



GILIBERTO-LEVY

MONITOR

Commercial Mortgage Performance IndexSM

4Q 2021 RESULTS AND ANALYSIS

The **Gilberto-Levy Monitor** reports quarterly results of the **Gilberto-Levy Commercial Mortgage Performance IndexSM** and provides comprehensive in-depth market analysis and commentary on key aspects of the commercial mortgage industry. A subscription to the **Gilberto-Levy Monitor** includes access to the **Gilberto-Levy Analyzer**—a custom query tool enabling analysis of total return on a long-term historical basis.

G-L 1 - 50 Years of Data

We are pleased to announce that the Gilberto-Levy Index (G-L 1) now has 50 years of investment performance data. Our data covers periods of high and low inflation, multiple business and real estate cycles, and multiple property sectors. Over its history, the G-L 1 has tracked more than 83,000 loans representing \$923 billion of original principal balances on \$1.5 trillion of US commercial real estate. The current value of the real estate behind the Index is approximately \$727 billion. For further information, or to subscribe to the G-L 1, please contact Julia Grant at jgrant@jblevyco.com or 804-500-9026.

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MARKET OVERVIEW

FOURTH QUARTER 2021 SUMMARY

Total Return: (in %)	Total (all sectors)	0.28
	Office	0.27
	Multi-family	0.27
	Retail	0.31
	Industrial	0.17
Spreads: (as of 12/31/2021)	Office	186
	Multi-family	164
	Retail	188
	Industrial	156
Index Statistics: (as of 12/31/2021)	Capitalization (\$ billion)	294.19
	Duration (years)	5.27
	Coupon (%)	3.92
	Maturity (years)	7.22
	Book LTV (%)	46.57

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

Source: Gilberto-Levy

The Gilberto-Levy Commercial Mortgage Performance Index (G-L 1) generated 0.28% total return for 4Q 2021. Total return consisted of 0.94% income return and -0.66% capital value return, which includes price changes and other factors. (The sum of the components may not equal the total due to rounding.) Shifting Treasury yields caused most of the capital value return. **Commercial mortgage credit spreads drifted, ending the quarter slightly lower;** the difference was almost imperceptible (see Chart 1).

¹ 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.



Chart 1: Spreads over Treasuries for Ten-year Commercial Mortgages

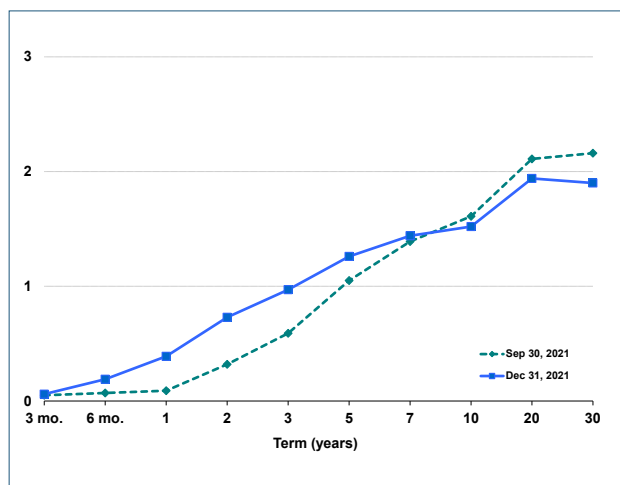
In basis points, reflecting 30/360 day count convention



Chart data are averages of office, apartment, retail and industrial property loans.
Source: Giliberto-Levy

Changes in the U.S. Treasury yield curve were not uniform in size and direction (see Charts 2 and 3). The average yield on issues with one to five years of remaining term increased by more than 30 basis points (bp) compared with September 30, 2021. In contrast, the benchmark ten-year yield dropped 9 bp, and the 30-year yield was down 26 bp.

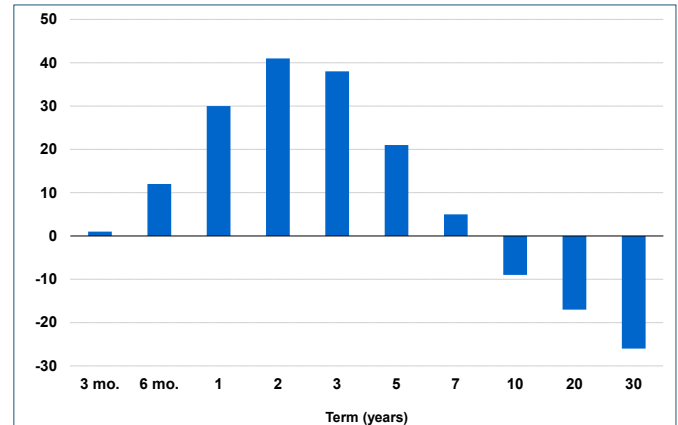
Chart 2: US Treasury Yields 9/30/21 and 12/31/21 (in %)



Source: U.S. Treasury; Giliberto-Levy

Chart 3: Changes in US Treasury Yields

9/30/21 to 12/31/21 (in basis points)



Source: U.S. Treasury; Giliberto-Levy

MARKET TRENDS: 4Q 2021

Table 1: Key Rates (in %)

	9/30/2021	12/31/2021	change
20-year Treasury Yield	2.11	1.94	-0.17
20-year Mortgage Spread	1.75	1.73	-0.02
20-Year Mortgage Yield	3.86	3.67	-0.19
10-year Treasury Yield	1.61	1.52	-0.09
10-year Mortgage Spread	1.75	1.73	-0.02
10-Year Mortgage Yield	3.36	3.25	-0.11
7-year Treasury Yield	1.39	1.44	0.05
7-year Mortgage Spread	1.75	1.73	-0.02
7-Year Mortgage Yield	3.14	3.17	0.03
5-year Treasury Yield	1.05	1.26	0.21
5-year Mortgage Spread	2.00	1.98	-0.02
5-Year Mortgage Yield	3.05	3.24	0.19

Source: U.S. Treasury; Giliberto-Levy

- The five-year spread includes the continuation from 3Q 2021 of a 25-bp term premium that also was observed 1Q 2021 but not in 2Q 2021.
- Apartment loans for less than \$10 million showed a 25-bp size

MONITOR

premium. Industrial deals under \$5 million carried the same average premium. Other major sectors did not show size premiums. Outside the major sectors, there was a 30-bp premium for loans below \$10 million. These are averages; not all small loans had premiums.

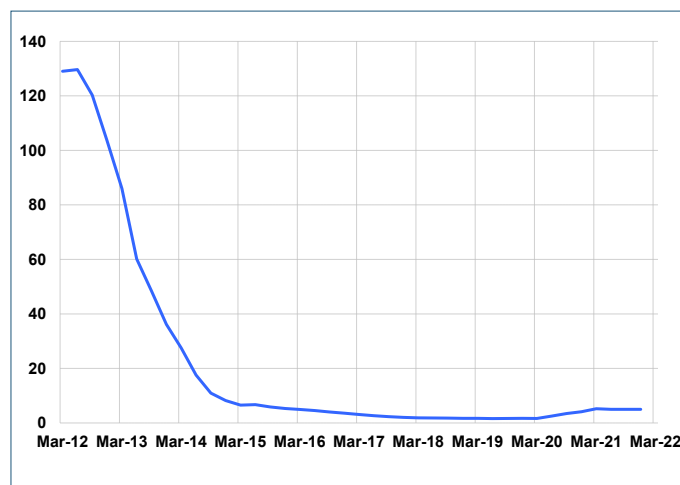
- One fixed-rate hotel/lodging loans was reported in 4Q 2021 plus several floating-rate loans, which are not included in G-L 1. Spreads averaged about 400 bp, which was consistent with what was observed in 3Q.
- The National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index produced a 5.5% price increase for the quarter. Industrial, unsurprisingly, was the star performing with an almost 13% increase in value. Prices reflect both property sales and appraisals.

CREDIT EFFECTS

Trailing four-quarter credit effects remained at 5 bp (see Chart 4). Annualized quarterly credit effects held steady at about 3 bp.

Chart 4: Commercial Mortgage Credit Effects, 1Q 2011 to 4Q 2021

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



Source: Giliberto-Levy

The Perspective section of this issue has an expanded review of G-L 1 credit risk.

RELATIVE PERFORMANCE

With the Treasury yield curve shifts noted above, most investment-grade fixed-income segments saw 4Q 2021 returns drop from those posted in 3Q 2021 (see Table 2). Full-year 2021 returns tell the same story. Intermediate-term Treasury issues had the lowest returns as price declines exceeded (coupon) income returns. Credit sectors outperformed, although most posted negative total returns. G-L 1 and high-yield bonds managed to stay in positive territory. However, G-L 1 posted negative capital value returns for the quarter and full year, like its investment-grade brethren, while high yield gained in value.

Table 2: Total Return as of December 31, 2021

Index	Total Return (%)			Duration as of 12/31/2021
	4Q 2021	YTD	Last 4 Q	
Commercial Mortgages*	0.28	1.90	1.90	5.27
Duration-adjusted Baa Bond	-0.38	-0.70	-0.70	5.27
CMBS: Investment Grade	-0.65	-0.90	-0.90	5.05
CMBS 2.0	-0.68	-0.27	-0.27	4.53
TSY Int. Term	-0.57	-1.72	-1.72	4.03
TSY 5-7 yr. Term	-0.57	-2.87	-2.87	5.89
Credit Int. Term	-0.55	-1.03	-1.03	4.37
A Int. Term	-0.56	-1.34	-1.34	4.32
Baa Int. Term	-0.52	-0.69	-0.69	4.63
High-yield Int. Term	0.65	5.00	5.00	3.31
Ba Int. Term	0.63	4.07	4.07	3.69

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

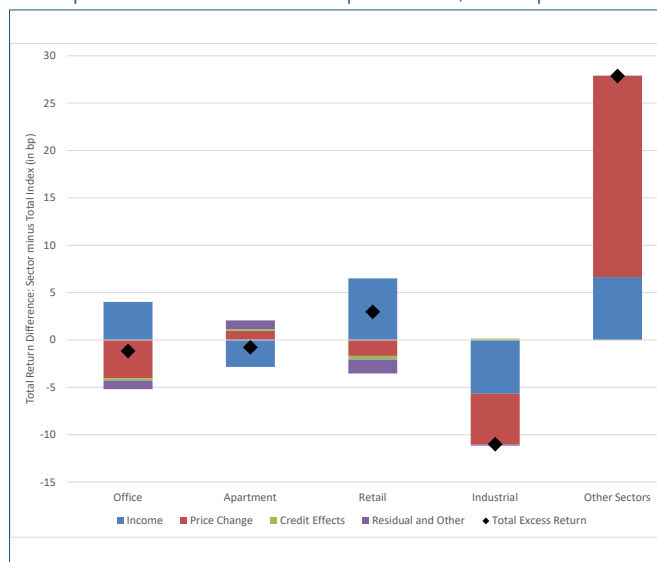
Sources: Bloomberg Barclays Indices; Giliberto-Levy

Investment-grade CMBS posted -0.65% total return, according to Bloomberg Barclays Indices. As noted in our earlier reports, G-L 1's income return is higher, coming in 19 bp above CMBS for 4Q. CMBS reported a capital value decline of -1.37%. It appears spreads on seasoned CMBS rose, which explains some of the difference. Additionally, the maturity distribution of CMBS differs from that of G-L 1. CMBS loans rarely have initial terms to maturity greater than ten years. As a result, **CMBS is mainly concentrated in maturities of ten years and lower and therefore has different exposure to Treasury yield curve movements than G-L 1.** In our index those (ten years and under) maturity segments all showed negative capital value returns, while longer-term loans showed increases in capital values.

Property sector relative (to the overall index) performance variation is largely explained by differences in duration and income yields (see Chart 5). Duration is a driver of price performance. With commercial mortgage yields moving differently for different terms to maturity, as shown in Table 1, some of this quarter's performance differences resulted from different maturity distributions within property sectors. Case in point: the "others" sector has the longest average term to maturity at 8.5 years. As we noted previously, the long end of the Treasury yield curve went down, which boosted capital value returns for that segment. That phenomenon underpinned the other sector's outperformance for the quarter.

Chart 5: Sector Performance Attribution 4Q 2021

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 posted G-L 1 returns.*

Table 3: G-L 1 Lending Activity

	Most Recent Period 4Q 2021 P	Prior Period 3Q 2021	Year Ago Comp. Period 4Q 2020
Loan Volume (\$ billions)	10.3	11.0	7.4
Weighted Average:			
LTV	60.7%	61.9%	61.8%
DSCR	2.17	2.37	2.4
Coupon Rate	3.09%	2.93%	2.93%
Spread (basis points)	159	166	210
Term to Maturity (years)	9.4	10.2	10.5
Loan Size (\$ millions)	34.2	31.1	25.5

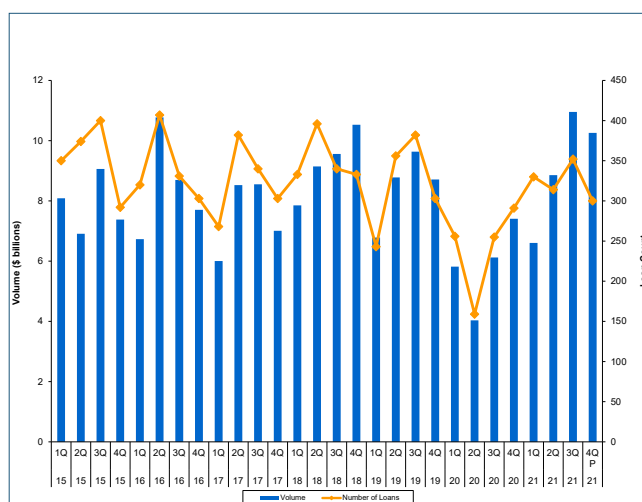
Spread is reported with respect to comparable maturity U.S. Treasury yield.
P Preliminary and subject to revision

Source: Giliberto-Levy

- Lending volume continued to pick up. Reported-to-date 4Q 2021 exceeded \$10 billion (see Chart 6). This will no doubt be revised upward once added loans are reported. Even without that potential revision, **2021 showed over \$36 billion of new loan originations, handily surpassing 2019's \$33.9 billion.**

Chart 6: Index-eligible Loan Production

1Q 2014 to 4Q 2021



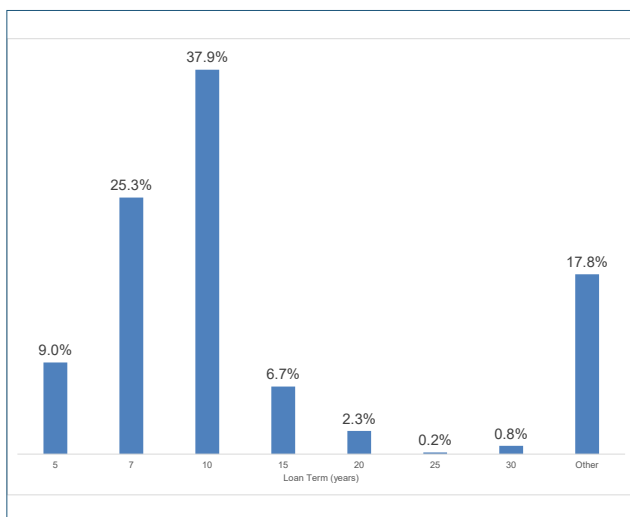
P Preliminary and subject to revision

Source: Giliberto-Levy



- The ten-year segment's market share by volume was 38%, down from 45% in 3Q 2021 (see Chart 7). The 18% share for "other" terms was roughly split down the middle between terms under and over ten years.

Chart 7: Distribution of Lending Activity by Term to Maturity, 4Q 2021



Source: Giliberto-Levy

- New loan production was 53% full-term interest-only loans, 43% loans with partial amortization, and 4% fully amortizing loans. (Sum may differ from 100% due to rounding.) Partially amortizing loans often include an interest-only period up front; more than 75% of these loans, by volume, had an interest-only period this quarter.

Loans added to the G-L 1 neared \$13 billion (see Table 4 for details). These were loans originated in September through November 2021. December 2021 loans, which are included in the production number cited above and depicted in Chart 6, will be added to the Index for 1Q 2022.

Table 4: Index Additions, 4Q 2021

	Amount (\$)	Number of Loans	Coupon	Weighted-Average				Term (years)
				Spread (bp)	DSCR	LTV (%)		
Office	749,878,052	24	3.33%	177	2.40	58.8		10.4
Apartment	6,745,319,825	182	2.99%	152	2.14	62.5		9.6
Retail	1,384,845,000	51	3.48%	218	2.14	60.3		9.1
Industrial	3,321,789,993	75	2.86%	150	2.41	60.8		9.0
Other	518,480,175	26	3.49%	208	1.69	56.3		10.0
Total	12,720,313,045	358	3.05%	163	2.21	61.3		9.4

Source: Giliberto-Levy

Spread reported above is the G-L calculated spread over the comparable maturity TSY

Please note that spreads reported in Table 4 are weighted averages of loans made during periods prior to December 2021. These averages do not represent quarter-end pricing parameters. Pricing spreads are reported in the summary table at the top of this report for standardized ten-year loans at 60% to 65%

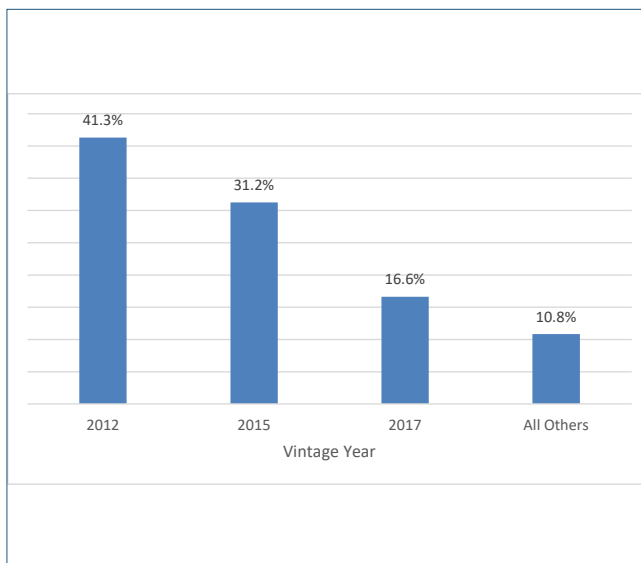
COMMERCIAL MORTGAGE PERSPECTIVE

The topic this quarter is our annual analysis of loans scheduled to mature this year (2022). The purpose of the analysis is to quantify potential credit loss exposure for G-L 1.

About \$14.6 billion of index principal or 5.2% of the total \$283.9 billion outstanding at year-end 2021, is set to mature in 2022.

About 89% of 2022 scheduled maturities will come from 2012, 2015, and 2017 vintage years, corresponding to 10-, 7- and 5-year original terms to maturity, respectively (see Chart 8).

Chart 8: G-L Loans Scheduled to Mature in 2022
Percentage of total maturing in 2022, by Vintage Year



Source: Giliberto-Levy



Table 5 shows a “heat map” that sorts maturing loans by current LTV and DSC, reflecting changes in collateral value and earnings since loans were originated.

Table 5: Credit Quality Distribution:
Loans with Maturity Dates in 2022
As a percentage of Dec. 31, 2021 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	0.56%	2.12%	0.03%	0.26%	1.25%	0.12%	4.34%
1.01 to 1.15	0.16%	5.23%	0.10%	0.03%	0.00%	0.17%	5.70%
1.15 to 1.5	4.88%	1.88%	1.35%	0.00%	0.29%	0.05%	8.44%
1.5 to 1.75	9.73%	1.57%	0.08%	0.07%	0.00%	0.18%	11.63%
above 1.75	57.91%	7.14%	1.53%	0.00%	0.00%	0.00%	66.58%
Unknown	3.32%	0.00%	0.00%	0.00%	0.00%	0.00%	3.32%
Total	76.56%	17.93%	3.10%	0.36%	1.54%	0.52%	100.00%

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

Zone	Total
Red	4.6%
Orange	6.0%
Green	86.1%
Unknown	3.3%

Source: Giliberto-Levy

The color scheme shows red, amber and green zones, corresponding to highest risk, moderate risk and least risk, (Note that our color scheme does not correspond one-for-one with the commercial mortgage risk rating grid used by the National Association of Insurance Commissioners.)

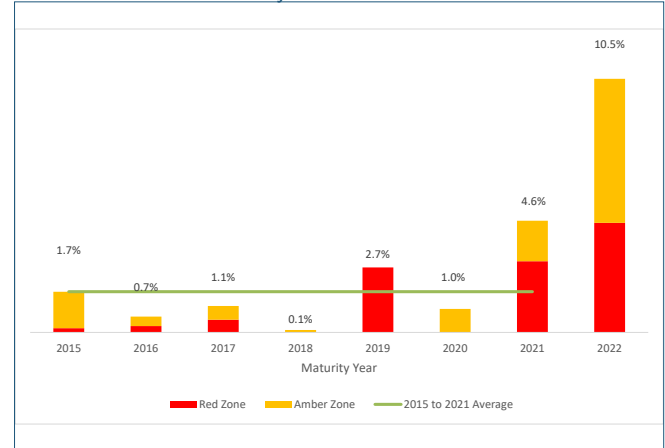
The bottom (gray) row in Table 4 tracks loans that did not supply origination DSC. These add up to around 3% of loans with 2022 maturities. All these loans have LTVs below 50%.

Table 4 includes loans that are fully amortizing over their lives. These loans are nearly completely paid down. They account for less than one percent of the total unpaid balance tracked in the table.

We commented in the 4Q 2020 *Monitor* on an uptick in the percentage of loans in the amber and red zones. That percentage increased further for the 2022 “graduating class” (see Chart 9).

Is it time to hit the panic button? We don't think so.

Chart 9: Percentage of Maturing Loan Balances
Loans with Elevated Maturity Default Risk 2015 to 2022



See Table 4 for red and amber zone delineations. Percentages calculated using prior year-end principal balances for loans with balloon payments at maturity in the indicated year.

Source: U.S. Treasury; Giliberto-Levy

First, historical credit losses did not increase proportionately with the 2021 increase shown in Chart 9. True, credit effects were up somewhat in the first and second quarters of 2021, but they remained closer to historic lows than to historic averages. Second, the most challenged property sector is lodging; however, only two percent of 2022 maturities are in that sector. Finally, the average coupon rate on maturing loans is 5%. Consequently, on average, contemporaneous (2022) rates, even with an increase in Treasury yields, likely will foster improved coverage ratios, leading to successful refinancing.

We also conducted the same analysis on the rest of the G-L 1, all loans that are scheduled to mature after 2022 (see Table 6).

Table 6: Credit Quality Distribution:
Loans Maturing After 2022
As a percentage of Dec. 31, 2021 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	0.65%	1.57%	0.44%	0.23%	0.43%	0.38%	3.70%
1.01 to 1.15	0.46%	0.62%	0.42%	0.41%	0.21%	0.18%	2.30%
1.15 to 1.5	3.15%	6.33%	3.10%	1.52%	0.72%	0.28%	15.10%
1.5 to 1.75	4.19%	4.56%	1.71%	1.27%	0.42%	0.15%	12.29%
above 1.75	38.48%	17.76%	5.59%	2.74%	0.73%	0.14%	65.45%
Unknown	0.59%	0.48%	0.04%	0.01%	0.01%	0.01%	1.15%
Total	47.53%	31.32%	11.30%	6.18%	2.52%	1.14%	100.00%

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

Zone	Total
Red	4.4%
Orange	4.4%
Green	90.0%
Unknown	1.2%

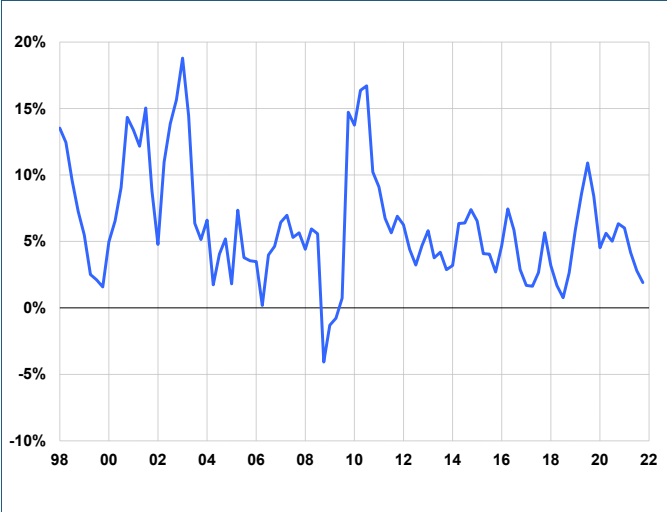
Source: Giliberto-Levy

Our at-risk criteria flag 8.8% of the current unpaid principal balance of these loans, suggesting that the 2022 maturity group has above-average risk. Going forward, we plan to include this credit-risk analysis in each quarter’s Monitor, and we will add a time series, like Chart 9, for comparisons.

As always, we welcome your comments and questions.

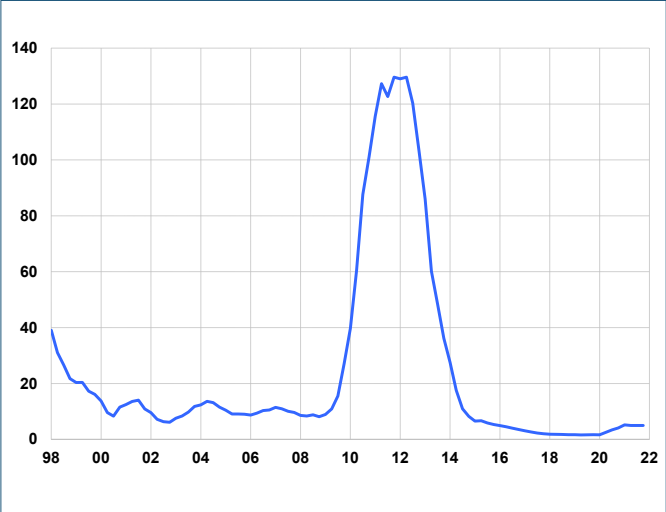
February 2022

Chart 10: Commercial Mortgage Performance
Rolling four-quarter total return for Total Index



Source: Giliberto-Levy

Chart 11: Commercial Mortgage Credit Effects
Rolling four-quarter total effects as a percentage of book value (in basis Points)



Source: Giliberto-Levy

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 2022 results.

A vintage year 2022 row will be added to the vintage-year exhibit.

APPENDIX (Following pages)
Supporting Tables and Charts 4Q 2021

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Table A: Performance by Property Sector

For the quarter ended December 31, 2021

Sector	Returns (%)						Index Level	Credit Effects (book value; bp)		
	Last 3 months				YTD	Last 12		Last 3		Last 12
	Income	Price	Other	Total	Total	Months		Months	YTD	Months
Office	0.98	-0.68	-0.03	0.27	1.64	1.64	2443.01	1	6	6
Apartment	0.91	-0.62	-0.01	0.27	1.96	1.96	3193.22	1	4	4
Retail	1.00	-0.66	-0.04	0.31	1.88	1.88	2907.52	1	8	8
Industrial	0.88	-0.69	-0.02	0.17	1.81	1.81	2865.58	1	2	2
Other Sectors	1.00	-0.42	-0.02	0.56	2.63	2.63	N/A	1	6	6
Total	0.94	-0.64	-0.02	0.28	1.90	1.90	2677.42	1	5	5
Aggregate	0.93	-0.65	-0.02	0.26	1.86	1.86	4331.74	1	5	5

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

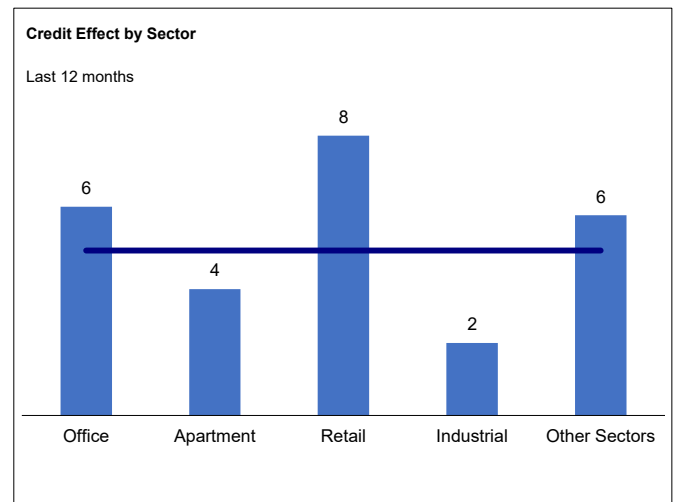
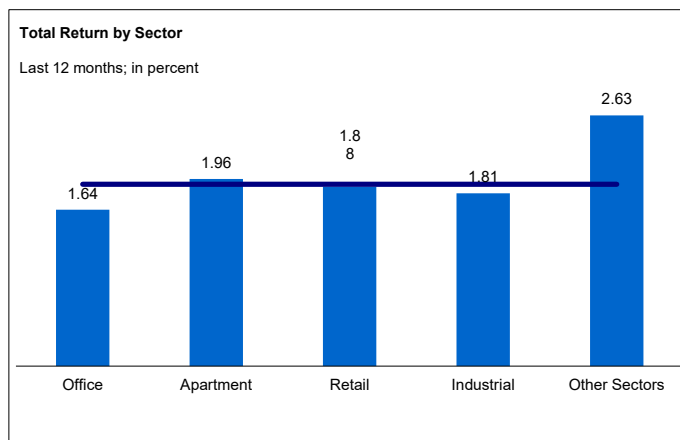




Table B: Performance by Property Sector

For the quarter ended December 31, 2021

Sector	Returns (%)				Statistics					Pct. of Portfolio	Num. of Cohorts
	Income	Price	Other	Total	Averages						
					Mod. Duration	Coupon	Maturity	Price	Yield		
Office	0.98	-0.68	-0.03	0.27	4.65	4.10	6.51	103.9	2.94	17.8%	2265
Apartment	0.91	-0.62	-0.01	0.27	5.70	3.81	7.61	103.7	2.91	44.9%	6092
Retail	1.00	-0.66	-0.04	0.31	4.71	4.21	6.62	103.7	3.10	15.4%	3570
Industrial	0.88	-0.69	-0.02	0.17	5.15	3.69	6.94	103.7	2.69	15.6%	2812
Others	1.00	-0.42	-0.02	0.56	5.62	4.14	8.52	102.2	3.57	6.3%	1165
Total	0.94	-0.64	-0.02	0.28	5.27	3.92	7.22	103.6	2.95	100.0%	15904
Aggregate	0.93	-0.65	-0.02	0.26	5.25	3.91	7.13	103.7	2.91	93.7%	14739

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

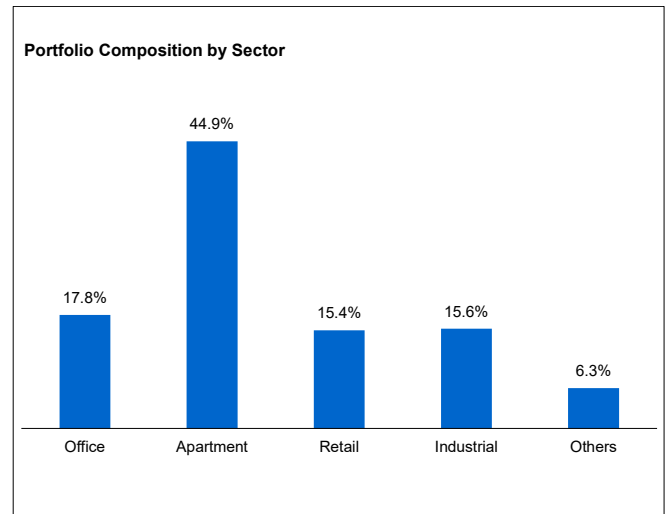
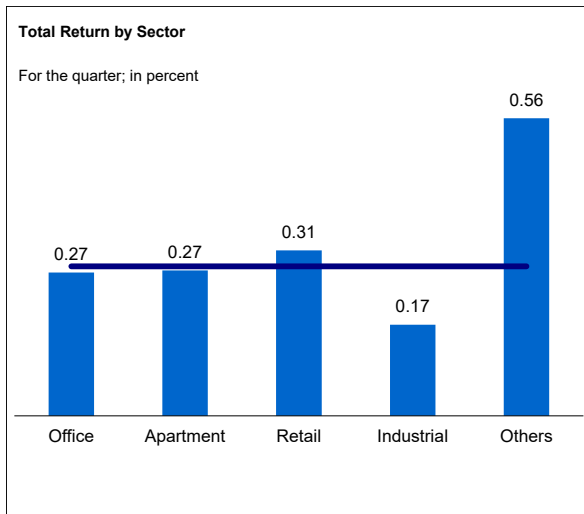




Table C: Performance by Book LTV

For the quarter ended December 31, 2021

Credit Quality Using Book Value	Returns				Statistics		Averages			Pct. of Portfolio
	Income	Price	Other	Total	Mod. Duration	Coupon	Maturity	Price	Yield	
Investment-grade	0.94	-0.65	-0.02	0.27	5.25	3.92	7.19	103.7	2.93	97.1%
Crossover	0.96	-0.30	-0.01	0.66	5.90	3.97	8.14	101.1	3.66	2.8%
High-yield	1.07	1.49	0.00	2.56	4.35	3.81	5.25	94.3	4.86	0.0%
Total	0.94	-0.64	-0.02	0.28	5.27	3.92	7.22	103.6	2.95	100.0%

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 1 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.

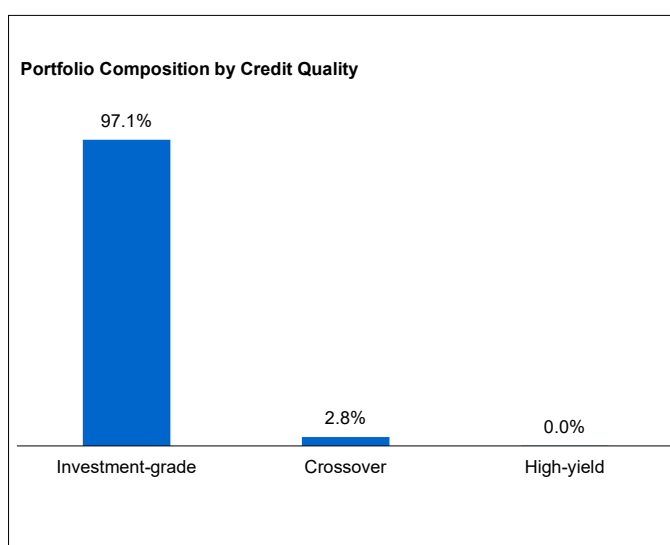
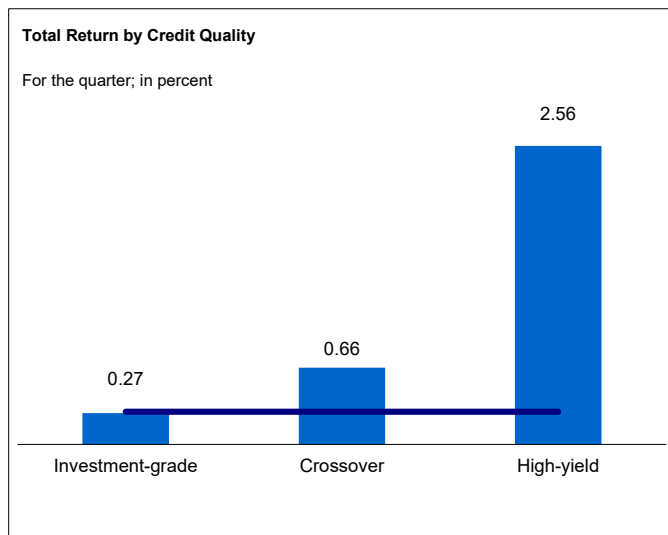




Table D: Performance by Coupon Rate

For the quarter ended December 31, 2021

Coupon Rate	Returns				Statistics					Pct. of Portfolio	Num. of Cohorts
	Income	Price	Other	Total	Mod. Duration	Coupon	Averages Maturity	Price	Yield		
0.0% to 3.0%	0.70	-0.19	0.00	0.51	6.82	2.74	8.55	98.0	3.02	10.1%	994
3.0% to 3.5%	0.81	-0.39	0.00	0.42	6.17	3.28	8.17	100.9	2.99	17.4%	1999
3.5% to 4.0%	0.91	-0.80	-0.01	0.10	4.59	3.79	6.06	103.4	2.89	29.8%	3824
4.0% to 4.5%	0.99	-0.77	-0.02	0.21	5.20	4.25	7.40	105.8	2.98	27.2%	3748
4.5% to 5.0%	1.09	-0.61	-0.04	0.45	5.16	4.72	7.60	107.4	3.01	10.0%	1701
5.0% to 5.5%	1.21	-0.62	-0.08	0.51	4.41	5.23	7.11	107.4	2.90	2.2%	627
5.5% to 6.0%	1.32	-0.76	-0.14	0.42	3.73	5.74	6.55	107.9	2.77	1.5%	901
6.0% to 6.5%	1.42	-0.76	-0.19	0.48	3.15	6.24	5.55	108.3	2.76	1.0%	803
6.5% to 7.0%	1.53	-0.75	-0.20	0.58	3.12	6.71	5.59	108.6	2.79	0.3%	287
7.0% and above	1.73	-0.65	-0.31	0.77	2.92	7.62	5.47	109.1	2.62	0.5%	1020
Total	0.94	-0.64	-0.02	0.28	5.27	3.92	7.22	103.6	2.95	100.0%	15904

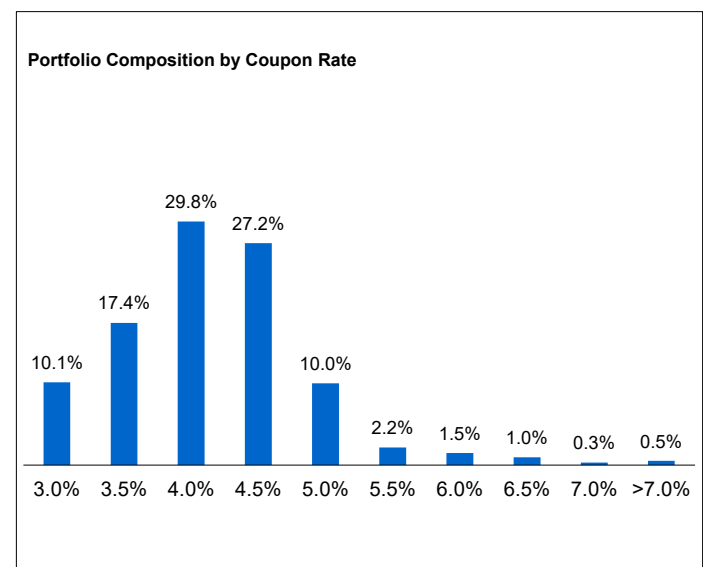
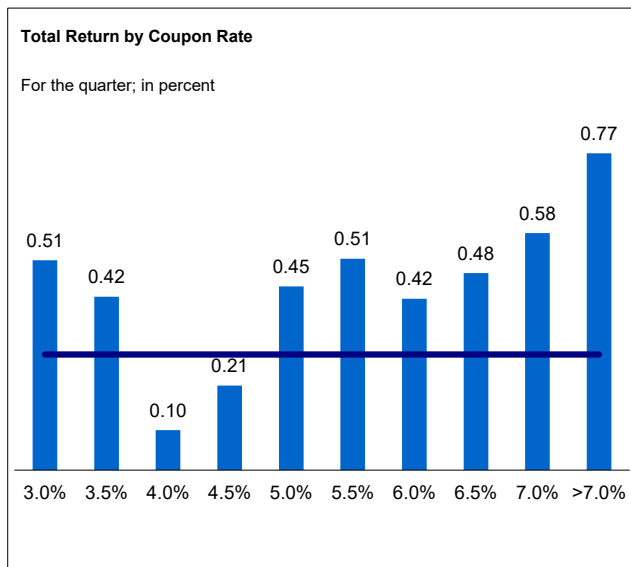




Table E: Performance by Remaining Term to Maturity

For the quarter ended December 31, 2021

Maturity Cell	Returns				Statistics					Pct. of Portfolio	Num. of Cohorts
	Income	Price	Other	Total	Mod. Duration	Coupon	Averages Maturity	Price	Yield		
0 to 2 years	1.01	-0.75	-0.03	0.23	1.09	4.14	1.15	102.0	2.28	12.2%	2567
2 to 4 years	0.97	-1.26	-0.02	-0.31	2.80	4.06	3.10	103.4	2.80	16.9%	3036
4 to 6 years	0.92	-1.24	-0.01	-0.33	4.30	3.86	4.97	103.2	3.07	19.0%	2695
6 to 8 years	0.95	-0.60	-0.02	0.33	5.81	4.00	7.01	105.2	3.04	18.6%	2281
8 to 10 years	0.85	-0.15	-0.01	0.68	7.22	3.47	9.08	102.0	3.08	14.2%	1987
10 to 12 years	0.95	-0.05	-0.04	0.86	7.80	4.05	11.12	105.9	3.09	5.1%	861
12 to 14 years	0.94	0.14	-0.03	1.05	8.39	3.94	13.06	105.0	3.16	4.1%	797
14 to 16 years	0.94	0.24	-0.04	1.15	8.96	3.96	14.88	104.7	3.23	3.2%	576
16 to 18 years	0.99	0.04	-0.04	0.99	9.43	4.21	17.02	107.3	3.28	2.1%	391
18 to 20 years	0.88	0.34	-0.01	1.21	9.85	3.59	19.10	101.4	3.35	1.7%	317
20 years or more	0.97	0.65	-0.03	1.59	12.10	4.07	26.29	105.4	3.40	2.9%	396
Total	0.94	-0.64	-0.02	0.28	5.27	3.92	7.22	103.6	2.95	100.0%	15904

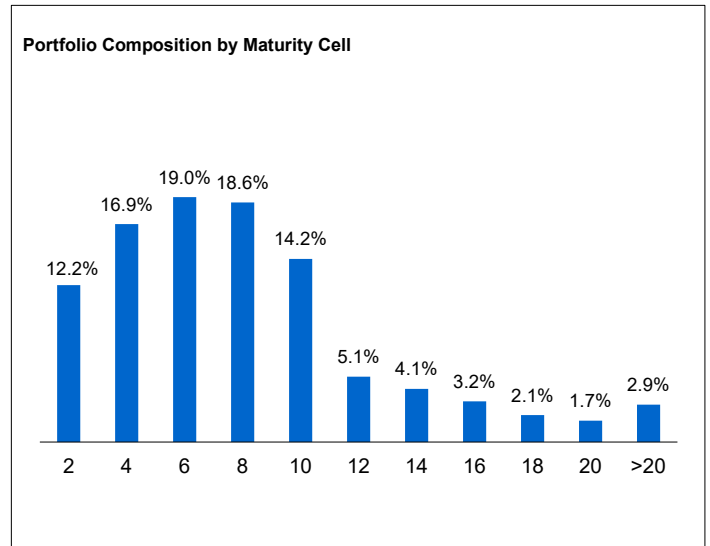
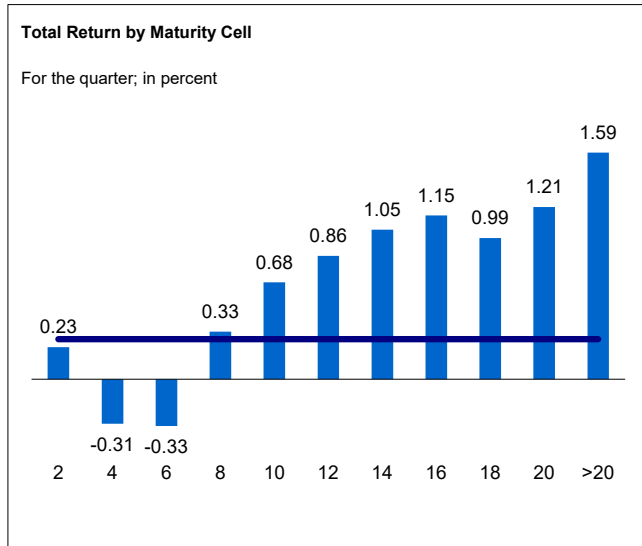




Table F: Performance by Duration

For the quarter ended December 31, 2021

Duration Cell	Returns				Statistics					Pct. of Portfolio	Num. of Cohorts
	Income	Price	Other	Total	Mod. Duration	Coupon	Averages Maturity	Price	Yield		
0 to 1 year	1.02	-0.55	-0.07	0.41	0.55	4.11	0.59	101.1	2.08	4.8%	1468
1 to 2 years	1.02	-0.90	-0.03	0.09	1.46	4.27	1.62	102.8	2.42	7.9%	1952
2 to 3 years	0.99	-1.20	-0.03	-0.24	2.46	4.14	2.83	103.4	2.74	9.7%	1933
3 to 4 years	0.96	-1.27	-0.02	-0.33	3.45	4.07	4.06	103.8	2.94	11.8%	1904
4 to 5 years	0.92	-1.17	-0.01	-0.27	4.41	3.85	5.37	103.3	3.08	13.5%	1851
5 to 6 years	0.96	-0.77	-0.02	0.17	5.48	4.10	6.86	105.7	3.03	13.4%	1762
6 to 7 years	0.91	-0.43	-0.01	0.46	6.43	3.77	8.50	104.2	3.08	11.6%	1575
7 to 8 years	0.87	-0.13	-0.02	0.72	7.40	3.63	10.19	103.3	3.11	10.4%	1366
8 to 9 years	0.86	0.12	-0.01	0.97	8.35	3.56	12.05	102.6	3.16	7.6%	916
9 to 10 years	0.91	0.28	-0.02	1.17	9.42	3.77	14.65	104.2	3.21	3.7%	517
10 years or more	0.92	0.69	-0.01	1.59	11.72	3.80	20.72	103.8	3.35	5.6%	660
Total	0.94	-0.64	-0.02	0.28	5.27	3.92	7.22	103.6	2.95	100.0%	15904

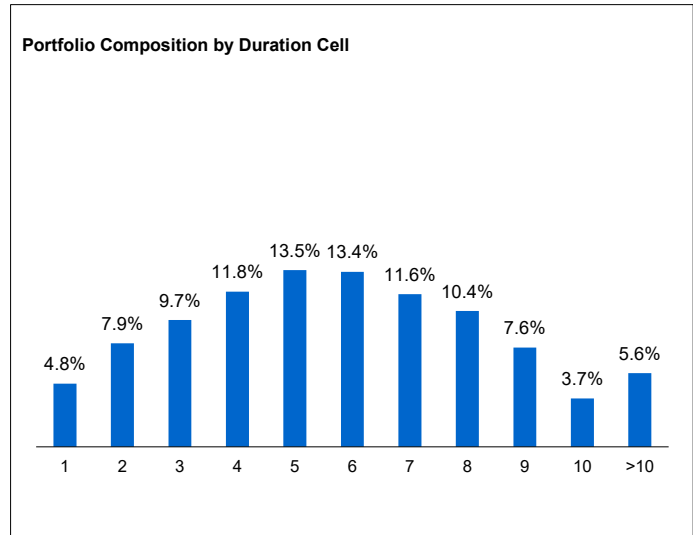
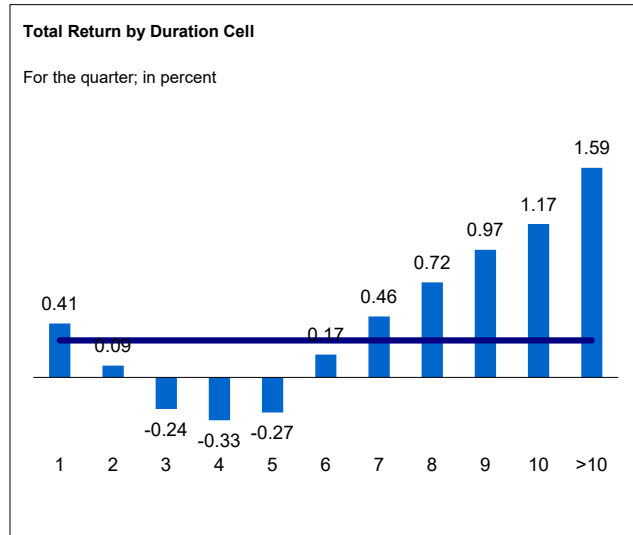
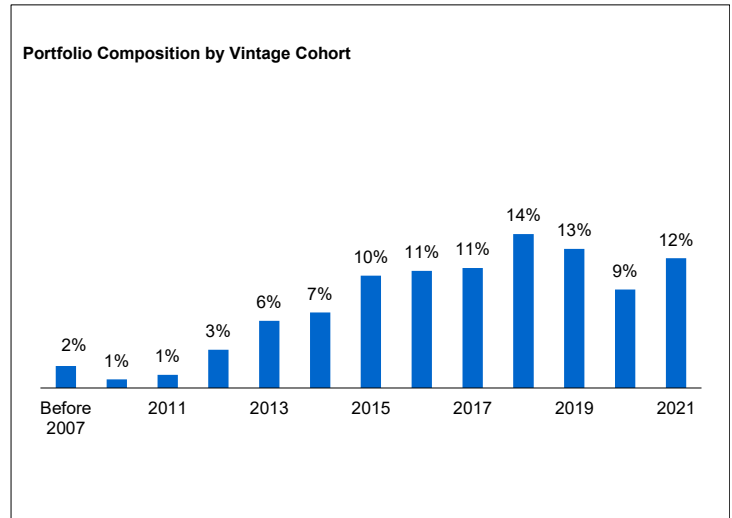
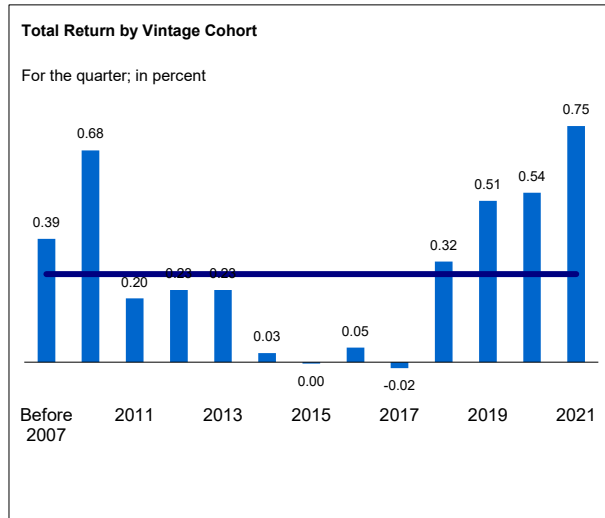




Table G: Performance by Vintage Year

For the quarter ended December 31, 2021

Vintage Year	Returns				Statistics					Averages		
	Income	Price	Other	Total	Mod.		Coupon	Maturity	Price	Yield	Pct. of Portfolio	Num. of Cohorts
					Duration							
Before 2007	1.44	-0.80	-0.25	0.39	2.85		6.31	5.11	108.0	2.65	2.0%	2650
2007 to 2010	1.40	-0.58	-0.15	0.68	3.33		6.09	6.14	107.4	2.70	0.8%	446
2011	1.16	-0.82	-0.13	0.20	3.50		5.11	5.37	107.1	2.79	1.2%	268
2012	1.03	-0.77	-0.03	0.23	2.03		4.32	3.05	103.1	2.40	3.5%	824
2013	1.02	-0.76	-0.03	0.23	3.35		4.35	4.90	104.9	2.68	6.1%	1126
2014	0.99	-0.93	-0.03	0.03	3.90		4.22	5.53	104.9	2.87	6.9%	1017
2015	0.94	-0.92	-0.02	0.00	3.89		3.93	5.40	103.7	2.86	10.3%	1501
2016	0.91	-0.84	-0.02	0.05	4.62		3.80	6.43	103.3	3.01	10.7%	1350
2017	0.94	-0.94	-0.01	-0.02	4.76		3.95	6.38	104.3	2.97	11.0%	1422
2018	1.01	-0.68	-0.01	0.32	5.83		4.36	8.01	107.2	3.00	14.1%	1514
2019	0.91	-0.39	-0.01	0.51	6.60		3.79	8.97	104.1	3.09	12.7%	1430
2020	0.78	-0.24	0.00	0.54	7.06		3.12	9.45	100.0	3.06	9.0%	1124
2021	0.76	-0.01	0.00	0.75	7.54		3.04	9.78	99.3	3.12	11.8%	1232
Total	0.94	-0.64	-0.02	0.28	5.27		3.92	7.22	103.6	2.95	100.0%	15904





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