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Crime Doesn't Appreciate Commercial Real Estate

There is an inverse relationship between change in the level of violent crime (VC)[i] and change in commercial real estate (CRE) values. This premise is certainly intuitive – people want to live, work, and shop in places that they feel safe.

Therefore, as violent crime increases, vacancies rise and rents decline resulting in lower property values. Sensing volatility and questionable upside, investors demand higher cap rates, which further impacts value. In addition, greater security costs will likely be incurred. The above notwithstanding, we tested this theory by comparing violent crime rates[ii] in metros to the value change rates of office, multifamily, industrial, and retail facilities. In order to contextualize our results, we compared the crime rate to home values, Gross Domestic Product (GDP) growth (gross and per capita), and population change rates.

Our findings reveal that the overwhelming majority of commercial real estate markets are negatively correlated with violent crime. In addition, the United States overall exhibits a significant inverse relationship between violent crime and CRE value. There is certainly logic in concluding that a decline in violent crime causes commercial real estate values to increase. However, there are unquestionably other factors that impact commercial real estate value such as:

- Economic shifts,
- Demographic changes,
- Supply and demand fluctuations,
- Interest rates,
- Availability of financing,
- Infrastructure, and
- Idiosyncratic influences.

Most notable, commercial real estate value is invariably associated with the health of the underlying economy. A declining economy may cause both rising violent crime and declining commercial real estate values.[iii] It is most likely that the overall economy, CRE values, and VC impact each other. The key takeaway is that the violent crime rate and commercial real estate values have a very elevated rate of negative correlation.

We begin our analysis by exploring the correlation between office building values and the violent crime rate.

Office

During the observation period of 1985 to 2017, 92% of the 73 office markets analyzed displayed a negative correlation[iv] – that is to say, an inverse relationship – when crime went down, office values went up, as well as the converse. The unweighted average correlation of the 73 markets analyzed was -0.59, while the weighted average correlation of the 73 markets had a correlation coefficient of -0.89. The overall correlation between all US markets covered by CoStar (390 markets) compared to the national violent crime rate as calculated by the Federal Bureau of Investigation (FBI) is -0.88.

The markets with the highest negative correlations were Tampa, El Paso, Atlanta, Charlotte, and Ft. Lauderdale, FL.

EXHIBIT 1

Correlation Analysis: CoStar Office Price Index and Violent Crime Rate (1985-2017)

Rank	Market	Correlation
1	Tampa, Florida	-0.95
2	El Paso, Texas	-0.94
3	Atlanta, Georgia	-0.90
4	Charlotte-Mecklenburg, North Carolina	-0.90
5	Fort Lauderdale, Florida	-0.90
6	Columbia, South Carolina	-0.90
7	Jacksonville, Florida	-0.90
8	Miami, Florida	-0.90
9	Chicago, Illinois	-0.89
	Average of 73 Markets (Weighted)	-0.89
	United States (390 Markets)	-0.88
10	Richmond, Virginia	-0.87
11	San Diego, California	-0.87
12	Fresno, California	-0.87
13	Boston, Massachusetts	-0.86
14	McAllen, Texas	-0.84
15	Grand Rapids, Michigan	-0.83
16	Portland, Oregon	-0.82
17	Phoenix, Arizona	-0.82
18	Washington, District Of Columbia	-0.81
19	Dallas, Texas	-0.81
20	Dayton, Ohio	-0.80
	Average of 73 Markets (Unweighted)	-0.59

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

The following scatter plot chart illustrates the high correlation between low crime rates and high office property values on a national basis. Each dot represents a year. If the pattern of dots slopes from upper left to lower right, it indicates a negative correlation.

EXHIBIT 2

US Office CRE Values and Violent Crime Rate, 1985-2017
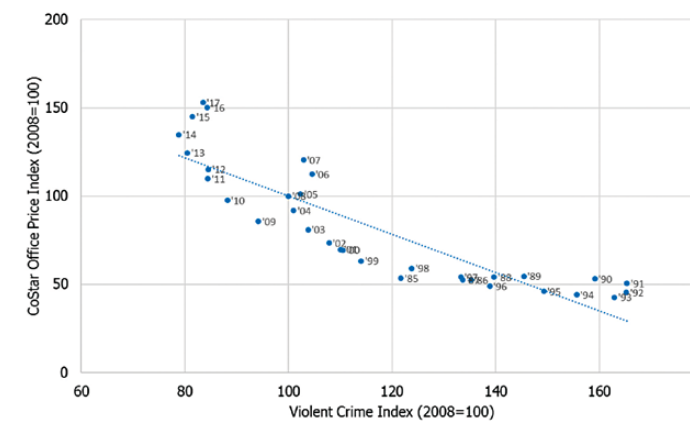
Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Multifamily

During the observation period of 1985-2017, 92% of the 73 multifamily markets analyzed displayed a negative correlation with VC. The unweighted average correlation of the 73 markets we analyzed was -0.58, while the weighted average correlation of the 73 markets had a correlation coefficient of -0.86. The overall correlation between all US markets covered by CoStar (390 markets) compared to the national violent crime rate as calculated by the FBI is -0.86.

The markets with the highest negative correlations were Tampa, El Paso, Atlanta, Boston, and Orlando.

EXHIBIT 3

Correlation Analysis: CoStar Multifamily Price Index and Violent Crime Rate (1985-2017)

Rank	Market	Correlation
1	Tampa, Florida	-0.92
2	El Paso, Texas	-0.91
3	Atlanta, Georgia	-0.89
4	Boston, Massachusetts	-0.89
5	Orlando, Florida	-0.87
6	Fresno, California	-0.87
	United States (390 Markets)	-0.86
7	Chicago, Illinois	-0.86
8	Jacksonville, Florida	-0.86
9	Columbus, Ohio	-0.86
10	Richmond, Virginia	-0.86
11	Riverside, California	-0.86
	Average of 73 Markets (Weighted)	-0.86
12	Charlotte-Mecklenburg, North Carolina	-0.86
13	Fort Lauderdale, Florida	-0.85
14	Miami, Florida	-0.85
15	Los Angeles, California	-0.84
16	Grand Rapids, Michigan	-0.83
17	Columbia, South Carolina	-0.83
18	Dallas, Texas	-0.83
19	San Diego, California	-0.82
20	McAllen, Texas	-0.81
	Average of 73 Markets (Unweighted)	-0.58

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

The following scatter plot chart illustrates the high correlation between low crime rates and high multifamily values on a national basis. Each dot represents a year.

EXHIBIT 4

US Multifamily CRE Values and Violent Crime Rate, 1985-2017
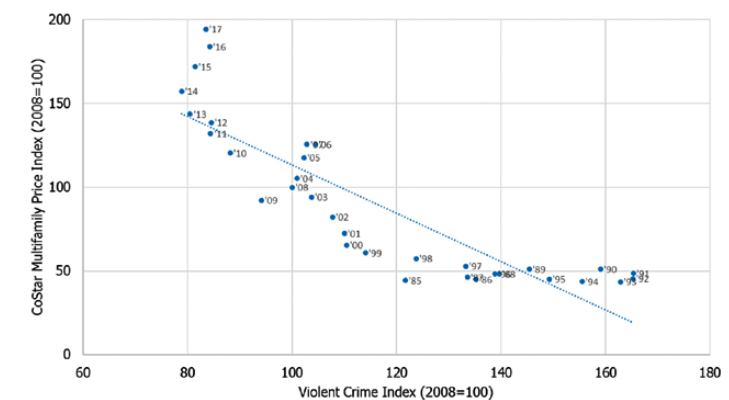
Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Industrial

During the observation period of 1985-2017, 90% of the 73 industrial markets analyzed displayed a negative correlation. The unweighted average correlation of the 73 markets we analyzed was -0.54, while the weighted average correlation of the 73 markets had a correlation coefficient of -0.84. The overall correlation between all US markets covered by CoStar (390 markets) compared to the national violent crime rate as calculated by the FBI is -0.83.

The markets with the highest negative correlations included Tampa, El Paso, Ft. Lauderdale, Riverside, and Atlanta.

EXHIBIT 5

Correlation Analysis: CoStar Industrial Price Index and Violent Crime Rate (1985-2017)
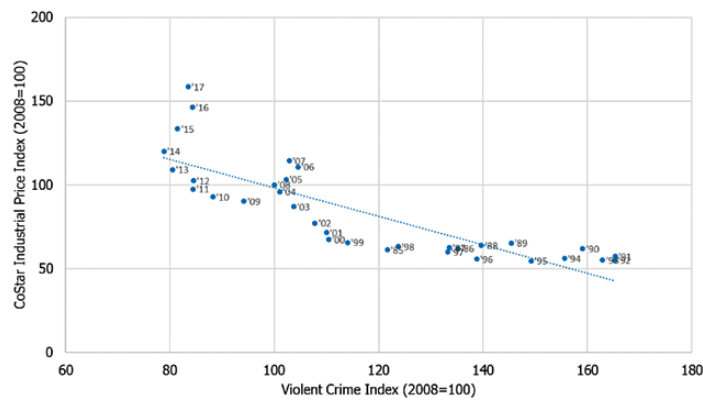
Rank	Market	Correlation
1	Tampa, Florida	-0.91
2	El Paso, Texas	-0.90
3	Fort Lauderdale, Florida	-0.88
4	Riverside, California	-0.85
5	Atlanta, Georgia	-0.84
6	Miami, Florida	-0.84
	Average of 73 Markets (Weighted)	-0.84
7	Chicago, Illinois	-0.84
8	Jacksonville, Florida	-0.84
9	Portland, Oregon	-0.84
10	Columbia, South Carolina	-0.83
	United States (390 Markets)	-0.83
11	Grand Rapids, Michigan	-0.81
12	San Diego, California	-0.81
13	Boston, Massachusetts	-0.81
14	McAllen, Texas	-0.81
15	Fresno, California	-0.79
16	Richmond, Virginia	-0.79
17	Los Angeles, California	-0.78
18	Washington, District Of Columbia	-0.77
19	Charlotte-Mecklenburg, North Carolina	-0.77
20	Charleston, South Carolina	-0.76
	Average of 73 Markets (Unweighted)	-0.54

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

The following scatter plot chart illustrates the high correlation between low crime rates and high industrial values on a national basis. Each dot represents a year.

EXHIBIT 6

US Industrial CRE Values and Violent Crime Rate, 1985-2017

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Retail

During the observation period of 1985-2017, 92% of the 73 retail markets analyzed displayed a negative correlation. The unweighted average correlation of the 73 markets we analyzed was -0.56, while the weighted average correlation of the 73 markets had a correlation coefficient of -0.83. The overall correlation between all US markets covered by CoStar (390 markets) compared to the national violent crime rate as calculated by the FBI is -0.84.

The markets with the highest negative correlations included Tampa, Atlanta, Portland, El Paso, and Ft. Lauderdale.

EXHIBIT 7

Correlation Analysis: CoStar Retail Price Index and Violent Crime Rate (1985-2017)

Rank	Market	Correlation
1	Tampa, Florida	-0.93
2	Atlanta, Georgia	-0.90
3	Portland, Oregon	-0.88
4	El Paso, Texas	-0.87
5	Fort Lauderdale, Florida	-0.86
6	Chicago, Illinois	-0.85
7	Jacksonville, Florida	-0.85
8	Fresno, California	-0.85
	United States (390 Markets)	-0.84
9	Columbia, South Carolina	-0.84
	Average of 73 Markets (Weighted)	-0.83
10	Charlotte-Mecklenburg, North Carolina	-0.83
11	Richmond, Virginia	-0.83
12	Miami, Florida	-0.83
13	McAllen, Texas	-0.81
14	San Diego, California	-0.81
15	Dallas, Texas	-0.80
16	Grand Rapids, Michigan	-0.80
17	Columbus, Ohio	-0.80
18	New York, New York	-0.79
19	Charleston, South Carolina	-0.78
20	Washington, District Of Columbia	-0.77
	Average of 73 Markets (Unweighted)	-0.56

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

The following scatter plot chart illustrates the high correlation between low crime rates and high retail values on a national basis. Each dot represents a year.

EXHIBIT 8

US Retail CRE Values and Violent Crime Rate, 1985-2017
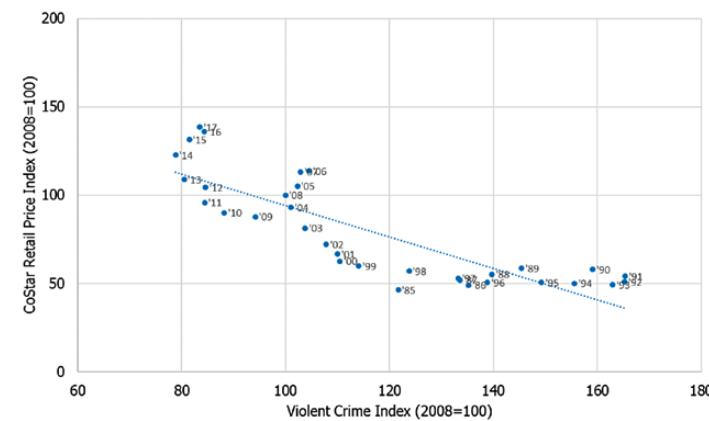
Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Home Prices

We also looked at home prices to see if the negative correlation held up for residential property as well. The data suggests that home prices are even more consistently impacted by violent crime. During the observation period of 1987-2017, 100% of the 20 housing markets analyzed also displayed a negative correlation. The unweighted average correlation of the 20 markets in the Case-Shiller Home Price Indices was -0.29, while the weighted average correlation of the 20 markets had a correlation coefficient of -0.69. The overall correlation between the United States National Home Price Index compared to the national violent crime rate as calculated by the FBI is -0.87.

The following scatter plot chart illustrates the high correlation between low crime rates and high industrial values on a national basis. Each dot represents a year.

EXHIBIT 9

US National Home Values and Violent Crime Rate, 1987-2017
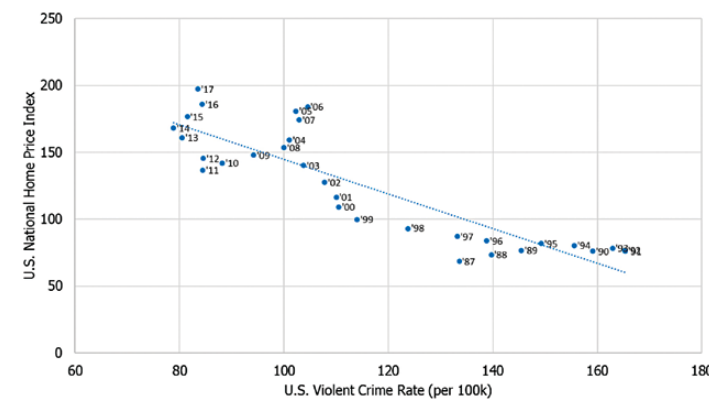
Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

The markets with the highest negative correlations included Portland, Charlotte, Boston, New York, and Chicago.

EXHIBIT 10

Correlation Analysis: Home Values and Violent Crime Rate (1987-2017)

Rank	Market	Correlation
1	Portland, Oregon	-0.90
2	Charlotte-Mecklenburg, North Carolina	-0.89
3	Boston, Massachusetts	-0.88
	United States	-0.87
4	New York, New York	-0.87
5	Chicago, Illinois	-0.84
6	Atlanta, Georgia	-0.82
7	Los Angeles, California	-0.80
8	San Diego, California	-0.80
9	Washington, District Of Columbia	-0.79
10	Tampa, Florida	-0.79
11	Miami, Florida	-0.78
12	Seattle, Washington	-0.75
13	San Francisco, California	-0.75
	Average of 20 Markets (Unweighted)	-0.69
14	Phoenix, Arizona	-0.60
15	Denver, Colorado	-0.55
16	Minneapolis, Minnesota	-0.55
17	Dallas, Texas	-0.53
18	Detroit, Michigan	-0.48
19	Cleveland, Ohio	-0.34
	Average of 20 Markets (Weighted)	-0.29
20	Las Vegas, Nevada	-0.05

Source: New York Life Real Estate Investors, S&P Case-Shiller Home Price Indices, Federal Bureau of Investigation

As an additional check on our CRE analysis, we also analyzed other factors including GDP, GDP per Capita, and population changes in order to ascertain if the negative correlations with VC applied to these economic and demographic indicators.

GDP

Gross Domestic Product (GDP) is a common way to measure the size and strength of economies. GDP has four components; consumption, investment, government spending, and net exports. The consumption component constitutes nearly 70% of GDP in the US and is driven by a wide range of income and wealth sources. Gross GDP measures the size of the local economy. Since the size of the population has a significant influence over the size of the economy, we have also analyzed it on a GDP per capita basis.

During the observation period of 2001-2017, 79% of the 71 markets analyzed displayed a negative correlation between GDP growth and change in violent crime. The unweighted average correlation of the 71 markets we analyzed was -0.35, while the weighted average correlation of the 71 markets had a correlation coefficient of -0.92. The overall correlation between the United States real GDP relative to the national violent crime rate as calculated by the FBI is -0.83.

The markets with the highest negative correlations included Portland, Washington, McAllen, Boston, and Columbus.

EXHIBIT 11

Correlation Analysis: Real GDP and Violent Crime Rate (2001-2017)

Rank	Market	Correlation
1	Portland, Oregon	-0.96
2	Washington, District Of Columbia	-0.95
3	McAllen, Texas	-0.95
	Average of 71 Markets (Weighted)	-0.92
4	Boston, Massachusetts	-0.90
5	Columbus, Ohio	-0.90
6	Richmond, Virginia	-0.88
7	Raleigh, North Carolina	-0.87
8	Providence, Rhode Island	-0.87
9	Houston, Texas	-0.86
10	Pittsburgh, Pennsylvania	-0.86
11	Cincinnati, Ohio	-0.85
	United States	-0.83
12	San Diego, California	-0.82
13	Charleston, South Carolina	-0.81
14	Tampa, Florida	-0.81
15	Atlanta, Georgia	-0.79
16	Dallas, Texas	-0.78
17	Columbia, South Carolina	-0.78
18	Philadelphia, Pennsylvania	-0.77
19	New York, New York	-0.77
20	Nashville, Tennessee	-0.76
	Average of 71 Markets (Unweighted)	-0.35

Source: New York Life Real Estate Investors, US Bureau of Economic Analysis, Federal Bureau of Investigation

Real GDP per Capita

During the observation period of 2001-2017, 56% of the 71 markets analyzed displayed a negative correlation between GDP per capita growth and the change in violent crime. The unweighted average correlation of the 71 markets we analyzed was -0.07, while the weighted average correlation of the 71 markets had a correlation coefficient of -0.68. The overall correlation between the United States real GDP per capita relative to the national violent crime rate as calculated by the FBI is -0.83.

The markets with the highest negative correlations included Portland, Providence, Pittsburgh, Boston, and Cincinnati.

EXHIBIT 12

Correlation Analysis: Real GDP Per Capita and Violent Crime Rate (2001-2017)

Rank	Market	Correlation
1	Portland, Oregon	-0.94
2	Providence, Rhode Island	-0.87
3	Pittsburgh, Pennsylvania	-0.85
4	Boston, Massachusetts	-0.83
5	Cincinnati, Ohio	-0.82
6	Houston, Texas	-0.80
7	New York, New York	-0.79
8	McAllen, Texas	-0.77
9	Philadelphia, Pennsylvania	-0.73
10	Washington, District Of Columbia	-0.71
11	Los Angeles, California	-0.70
	Average of 71 Markets (Weighted)	-0.68
	United States	-0.65
12	Austin, Texas	-0.65
13	Tulsa, Oklahoma	-0.64
14	Seattle, Washington	-0.63
15	Columbus, Ohio	-0.61
16	Omaha, Nebraska	-0.57
17	Buffalo, New York	-0.56
18	Baltimore, Maryland	-0.54
19	Nashville, Tennessee	-0.50
20	Dallas, Texas	-0.49
	Average of 71 Markets (Unweighted)	-0.07

Source: New York Life Real Estate Investors, US Bureau of Economic Analysis, Federal Bureau of Investigation

Population

Population change is a relatively slow-moving indicator as people migrate gradually over time as a response to quality of life issues such as violent crime. During the observation period of 1985-2017, 88% of the 72 markets analyzed displayed a negative correlation. The unweighted average correlation of the 72 markets we analyzed was -0.50, while the weighted average correlation of the 72 markets had a correlation coefficient of -0.86. The overall correlation between the entire United States population relative to the national violent crime rate as calculated by the FBI is -0.88.

The markets with the highest negative correlations included Boston, Portland, New York, Tampa, and Atlanta.

EXHIBIT 13

Correlation Analysis: Metro Population and Violent Crime Rate (1985-2017)

Rank	Market	Correlation
1	Boston, Massachusetts	-0.96
2	Portland, Oregon	-0.96
3	New York, New York	-0.95
4	Tampa, Florida	-0.93
5	Atlanta, Georgia	-0.91
6	Dallas, Texas	-0.90
7	Miami, Florida	-0.90
8	Charlotte-Mecklenburg, North Carolina	-0.90
9	Seattle, Washington	-0.89
10	El Paso, Texas	-0.89
	United States	-0.88
11	Jacksonville, Florida	-0.88
12	Orlando, Florida	-0.88
13	Columbia, South Carolina	-0.87
14	Chicago, Illinois	-0.87
15	Providence, Rhode Island	-0.86
	Average of 72 Markets (Weighted)	-0.86
16	Columbus, Ohio	-0.85
17	Charleston, South Carolina	-0.84
18	Los Angeles, California	-0.84
19	Stamford, Connecticut	-0.83
20	Phoenix, Arizona	-0.83
	Average of 72 Markets (Unweighted)	-0.50

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation
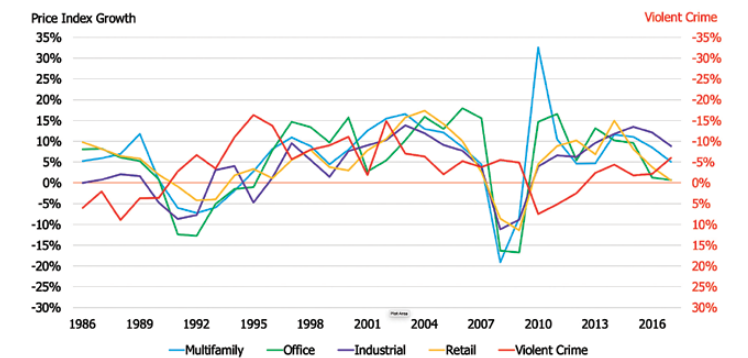
Selected Metro Areas

The following charts illustrate the inverse relationship of office, multifamily, industrial, and retail values with violent crime for selected metro areas. This relationship is impacted by other factors as well. For example, multifamily properties spiked in value after the single-family housing crisis. Charts for New York, Chicago, Atlanta, Tampa, El Paso, and Miami are presented since they have some of the highest correlations and/or are large metro areas.

Between 1960 and 1995, New York City became notorious for crime and urban deterioration. This was reflected in its increased violent crime rate, population loss and declining commercial and residential real estate values. However, in the ensuing years, violence began a remarkable decline that would render New York much safer. Commensurate with the decline in violent crime, the city experienced unprecedented commercial real estate value appreciation.

The Chicago VC/CRE correlation followed a familiar pattern. Its recent spike in violent crime seems contained to certain areas of the city away from the CBD, the Loop, and Lakefront areas. Nevertheless, this trend warrants vigilance as it may be a precursor of CRE value decline. El Paso is situated in Texas on the Mexican border directly across from Ciudad Juarez. Its decline in violent crime has exhibited a very high correlation with the increase in CRE values. Miami had a very high crime rate in the 1980s as it became an entrepôt for narcotics entering the US. As this illicit trade diminished and the associated VC rate declined, there was a rise in tourism and foreign investment. Miami reinvented itself as a center of Central American, South American, and Caribbean trade. Miami investment, and as a corollary, real estate values fluctuate in response to economic and political events taking place throughout the lower western hemisphere. Many South American economies, including Brazil, Argentina and Venezuela, are confronting harsh economic conditions and devalued currencies. This has resulted in declining values in recent years, despite a lower VC rate.

New York

EXHIBIT 14

New York CRE Values and Violent Crime (1986-2017)

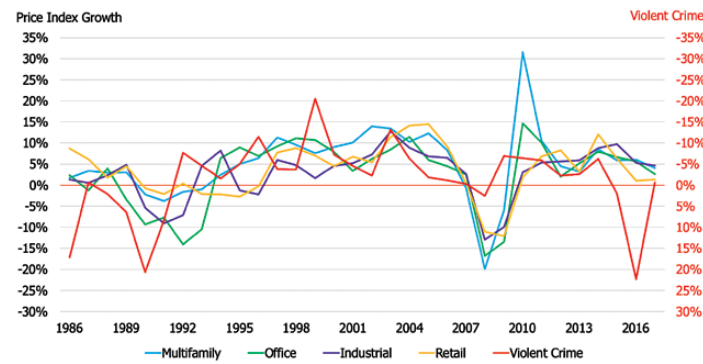Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)

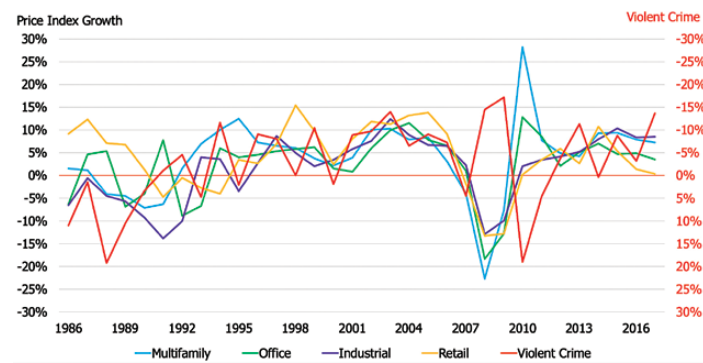
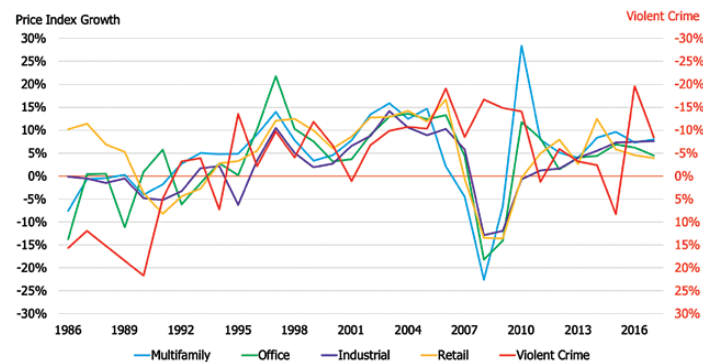Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

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Chicago

EXHIBIT 15

Chicago CRE Values and Violent Crime (1986-2017)
Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Atlanta

EXHIBIT 16

Atlanta CRE Values and Violent Crime (1986-2017)
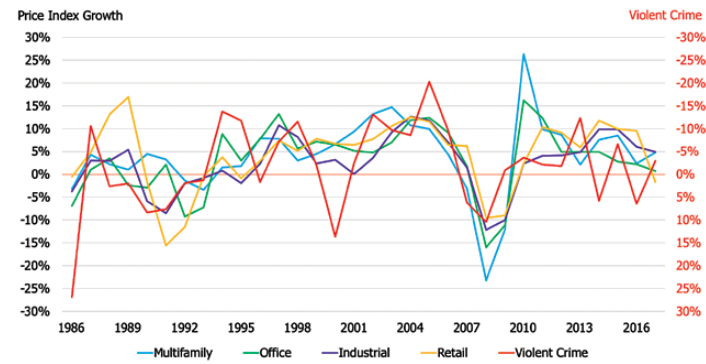Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Tampa

EXHIBIT 17

Tampa CRE Values and Violent Crime (1986-2017)
Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

El Paso

EXHIBIT 18

El Paso CRE Values and Violent Crime (1986-2017)
Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)

Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

Miami

EXHIBIT 19

Miami CRE Values and Violent Crime (1986-2017)
Yr/Yr Growth Rate, (Violent Crime axis is inverted to demonstrate inverse correlation with CRE values)
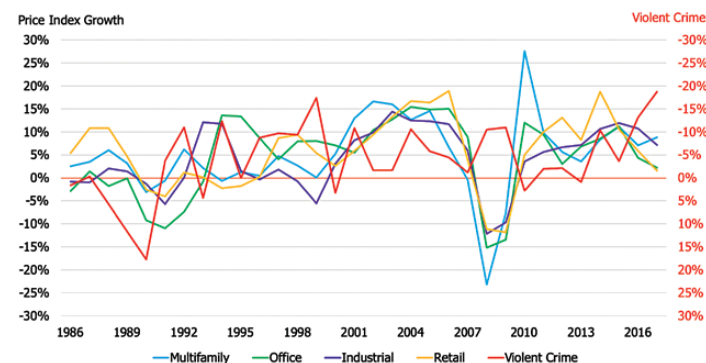
Source: New York Life Real Estate Investors, CoStar Group, Federal Bureau of Investigation

VC as Leading Indicator

The practical application of this information is that a rise in VC may be a precursor to CRE value decline, while a drop in VC may be an indication of a coming surge in CRE value. The Florida Metros of Miami (-38.5%), Ft. Lauderdale (-34.4%), Orlando (-26.9%), and Tampa (-24.7%) take four of the top six spaces amongst metros that have experienced the largest reduction in violent crime over the past five years. Rounding out the top six are New Haven, CT (-41.2%), and Atlanta (-32.1%). Albuquerque (+82.6%), Los Angeles (+58.2%), Oxnard, CA (+45.0%), Baltimore (+44.3%) and San Antonio (+40.6%) have experienced the greatest increase in violent crime over the past five years. These and other markets exhibiting significant change should be observed for possible fluctuations in commercial real estate values.

Conclusion

Violent crime increased after the mid-20th century mark until ultimately reaching its peak in 1990. As the violent crime rate decreased in the last decade of the 20th century, commercial real estate values increased. The observation periods detailed in the charts presented throughout this report exhibit a high degree of inverse correlation between violent crime and commercial real estate values.

Whether the reason is that declines in violent crime cause commercial real estate values to climb or that an improving economy and/or declining interest rates causes a lift in commercial real estate values as well as a decline in violent crime – the two have been correlated.

The practical application of this information is that a rise in VC may be a precursor to CRE value decline, conversely a drop in VC may be an indication of a coming surge in CRE value. VC as an indicator is just one of many tools used to gauge market direction.

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i   In the FBI's Uniform Crime Reporting (UCR) Program, violent crime is composed of four offenses: murder and nonnegligent manslaughter, rape, robbery, and aggravated assault. Violent crimes are defined in the UCR Program as those offenses that involve force or threat of force. The violent crime rate and murder rate are calculated per 100,000 in population.

ii   Many violent crimes are underreported (https://www.pewresearch.org/fact-tank/2019/01/03/5-facts-about-crime-in-the-u-s/) – however, murders, by their very nature are almost always recorded. Accordingly, it would seem that the murder rate is a better proxy for safety. Nevertheless, we focus on the violent crime rate since there are significantly more observations for violent crime than for murder and the result is more statistically sound.

iii While not discounting that instinctual correlation – it is worth noting that GDP and GDP per capita had a lower negative correlation with violent crime than commercial real estate values or home values.

iv   Pearson's correlation coefficient is the covariance of the two variables divided by the product of their standard deviations. The correlations range from -1.0 (fully negatively correlated) to 1.0 (fully correlated).

Disclosures

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