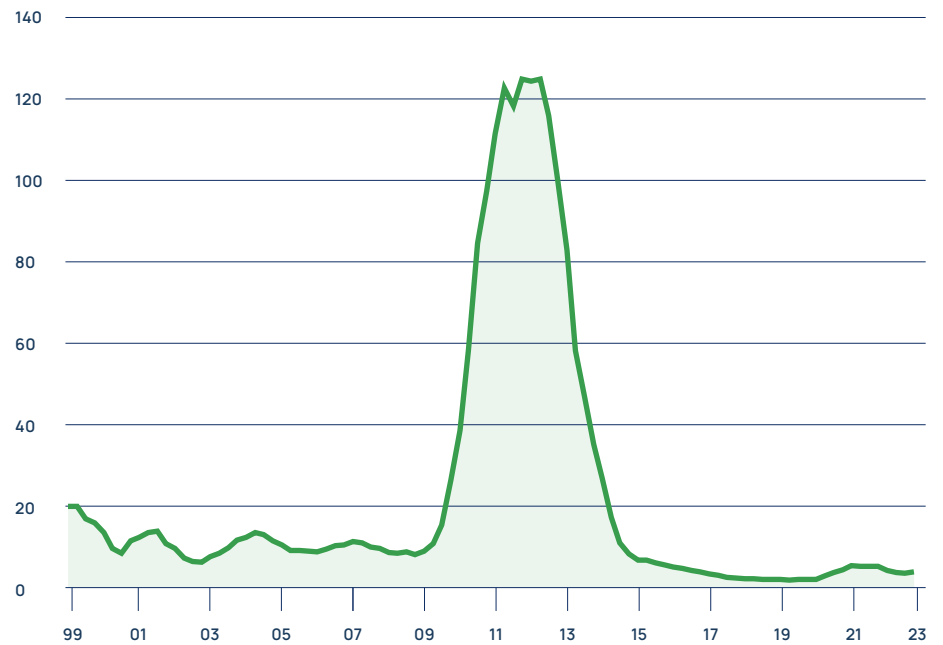


Table A

# Giliberto-Levy Commercial Mortgage Index (G-L I)

## Performance by Property Sector

For the quarter ended December 31, 2022

Sector	Returns (%)						Index Level	Credit Effects (book value; bp)		
	Last 3 months				YTD Total	Last 12 Months		Last 3 Months	YTD	Lasat 12 Months
	Income	Price	Other	Total						
Office	1.12	-0.07	0.04	1.09	-7.62	-7.62	2256.80	2	5	5
Apartment	1.06	0.16	0.03	1.24	-9.84	-9.84	2878.95	1	3	3
Retail	1.15	0.11	0.05	1.31	-7.62	-7.62	2686.09	2	7	7
Industrial	1.03	0.11	0.03	1.17	-9.47	-9.47	2594.26	0	1	1
Others	1.17	0.18	0.05	1.40	-8.19	-8.19	N/A	1	5	5
Total	1.08	0.11	0.03	1.22	-8.98	-8.98	2437.06	1	4	4
Aggregate	1.08	0.10	0.03	1.21	-9.02	-9.02	3940.80	1	4	4

Aggregate excludes Other Sectors (hotel/motel, mixed-use and miscellaneous)

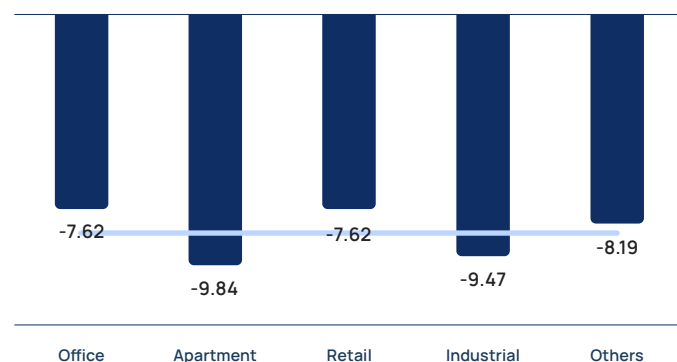
Other Return is paydown return and compounding

Index bases: Aggregate Dec. 1971 = 100; Total and major sectors Dec. 1977 = 100

bp basis points

### Total Return by Sector

Last 12 months; in percent



### Credit Effect by Sector

Last 12 months

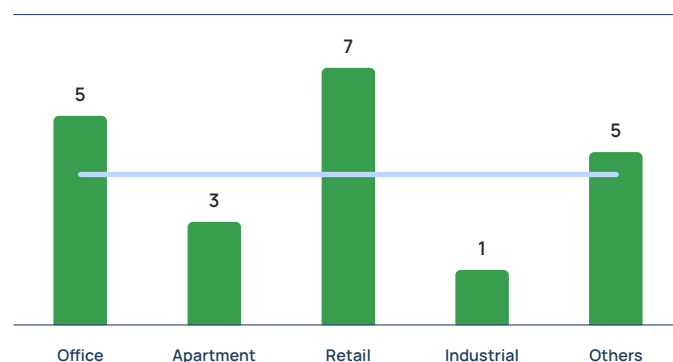


Table B

## Giliberto-Levy Commercial Mortgage Index (G-L I)

### Performance by Property Sector

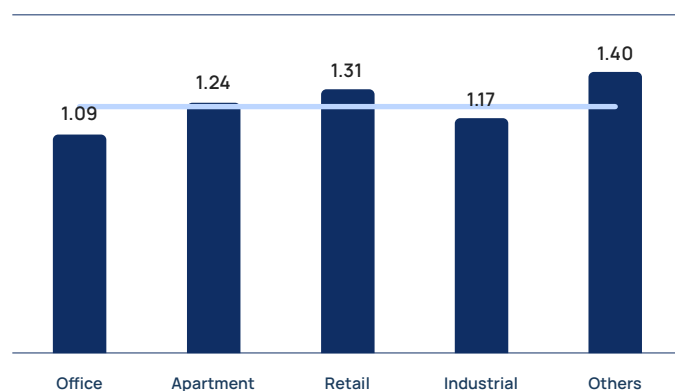
For the quarter ended December 31, 2022

Sector	Returns (%)				Statistics						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
Office	1.12	-0.07	0.04	1.09	4.13	4.12	5.90	91.6	6.23	16.0%	2094
Apartment	1.06	0.16	0.03	1.24	5.09	3.83	6.93	89.7	5.93	46.0%	6354
Retail	1.15	0.11	0.05	1.31	4.27	4.21	6.11	91.4	6.27	14.1%	3406
Industrial	1.03	0.11	0.03	1.17	4.80	3.74	6.53	90.4	5.79	17.5%	2916
Others	1.17	0.18	0.05	1.40	5.07	4.19	7.86	89.4	6.35	6.5%	1136
<b>Total</b>	<b>1.08</b>	<b>0.11</b>	<b>0.03</b>	<b>1.22</b>	<b>4.77</b>	<b>3.94</b>	<b>6.64</b>	<b>90.3</b>	<b>6.03</b>	<b>100.0%</b>	<b>15906</b>
Aggregate	1.08	0.10	0.03	1.21	4.75	3.92	6.56	90.4	6.01	93.5%	14770

Aggregate excludes Other Sectors (hotel/motel, mixed-use and miscellaneous)

### Total Return by Sector

Last 12 months; in percent



### Portfolio Composition by Sector

in percent

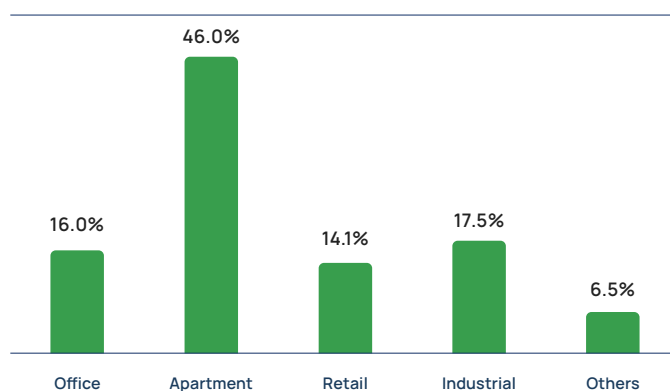


Table C

## Giliberto-Levy Commercial Mortgage Index (G-L I)

### Performance by Book LTV Classification

For the quarter ended December 31, 2022

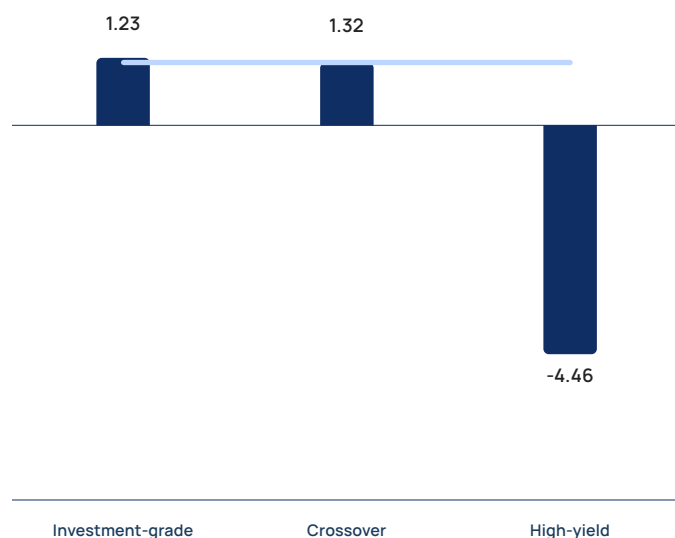
Credit quality using book value	Returns (%)				Statistics Averages						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
Investment-grade	1.08	0.11	0.03	1.23	4.75	3.93	6.61	90.4	6.01	97.3%	15536
Crossover	1.18	0.10	0.04	1.32	5.37	4.20	7.58	88.2	6.44	2.6%	366
High-yield	1.66	-6.20	0.08	-4.46	4.97	4.75	10.47	66.2	10.22	0.1%	4
<b>Total</b>	<b>1.08</b>	<b>0.11</b>	<b>0.03</b>	<b>1.22</b>	<b>4.77</b>	<b>3.94</b>	<b>6.64</b>	<b>90.3</b>	<b>6.03</b>	<b>100.0%</b>	<b>15906</b>

Credit quality definition	Book LTV	
	Minimum	Maximum
Investment-grade	NA	70.0%
Crossover	70.1%	85.0%
High-yield	85.1%	NA

**Please note** that all G-L I loans are senior loans. "Crossover" loans are those with LTVs above 70% and below 85%. They are not subordinate positions that "attach" at 70% LTV and go up to 85% of the capital stack.

### Total Return by Credit Quality

For the quarter; in percent



### Portfolio Composition by Credit Quality

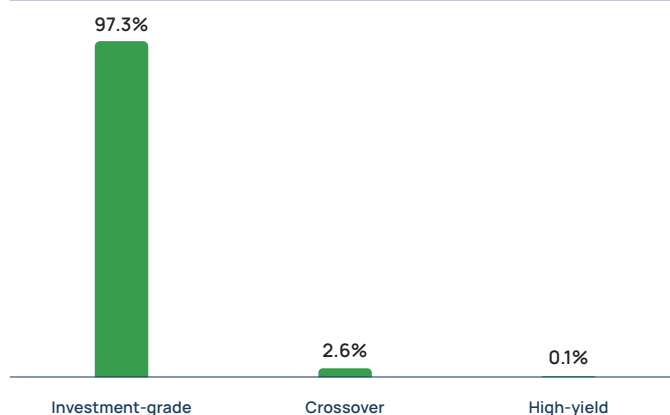


Table D

## Giliberto-Levy Commercial Mortgage Index (G-L I)

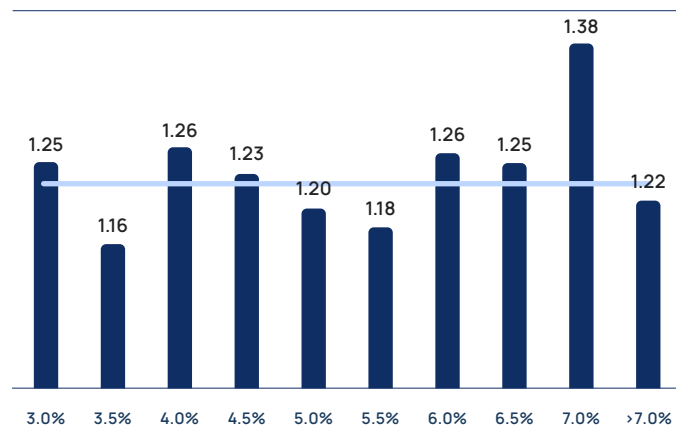
### Performance by Coupon Rate

For the quarter ended December 31, 2022

Coupon Rate	Returns (%)				Statistics						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
0.0% to 3.0%	0.83	0.39	0.03	1.25	5.85	2.74	7.39	83.3	5.84	10.6%	1121
3.0% to 3.5%	0.96	0.16	0.04	1.16	5.78	3.28	7.74	85.6	5.94	18.2%	2195
3.5% to 4.0%	1.04	0.19	0.04	1.26	4.06	3.78	5.46	91.3	6.08	27.8%	3732
4.0% to 4.5%	1.15	0.04	0.04	1.23	4.53	4.25	6.61	92.4	6.07	25.9%	3646
4.5% to 5.0%	1.26	-0.09	0.03	1.20	4.71	4.72	7.01	94.0	6.10	10.6%	1752
5.0% to 5.5%	1.36	-0.20	0.02	1.18	4.76	5.24	7.53	96.4	6.11	2.9%	675
5.5% to 6.0%	1.45	-0.20	0.01	1.26	4.54	5.74	7.42	99.1	6.08	2.0%	888
6.0% to 6.5%	1.54	-0.29	0.00	1.25	3.29	6.23	5.49	100.7	6.12	1.1%	745
6.5% to 7.0%	1.64	-0.24	-0.02	1.38	3.55	6.69	5.62	102.4	6.16	0.4%	280
7.0% & above	1.83	-0.54	-0.09	1.21	2.80	7.68	4.95	104.4	6.16	0.5%	872
<b>Total</b>	<b>1.08</b>	<b>0.11</b>	<b>0.03</b>	<b>1.22</b>	<b>4.77</b>	<b>3.94</b>	<b>6.64</b>	<b>90.3</b>	<b>6.03</b>	<b>100.0%</b>	<b>15906</b>

### Total Return by Coupon Rate

For the quarter; in percent



### Portfolio Composition by Coupon Rate

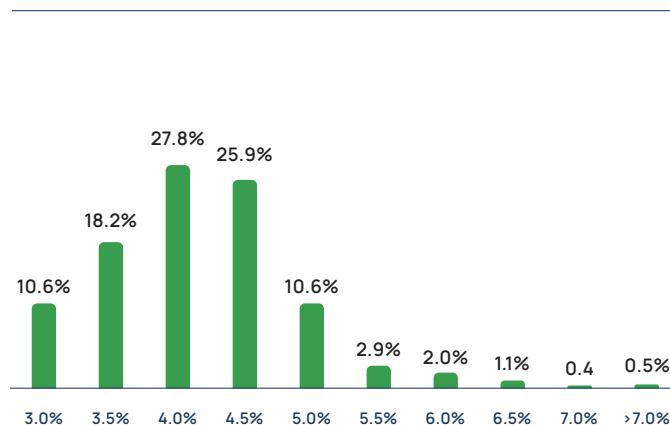




Table E

## Giliberto-Levy Commercial Mortgage Index (G-L I)

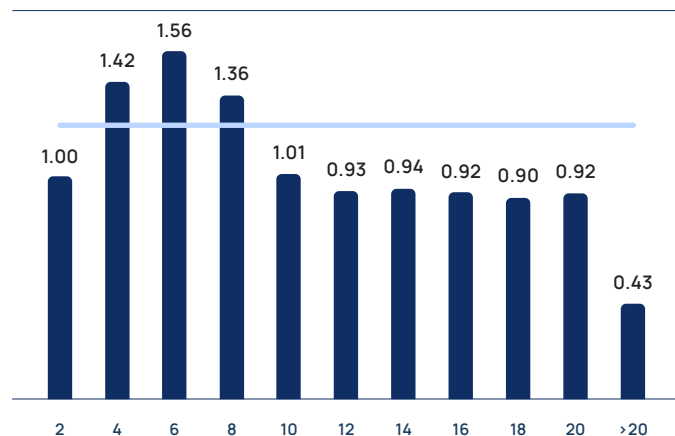
### Performance by Remaining Term to Maturity

For the quarter ended December 31, 2022

Maturity Cell	Returns (%)				Statistics						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
0 to 2 years	1.06	-0.08	0.02	1.00	1.01	4.15	1.06	97.6	6.50	14.8%	2857
2 to 4 years	1.04	0.36	0.02	1.42	2.78	3.91	3.09	93.9	6.12	20.1%	3201
4 to 6 years	1.09	0.45	0.02	1.56	4.37	4.02	5.11	91.7	5.94	19.3%	2631
6 to 8 years	1.07	0.26	0.03	1.36	5.68	3.79	6.97	88.3	5.89	14.9%	2070
8 to 10 years	1.07	-0.09	0.03	1.01	6.92	3.72	8.94	85.8	5.85	14.0%	1948
10 to 12 years	1.15	-0.28	0.05	0.93	7.44	4.06	10.95	87.2	5.81	5.1%	863
12 to 14 years	1.11	-0.25	0.09	0.94	8.02	3.75	13.07	83.7	5.84	3.8%	803
14 to 16 years	1.23	-0.38	0.07	0.92	8.15	4.37	14.83	87.6	5.89	2.7%	506
16 to 18 years	1.16	-0.38	0.12	0.90	8.37	3.86	17.05	83.3	5.91	1.5%	349
18 to 20 years	1.14	-0.36	0.14	0.92	8.91	3.73	18.78	80.9	5.94	1.2%	276
20 years & more	1.26	-0.93	0.10	0.43	10.34	4.15	25.48	81.0	5.97	2.5%	402
<b>Total</b>	<b>1.08</b>	<b>0.11</b>	<b>0.03</b>	<b>1.22</b>	<b>4.77</b>	<b>3.94</b>	<b>6.64</b>	<b>90.3</b>	<b>6.03</b>	<b>100.0%</b>	<b>15906</b>

### Total Return by Maturity Cell

For the quarter; in percent



### Portfolio Composition by Maturity Cell

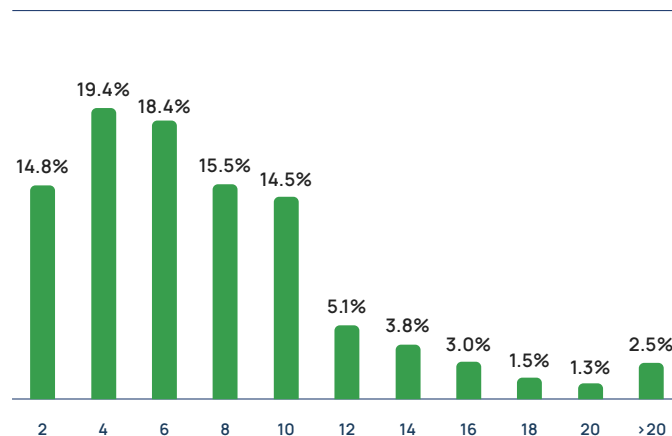


Table F

## Giliberto-Levy Commercial Mortgage Index (G-L I)

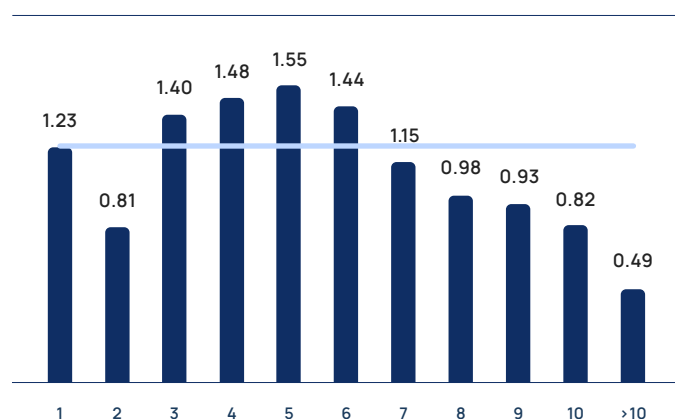
### Performance by Duration

For the quarter ended December 31, 2022

Duration Cell	Returns (%)				Statistics						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
0 to 1 year	1.05	0.15	0.03	<b>1.23</b>	0.49	4.19	0.52	98.9	6.52	6.8%	1709
1 to 2 years	1.09	-0.30	0.02	<b>0.81</b>	1.46	4.20	1.64	96.7	6.47	8.6%	2037
2 to 3 years	1.07	0.30	0.03	<b>1.40</b>	2.44	4.08	2.78	95.1	6.14	11.5%	1957
3 to 4 years	1.04	0.41	0.03	<b>1.48</b>	3.43	3.86	4.05	92.7	6.06	13.2%	1920
4 to 5 years	1.11	0.40	0.03	<b>1.55</b>	4.45	4.12	5.56	92.2	5.92	13.2%	1917
5 to 6 years	1.09	0.31	0.03	<b>1.44</b>	5.41	3.93	7.03	89.7	5.90	13.3%	1805
6 to 7 years	1.05	0.05	0.05	<b>1.15</b>	6.43	3.67	8.96	86.6	5.87	11.0%	1676
7 to 8 years	1.08	-0.14	0.04	<b>0.98</b>	7.41	3.72	10.40	85.1	5.85	12.4%	1473
8 to 9 years	1.13	-0.26	0.07	<b>0.93</b>	8.41	3.85	13.84	84.2	5.82	4.6%	659
9 to 10 years	1.17	-0.40	0.06	<b>0.82</b>	9.31	3.88	17.41	82.1	5.88	3.0%	441
10 years & more	1.20	-0.75	0.04	<b>0.49</b>	11.33	3.76	20.88	77.3	5.90	2.5%	312
<b>Total</b>	<b>1.08</b>	<b>0.11</b>	<b>0.03</b>	<b>1.22</b>	<b>4.77</b>	<b>3.94</b>	<b>6.64</b>	<b>90.3</b>	<b>6.03</b>	<b>100.0%</b>	<b>15906</b>

### Total Return by Duration Cell

For the quarter; in percent



### Portfolio Composition by Duration Cell

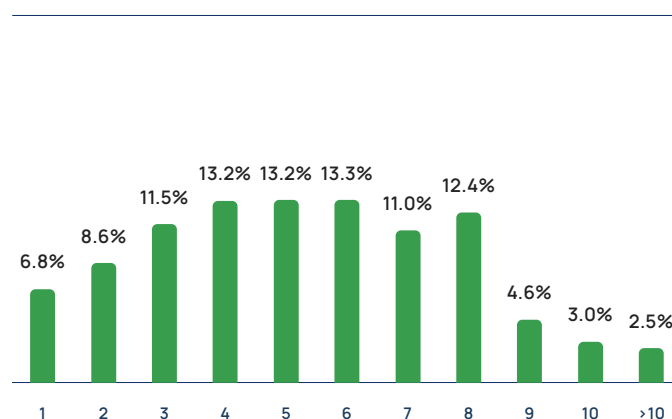


Table G

## Giliberto-Levy Commercial Mortgage Index (G-L I)

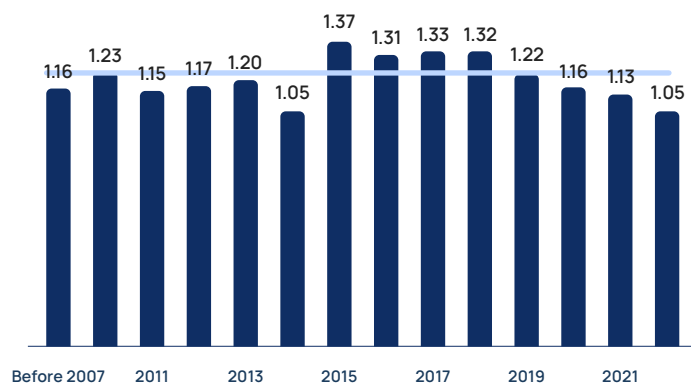
### Performance by Vintage Year

For the quarter ended December 31, 2022

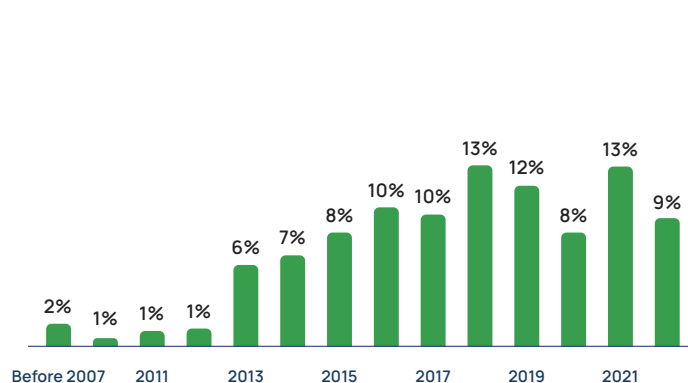
Vintage Year	Returns				Statistics						
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
Before 2007	1.55	-0.38	-0.01	1.16	2.48	6.29	4.59	100.7	6.14	1.6%	2413
2007 to 2010	1.53	-0.29	-0.01	1.23	3.50	6.23	6.81	100.9	6.05	0.6%	324
2011	1.30	-0.19	0.03	1.15	2.68	5.11	4.27	97.9	6.22	1.1%	266
2012	1.14	-0.08	0.11	1.17	3.41	4.54	5.61	95.2	6.12	1.3%	330
2013	1.13	0.03	0.04	1.20	2.39	4.35	3.70	96.5	6.25	5.9%	1117
2014	1.11	-0.10	0.04	1.05	2.96	4.22	4.34	94.8	6.26	6.5%	1005
2015	1.07	0.25	0.05	1.37	3.53	3.96	5.05	93.1	6.10	8.2%	1363
2016	1.03	0.22	0.05	1.31	3.66	3.79	5.20	92.2	6.13	10.1%	1344
2017	1.08	0.20	0.04	1.33	4.16	3.97	5.66	92.0	6.07	9.5%	1335
2018	1.18	0.12	0.02	1.32	4.82	4.36	6.78	92.8	5.98	13.1%	1508
2019	1.07	0.12	0.03	1.22	5.52	3.79	7.67	88.7	5.96	11.6%	1423
2020	0.93	0.20	0.04	1.16	5.97	3.12	8.16	84.5	5.90	8.2%	1124
2021	0.92	0.19	0.03	1.13	6.58	3.03	8.62	82.9	5.87	13.0%	1511
2022	1.21	-0.17	0.02	1.05	6.77	4.41	9.27	89.3	5.95	9.3%	843
Total	1.08	0.11	0.03	1.22	4.77	3.94	6.64	90.3	6.03	100.0%	15906

### Total Return by Vintage Cohort

For the quarter; in percent



### Portfolio Composition by Vintage Cohort



We've just prepared a new white paper on the G-L 2 Index (High-Yield CRE Debt Principal Loss Exposure) that examines how declines in property values might affect principal amounts in the G-L 2 index of high-yield commercial real estate (CRE) debt.

**If you'd like a copy of the paper, please contact us at [jgrant@jblevyco.com](mailto:jgrant@jblevyco.com)**

## The Gilberto-Levy Indexes

The G-L Commercial Mortgage Performance Index or G-L 1 tracks investment results for fixed-rate senior mortgages made by lenders such as life insurance companies, GSEs, pension funds and investment managers and held on their balance sheets. G-L 1 has been produced continuously since 1993, with a return inception date of January 1, 1972.

The G-L High-yield Real Estate Debt Index or G-L 2 measures performance for a variety of investments, such as mezzanine loans, leveraged whole loan and B-notes. G-L 2 production started in 2018. The return inception date is January 1, 2010.

To receive more information about the indexes, please contact Julia Grant ([jgrant@jblevyco.com](mailto:jgrant@jblevyco.com)).

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